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Achieving scale and spread

Learning for innovators and policy-makers

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Summary

In recent years, a significant number of innovators have made efforts to scale up and spread innovation in the NHS, and extensive research has been undertaken to support innovators in this journey. However, despite some existing work in this area (see, for example, Albury and others, 2018, and Collins, 2018), less is known about how to achieve greater scale and spread beyond the early adopters. This report seeks to help fill this knowledge gap.

The report, produced primarily as a practical resource for innovators working with the NHS, seeks to draw out proactive tactics that could support more comprehensive adoption of innovation in England. We also explored the factors affecting NHS organisations' decision-making, motivations and experiences when adopting innovation. Our approach included a review of the existing literature, semi-structured interviews with a range of innovators and adopters, a workshop with innovators, and a policy roundtable to draw out considerations for policy-makers.

What this report adds

Some of our findings have been noted elsewhere and may not come as a surprise. However, some less well-established insights warrant highlighting:

- Views on what constitutes **success** in terms of scale and spread will likely differ between actors, and this can change over time. Unless motivations between local and national NHS organisation or adopters and innovators around levels of adoption are aligned, there remains a risk of missed opportunities for greater economies of scale and consistency of care derived from more comprehensive spread.

- The NHS is a large, diverse and relatively fluid **market** for innovators. This requires innovators to have a flexible approach and willingness to adapt to changing policies and service needs, including evolving their capacity, innovation, communication and implementation support to meet the various and varying needs of different NHS organisations.

- Spreading innovation requires a strategic, long-term approach to **evidence**. This includes considering how evidence requirements may change as innovations scale beyond early adopters and a recognition that evidence is not only important for adoption but for ensuring sustained use and building reputation.

The NHS undoubtedly offers considerable opportunities for innovation. More comprehensive and consistent access to innovations has the potential to benefit not only patients but also the wider health system (through, for example, reduced system costs over the medium to longer term). However, innovators face significant challenges given the in-year financial timeframe within which the NHS operates. The NHS is also inherently complex for innovators to navigate when seeking to achieve more comprehensive adoption of their innovations.

Innovators' scaling strategies are often a combination of many different tactics and relationships, all highly dependent on context. It will likewise depend on the type of innovation, which can range from specific technologies to pathway redesigns (Albury and others, 2018; Cox and others, 2018; Ovretveit, 2011). Scaling strategies also tend to change over time as the innovator's vision of success, their market and their organisation evolve in response to new contexts.

Given the multiple, changing strategies being used, even innovators acknowledge the difficulty in identifying which specific tactic has led to a particular effect on scale and spread. That the strategies are so context-specific also makes generalising about possible effects challenging. Therefore, while we believe that the tactics presented in this report may provide useful insights for innovators, they are not intended to be prescriptive or comprehensive. Further, while some of the tactics might be distinct to the later phases of achieving scale and spread, some, equally, may apply to both early and late adopters.

Key themes

While there are rarely single or simple solutions, our analysis of existing literature and interviews suggests that innovators – along with potential adopters and national policy-makers – should be mindful of four related areas: defining and refining success; identifying and understanding the market; adapting and evolving; and generating and disseminating evidence.

Defining and refining success

Innovators' views of success guide their approach to scaling. For some, ensuring authentic and sustainable adoption of their innovation may be more important than the number of adopting sites. An innovator's goals around, for instance, reputation of the innovation, influencing national policies or financial sustainability will not necessarily require, or even be supported by, comprehensive adoption across the NHS. That said, views of what success means can also change throughout the innovator's journey to scale and spread. Key considerations for innovators within this theme are as follows:

- Consider **'depth' as well as 'breadth'**. Some see increasing the ways innovators support existing adopters as just as important as increasing the number of adopters. Success for the NHS or innovator is unlikely to solely equate to the number of adopters.

- Ensure the innovation is adopted **authentically and sustainably**. This recognises the importance of embedding innovations within the service or care pathway, for example, by supporting the workforce. From this perspective, some innovators reflect that 'mandating' their innovation would not necessarily be helpful, as it may not facilitate genuine buy-in from adopters.

- Promote **more consistent decision-making** across different NHS organisations on whether and when to adopt specific innovations. While some NHS organisations may justifiably take different views on whether to adopt an innovation, national bodies may want to incentivise individual organisations to act more consistently in order to, for example, benefit from

economies of scale or more consistent services. Efforts may be needed to align what constitutes success at a national level, for the innovator and for individual NHS adopters, for example by sharing financial risk or reimbursing innovators based on outcomes.

Identifying and understanding the market

Achieving scale and spread of innovations will likely require an approach that targets many parts of the NHS. This could include commissioners, providers and regulators. Key considerations for innovators within this theme are as follows:

- Recognise that branching into **different sectors of, or markets within, the NHS** can have a significant effect on the scale of adoption. This includes moving to sectors and markets the innovator did not necessarily envisage from the outset, such as from hospital to general practice services and vice versa. In particular, and importantly, this requires reacting to policy changes that can create new markets (for example, new organisations such as integrated care systems) and operational needs (for example, workforce management implications of extended access to general practice).

- **Target the multiple levels of stakeholders** acting within the sector in order to get an innovation successfully adopted, potentially including patients, professions, national and local bodies, commissioners and providers. Solely targeting one part of the system is unlikely to prove sufficient to guarantee successful scale and spread.

- Navigate the often complex structures and purchasing processes that exist within a potential NHS adopter. Innovators must find the **right organisation and the right people** within them – intermediary organisations such as Academic Health Science Networks can play a crucial role here (Quilter-Pinner and Muir, 2015).

Adapting and evolving

There are often significant opportunities to spread to new organisations or to meet new service requirements by adapting the innovation, its application and implementation support. However, this has to be traded off against risks to the innovation's original identity and evidence base. The innovator's organisation itself will also have to evolve to meet the likely high demands of widespread adoption. Key considerations for innovators within this theme are as follows:

- Prioritise the functions and outcomes the innovation was originally intended to deliver and **design flexibility in at the outset** to help manage these trade-offs (Albury and others, 2018).

- Be **guided by the potential adopters' needs** and **patient and user feedback**, rather than trying to promote a specific, static product.

- **Adapt and grow the innovator's organisation** in a way that supports it to operate at scale. This includes considering the most effective organisation type and business model, and recruiting people with the right clinical, marketing and financial skills and expertise to respond to the demands of scaling.

Generating and disseminating evidence

A range of evidence is required at all points in the scaling journey to overcome barriers to spread. Demonstrating the clinical effectiveness, financial implications and real-world success of an innovation requires significant resources and time on the part of the innovator. Working alongside adopters on continual evidence generation and dissemination is also important. Key considerations for innovators within this theme are as follows:

- Grow a **stock of different types of evidence**, such as business cases, peer-reviewed papers, and practical case studies. This becomes increasingly important when moving beyond early adopters.

- **Tailor evidence** to local NHS audiences. This may involve framing international evidence to suit a local setting, live demonstrations of the innovation in practice or local site visits, to show potential adopters what it looks like in a real-world, NHS setting.

- **Build the innovator's reputation** as a good organisation to work with. Evidencing this through press releases, case studies, recommendations by early adopters and word of mouth is deemed as important as building evidence on the innovation itself.

- **Generate evidence after adoption**, including data on how the innovation is being used and how effective it is in practice in a local context. This can help to persuade existing adopters to renew contracts, create real-world evidence of success to demonstrate to potential new adopters, and help innovators adapt quickly to any emerging problems.

Policy implications

As highlighted already, the majority of the considerations we have identified are primarily directed at innovators (a more detailed list is presented in Chapter 6, Figure 8, p. 46). However, we have also identified some national policy implications (outlined in more detail in Chapter 6) for consideration:

- The focus should be, where possible, on **metrics of success** which go beyond measures of spread (such as number of sites 'live' or number of products sold), and account for the desired outcomes for both the NHS and the innovator, and the innovator's tolerance for adaptations.

- The impact of previous **funding** to support implementation should be evaluated and, if appropriate, made more readily available and widespread for implementing some innovations.

- Where widespread adoption would be particularly beneficial to the NHS as a whole (for example, to promote economies of scale), a **range of interventions** should be used to encourage adoption, such as contractual requirements, regulation, incentives, guidance and skills development.

- While adopters' **evidence needs** may vary according to the adoption stage, there would be benefit in defining the evidence thresholds for national initiatives across important dimensions (such as clinical outcomes, user experience and cost-benefit).

- Adopting innovations can be time and resource-consuming for adopters, and it is important to ensure the **NHS workforce as a whole is engaged** and equipped to support this.

The complicated nature of strategies to scale and spread, coupled with the complex and diverse nature of the organisations that constitute the NHS, mean that the rate of scale and spread of innovation across these individual organisations is difficult to predict and likely to follow an uneven trajectory. Certainly, established innovators report that, in hindsight, it is easy to underestimate the time it takes to embed innovation across the NHS in a sustainable way. Perseverance is crucial.

However, many innovators have been successful in achieving scale and spread, and we heard that the NHS is viewed as a fertile place for innovation. Realising the potential benefits to patients and the wider health system of more comprehensive and consistent access to particularly promising innovations will require action from innovators and local and national NHS bodies. The insights, tactics and implications covered in this report provide some key considerations to help navigate this challenging and important journey.

1 Introduction

With the NHS under pressure to meet rising demand, the use of proven innovation is likely to be part of the solution to meeting that demand. *The NHS Long Term Plan* recognises the wide-ranging benefits to patients from innovation, including the 'prevention of ill-health, earlier diagnosis, more effective treatments, better outcomes and fast recovery' (NHS England, 2019). The Plan sets out the latest proposals in a decade of concerted national policy effort to 'speed up the path from innovation to business-as-usual' (NHS England, 2019) (see Figure 1).

Significant research has been undertaken to help innovators understand how to get their innovations into the NHS (for example, Albury and others, 2018; Collins, 2018). However, less is known about how to achieve greater scale and spread beyond early adopters. Building on existing work in this area, this report seeks to help fill this knowledge gap.

We focus in particular on the practical, proactive actions that innovators can consider taking, and the factors affecting NHS organisations' decision-making, motivations and experiences when adopting or decommissioning innovations.

Figure 1: Timeline of key policy initiatives over the past decade to drive spread

Dec 2011	**Innovation, Health and Wealth: Accelerating Adoption and Diffusion in the NHS (report published by Department of Health in December 2011)** • Set out a delivery agenda for spreading innovation within the NHS
2013	**Small Business Research Initiative (SBRI)** • Delivered by Innovate UK • Provides small and medium-sized enterprises a route to market, bridging the seed funding gap experienced by many early stage companies
2013	**NICE Technology Appraisals in the NHS in England and Innovation Scorecard** • Recommendations on the use of new and existing medicines and treatments in the NHS • Based on reviews of clinical and economic evidence • Innovation Scorecard published quarterly since January 2013 – used to monitor progress in implementing NICE technology appraisal recommendations
2012 & 2015	**Nursing Technology Fund** • Two rounds of funding to support nurses and midwives make better use of digital technology in care settings

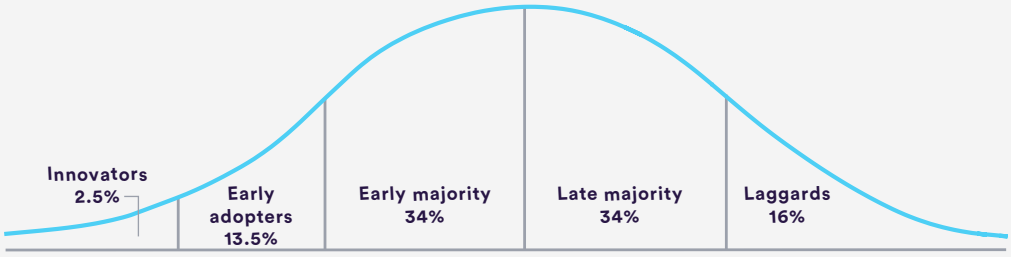
2013	**Academic Health Science Networks (AHSNs) established** • Established by NHS England to support scale and spread of innovation • 15 AHSNs covering defined geographical areas • Aim is to connect NHS and academic organisations, local authorities, the third sector and industry
Oct 2014	**NHS Five Year Forward View** • Included steps to accelerate innovation in new treatments, diagnostics and care pathways including a focus on 'combinatorial innovation' • Describes numerous ways of doing this including the Test Beds, healthy 'new towns' and a focus on expanding operational research within the NHS
2015	**NHS Innovation Accelerator established** • NHS England initiative delivered in partnership with 15 Academic Health Science Networks • Aim is to accelerate the uptake of high-impact innovations and provide real-time practical insights on scale and spread • A cohort of Fellows are supported each year with mentoring, peer learning, events and workshops as well as access to a bursary
2016	**Clinical Entrepreneur training programme launched** • Designed to offer opportunities for clinical, NHS staff and wider healthcare professionals to develop entrepreneurial aspirations • Programme includes events, education, placements and mentoring
Jun 2016	**Innovation and Technology Payment (June 2017 – this built on the previous Innovation and Technology Tariff June 2016)** • Aims to support the NHS in adopting innovation by removing financial or procurement barriers to uptake of innovative products or technologies (particular response to FYFV)
Oct 2016	**Accelerated Access Review (final report published October 2016)** • Set out recommendations to speed up access to innovative healthcare and technologies to improve efficiency and outcomes for NHS patients
2016	**Accelerated Access Collaborative** • Formed in response to the publication of the Accelerated Access Review • Brings together industry, government and the NHS to remove barriers to uptake of innovations – enables NHS patients to have faster access to innovations • Support innovation across development pipeline from research to scale and spread
2016	**NHS Testbeds Program Wave 1 (2016) and Wave 2** • Brings together NHS organisations and industry partners together to test combinations of digital technologies with pathway redesign in real-world settings
2017	**Life Sciences Industrial Strategy** • Provides recommendations to government on long-term success of the life sciences sector – NHS collaboration is one of seven themes
2018	**Health Systems Support Framework (HSSF) – suppliers added from 2018** • Developed to support ICSs/ STPs procure solutions to improve integrated care and population health (to support aims of FYFV)
Oct 2018	**The Future of Healthcare** • Government's vision for digital, data and technology in health and care • Aim is to create the right environment for digital to flourish while maintaining local flexibility
Jan 2019	**NHS Long-Term Plan** • Contains commitments on digitisation for organisations, the workforce and patients • Key commitment for all secondary care providers to be 'fully' digitised by 2024
May 2019	**International Research and Innovation Strategy (DBEIS)** • Sets out government strategy for international collaboration to tackle global challenges and support economic growth
Jul 2019	**NHSX established** • Brings together teams working on digital, data and technology across the Department of Health and Social Care, NHS England and NHS Improvement • Purpose is to deliver The Future of Healthcare, building on the NHS Long-Term Plan

Conceptualising scale and spread

Previous characterisations of the scale and spread of innovations, such as the 'adoption curve' (Rogers, 2003) (see Figure 2), offer innovators, policy-makers and researchers a starting point to conceptualise the market. However, scaling is often 'a messier reality' (Albury and others, 2018). In particular, the market – or indeed markets – and innovation itself do not remain static, so affecting the trajectory of the adoption journey (Lanham and others, 2013). Our work reiterates that a more nuanced understanding of scale and spread is required. We therefore do not seek to directly refer to the adoption curve, although we do differentiate between early adoption and subsequent scale and spread.

As well as conceptualising the adoption curve, we sought – from the outset – to develop some assertions about the risks and opportunities with regard to greater scale and spread. This resulting conceptual framework – available here – raised some potentially key issues and ideas by describing the value judgements that various stakeholders theoretically make. An overview of some aspects affecting the spread of innovation is reproduced in Table 1, which are described in more detail in the linked paper.

Figure 2: The adoption curve



Source: Rogers, 2003.

Table 1: Aspects affecting spread of innovation

Aspect	Description
The market	The potential adopters of any innovation are likely to be large in number, diverse in nature and change over time.
The value proposition and costs	Each innovation will have a number of costs and benefits associated with implementing it. These may vary in number, impact or timelag for realising them.
The potential adopters	Each potential adopter is influenced by its individual perceptions of, and priority, towards, each of the stated costs and benefits.
The competition	Potential adopters not only have to weigh up an innovation's costs with its benefits but also compare this to current and future alternative solutions.
Pricing and support	The innovator can vary prices and support, as well as generate evidence, to help achieve its desired level of coverage for the innovation.
National oversight considerations	National or regional bodies may want to intervene to, for instance, ensure the NHS benefits from economies of scale or consistency across services.

Approach

Our fieldwork – undertaken between September and November 2019 – primarily consisted of the following:

- **a literature review**, with findings extracted from 40 'grey literature' papers and 39 academic papers, alongside a pragmatic review of policy literature (further details on how we identified the literature are included in Appendix 1)

- **eight case studies** involving a total of 14 semi-structured interviews – nine interviews with innovators (for one innovation we interviewed two people) and, across two innovations, five interviews with adopting sites (summaries of the case studies are presented in Appendix 2)

- **a workshop session** with 21 Fellows of the NHS Innovation Accelerator, to test our findings from the interviews and gather further insights

- **a policy roundtable**, to test our findings and discuss the wider implications with 25 stakeholders representing a variety of sectors, including health care providers and commissioners, national policy organisations and academia

- **a Research Advisory Group**, hosted by the NHS Innovation Accelerator, which supported the project throughout and met three times during its duration.

Note on terminology

The terminology in this area is wide-ranging and the language used to describe diffusion is often used interchangeably. Some reports have sought to differentiate between scale and spread (for example, Albury and others, 2011; 2018). However, our interviewees referred to scale, spread and also diffusion interchangeably. Further details on the distinctions made within the literature are available in the Glossary (p. 48).

2 Defining and refining success

Views of success are likely to be multifaceted and change over time

Innovators' overarching ambitions for success will likely determine their approach to scale and spread. But, the stage of the innovator's journey is important: some will be seeking scale and spread; some will instead be laying the foundations to enable them to achieve this later; while others may not be seeking scale and spread – at least at that point in time – either because of a lack of a developed plan or because it does not align with their current priorities.

During our interviews, innovators defined success in various ways. For some, success was in part considered in terms of the number of units sold or the percentage of population coverage. Others had wider, overarching ambitions such as a particular mission or policy change. Having a clear vision has been shown to be an effective part of successfully scaling social innovation (Deacon, 2016), as well as ensuring that the vision is aligned with the innovation's users (Albury and others, 2018).

Innovators also varied in terms of what they valued, for example:

- positive clinical trials and real-world results
- the "visibility and prestige" of becoming a Fellow of the NHS Innovation Accelerator
- word-of-mouth sales as a marker of visibility
- a strong reputation, with "external validation… [being] more important than winning the next contract".

One innovator talked about how becoming successful in the NHS made them more ambitious (for example, to work internationally).

Aligning ambitions with those of the NHS

While all the innovators we interviewed were aiming to address problems within the NHS, some specifically aligned their views of success with those of the NHS. They considered this as a tactic to achieve scale and spread, and to prevent them being seen as an outside company. This included aligning their ambitions with what they perceived to be the most pressing challenges facing the NHS on a day-to-day basis (such as workforce shortages or the prevalence of particular conditions) through "shared objectives, shared goals [and] shared motivations".

Innovation being driven by the specific needs of NHS organisations – rather than being seen as a 'solution looking for a problem' (as noted by the NHS Innovation Accelerator Research Advisory Group) – is important if innovators are to achieve scale and spread. Remaining open to addressing new challenges, for example through adaptations, may be particularly important here (see Chapter 4).

Influencing how the innovation is used

Innovators often view the capability of their innovation to address wider challenges facing the health service as its most beneficial aspect. This may include enabling earlier intervention, transforming staff roles or empowering patients to take a greater role in their care, and is often the case for digital innovations (Collins, 2018). To this end, the *way* in which an innovation is used may be more important than *if* it is being used at all.

Some innovators were therefore primarily concerned with the authenticity of adoption. For one, when their innovation was not being used early enough to prevent the patient's condition from deteriorating, this was not viewed as a meaningful measure of success, despite the "buzz" it created among patients and professionals. Similarly, another innovator, whose innovation supports patient self-management, viewed primary care as the market where their innovation could have most benefit to patients despite having it adopted in secondary care.

Balancing the breadth and depth of scale and spread

Innovators' overarching ambitions also affected their views of scale and spread. In particular, they did not view solely spreading to new sites as the primary objective. Scaling is sometimes defined as including both 'breadth' and 'depth', with the former focusing on getting engagement from new adopters and the latter focusing on increasing presence within existing adopters (Cox and others, 2018). Innovators – particularly those with digital innovations – shared this understanding. Getting a "bigger footprint" within an adopter by increasing the ways they support them was a significant way of measuring scale. Innovators felt that people who already worked with them and trusted them would be more likely to continue working with them. It also provided them with an opportunity to continually develop their product.

Innovators were also clear about the potential negative consequences of "scaling too quickly", as a result of focusing exclusively on expanding to new NHS organisations, rather than embedding existing work. One innovator, for example, felt that had they only focused on scaling to more providers, it would have required significant financial and organisational resources, which they did not want to risk at the time.

The importance of sustainability

Innovators therefore thought that scaling sustainably and achieving "lasting" change were more important than numbers of adopters. They recognised that implementing their innovation was not solely about the initial decision to adopt, but also about a continuous process of embedding and optimisation. As a result, many innovators were more interested in the *quality* of adoption, and what this means for ensuring that adopters are bought in to their innovation in the long term.

Adoption of any given innovation may constitute something different depending on the locality and their particular demographic, so innovators still needed to work closely with local NHS organisations and services to support them to adopt the innovation. For one innovator, this required

them to continuously engage with clinicians to support implementation. This emphasises that innovation is not a static process, but a continuous and dynamic one, often requiring a change to existing processes and ways of working.

Innovators also reflected that they did not feel that mandating the adoption of their innovation would necessarily be the most appropriate way for them to achieve scale. While a tempting prospect for one innovator, they acknowledged in hindsight that it would not have guaranteed that adopting organisations and individuals would have been truly bought in to their innovation.

Adopters also viewed sustainability and maximising impact as important. While they may have adopted the innovation to begin with, to ensure they continued to use it in the long term, data on whether and how it was being used was essential (see Chapter 5, 'The importance of continual evidence generation', p. 39).

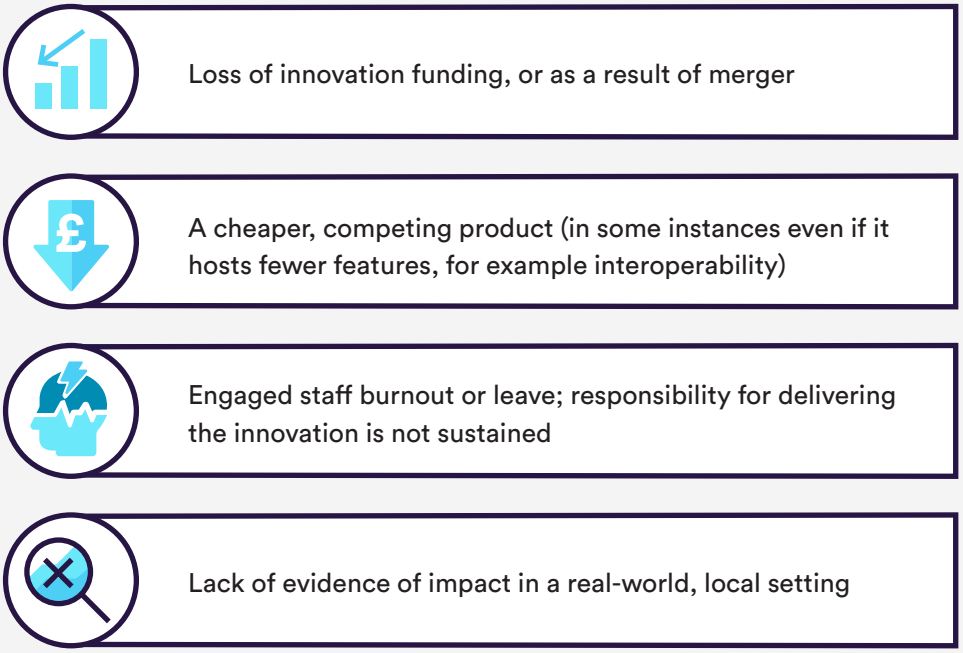
> "If a service isn't using it, have I really achieved my objective?" (adopter interview).

Ensuring continued use of the innovation

Innovators and adopters identified a number of factors that might affect the sustainability of spread (see Figure 3). Given the importance of ensuring the quality of adoption, innovators recognised the importance of supporting implementation, for example through 'boots on the ground' (Collins, 2018). Adopters also valued the support the innovators themselves provided during the implementation process. This included the use of account managers to respond to requests (such as addressing technical issues) in a timely way and hands-on training sessions.

It is important to ensure that the workforce is provided with the capacity, skills and support to continue embedding the innovation within the organisation, to prevent burnout and the risk of the innovation being abandoned. Some innovations had been accompanied by a dedicated role provided by the adopter site to support implementation, such as a nurse or administrator. This helped with for example, project management, clinical leadership and championing the innovation. To help ensure sustainability in practice, where appropriate, national bodies or local adopters should consider support to fund specific roles with responsibility for embedding an innovation, such as a dedicated health care professional, data administrator or project manager.

Figure 3: Cited reasons for not continuing to use an innovation



Funding to support success

Adequate funding is an important part of ensuring successful scale and spread. However, innovators were clear that this was only "one piece of the puzzle", and that reimbursement of the innovation cost alone was not sufficient. For adopters, the upfront costs of the innovation are also just one consideration – greater access to funding for ongoing costs, such as backfilling roles for implementation and training, would be advantageous. While government has recently invested £6 million into implementation support, made available through Pathway Transformation Funding for rapid uptake products (Department of Health and Social Care and Department for Business, Energy and Industrial Strategy, 2017), this funding is non-recurrent and highly competitive. Interviewees said that having a longer-term approach to funding was crucial. This linked to interviewees' views of funding initiatives such as the Innovation and Technology Payment (ITP), which are designed to remove some of the financial barriers to scale.[1] While considered valuable, they are not sufficient to guarantee sustained use. Interviewees gave numerous reasons for this, including:

- a lack of awareness of the initiatives at adopting sites and what innovations are available through them
- a recognition that while they may cover unit costs, they do not include funding to support implementation
- no guarantee that just because innovations are purchased, patients are using them.

Innovators have trialled ways to align financial incentives – for example by sharing financial risk – to ensure that what constitutes success at a national level is matched by the ambitions of the innovator and the willingness of individual adopting organisations (see Chapter 4). That said, innovators did not necessarily always see making innovations free to adopters through national schemes as the best way to ensure buy-in and align objectives.

1 The Innovation and Technology Payment (ITP) 2019/20, which builds on the Innovation and Technology Tariff (ITT) and ITP 2018/19, is national funding available to NHS organisations to incentivise uptake of a small number of selected innovations.

For instance, it does not necessarily help sustainability of implementation when national funding is time-limited. They did, however, recognise that it helped facilitate adoption of the innovation where there was not otherwise a clear financial case for adoption.

How to measure success, scale and spread

Innovators' views of success also have implications for how scale and spread are conceptualised – and measured – particularly by national bodies. We identified:

- a risk that national measures **focusing only on processes or number** of sites 'live' is too limited, and instead should better account for the desired outcomes for both the NHS and the innovator. For example, the Accelerated Access Collaborative have sought to address this in recent years as part of their rapid uptake products scheme, by considering not only uptake, but also sites involved and clinical outcomes.

- potential **unintended consequences** of measuring scale purely in terms of numbers (such as sites or contracts), as it may: skew national policy attention towards certain innovation types that are deemed 'easier' to adopt; overlook other key measures of success such as sustainability; and present a risk to small and medium-sized enterprises and clinical entrepreneurs who may lack the resources and capacity to scale at the necessary pace

- a risk that measures do not **capture the reality** of what is happening, such as the way in which the innovation is actually being used

- the importance of the **length of time** against which these metrics of success, scale and spread are measured – some outcomes, such as the sustainability of adoption, may be more difficult to assess within 'in-year' and annual reports and require a longer-term approach.

It may be particularly challenging to measure the success of some innovations, especially those that span care pathways or have been adapted. In addition, where patients can buy products directly, this may also have implications for how to measure scale – for example, patients may be using a product in a way not originally thought of by the innovator.

3 Identifying and understanding the market

The NHS as a fertile place for innovation

The NHS undoubtedly offers extensive opportunities for the scale and spread of innovations. Innovators we interviewed who were operating within an international market felt that, compared with other countries, the NHS was a positive place for getting their innovation adopted and stood them in good stead for scaling elsewhere. Indeed, despite well-discussed barriers to scale and spread within the NHS (Castle-Clarke and others, 2017), one described the NHS as an environment that was "fertile for innovation", particularly for digital technology. Underlying reasons for this included:

- clearly focused policies supported by dedicated teams (such as *The Future of Healthcare*, creation of the Accelerated Access Collaborative, and NHSX);
- the opportunity of having multiple entry points for innovators wanting to bring their innovation to market in a more organic, 'bottom-up' way
- greater opportunities to come together through events and conferences than in other countries
- a payment structure where organisations are not "competing" for patients in the same way that they might in other insurance-based systems.

A market of many

Although there is a single NHS in England, it is made up of a vast number of different providers of care, including some 7,000 GP practices and well over 200 acute, mental health and community trusts. The scope of the market may be even higher if you consider a particular innovation may be aimed at any of the 1.5 million people the NHS employs or the 56 million people it is responsible for caring for in England. There are, also, layers of commissioners who may well be the intended market. Not only may the number be high – therefore making comprehensive adoption challenging, particularly for smaller innovators – but also it may not be static due to, say, the creation of new services or the turnover of staff who may be potential adopters.

There are few centralised routes for medical devices or new technology, meaning a case-by-case approach with different organisations and populations is often required (Quilter-Pinner and Rae, 2018). This is made harder by a lack of transparency on the responsibilities for approving any adoption even within an NHS organisation. Innovators spoke of their frustration at needing to repeat the same conversations and processes for each new organisation that they reach out to. That said, the nationally led Health Systems Support Framework (HSSF) is intended to provide NHS organisations easier access to, for example, digital transformation tools from accredited suppliers.

Even within a particular type of organisation, there are numerous potential adopters, which vary in size, complexity, maturity, and governance and financial arrangements. Importantly, they may draw quite different conclusions on whether to adopt an innovation, in part, due to different priorities for, and perceptions of, the benefits, and capacity to meet the resource requirements such as transition costs and management resources. Previous policy recommendations suggest that there may be scope to influence the variation in willingness to adopt across organisations through, for instance, peer influence, transparent reporting, collaboration (Department of Health and NHS Improvement and Efficiency Directorate, 2011) and ensuring consistently disseminated information on the value of the innovation. NHS England and NHS Improvement are currently undertaking further work in this area. This, and wider issues around the market, are

discussed in more detail in the accompanying *Issues and ideas on adoption of innovation* paper.

The role of patients in scale and spread for patient-facing innovations

Marketing an innovation directly to patients, or allowing them to purchase the innovation directly, may sometimes be important for creating and building demand. Unlike many other markets, the NHS can typically be characterised as being comprised of agents (commissioners or providers) acting on behalf of the 'principal' or 'consumer' (the individual patient, or in some cases the clinician). As a result, demand can be 'weakened' because commissioners may not know about the types of care patients are demanding, or they may value financial savings over a willingness to take clinical risk (Quilter-Pinner and Muir, 2015). To complicate matters further, the relationship between the patient and the service can be very different depending on the particular sector, potentially requiring multiple and differing strategies (Albury and others, 2011).

Our research highlighted both the opportunities and challenges of marketing directly to patients. One innovator's strategy involved selling their innovation directly to patients through online retailers, as well as through the NHS via distributors. While they saw an increase in direct purchases, they were unable to distinguish patients from clinicians, segment customers by demographic or track how the innovation was then being used. Some adopters chose to raise awareness of innovations through national charities, local patient groups or animations in GP surgeries. Innovators should consider how best to leverage the patient voice during scale and spread, and work closely with patient-facing organisations where appropriate.

Wider policy change creating new markets

National policy is also important for driving the appetite and interest of new markets. A recent example is the introduction of integrated care systems, from which new organisations, functions and roles can emerge. Innovators cited,

for instance, the introduction of new structures such as primary care networks as providing them with opportunities for reaching new audiences (such as new workforce roles). The introduction of these new structures provided the basis for conversations about how their innovations may be adopted across the wider system.

Adopting organisations may regard the use of an innovation as a necessity for new operational needs (such as the introduction of GP accelerated access hubs). In some instances there may be a tension between the policy push towards larger organisations (such as new integrated care systems) and the capacity of smaller innovators to fulfil the needs of potentially much larger contracts (see Castle-Clarke and others, 2017; Uyarra, 2014). However, we heard that value can be created for the system and the innovator, and that significant economies of scale can be realised. Some innovators may be able to offer a lower sales price as a result, allowing a decision-maker to commission an innovation across multiple organisations under one contract. In general, a clear articulation of the implications of policy for services, and the responsibility of emerging organisations – in terms of commissioning and providing services – may help innovators.

Scaling strategies

Given the complexity of the potential market, most innovators did not set out with a clearly defined scaling strategy. They reflected that their initial approach was "quite scattergun" and a process of "trying everything". Many innovators appreciated in hindsight that new potential markets for their innovation would emerge only after they had brought it to market. In fact, many innovators we spoke to had been able to spread into new settings or sectors within the NHS that they had not necessarily envisaged at the start. For example, some innovators originally tried to get their innovation adopted in secondary care, but then moved to target primary care (or vice versa).

Our research suggested that there are ways to proactively manage decisions about identifying the right market, or markets, for an innovation. In particular, innovators noted the importance of remaining mission-driven, and being continuously guided by their overarching aims for success. While considering scale at the start can be helpful (Ibanez de Opacua, 2013), the reality is that

the extent to which an innovation scales is often reactive, and responds to new learning or policies.

The importance of a multi-pronged approach

Innovators were clear that targeting one part of the NHS was unlikely to be sufficient for achieving scale and spread. In particular, given the importance of implementation, solely targeting the buyer or decision-maker (for example, the clinical commissioning group) was not thought to be sufficient for ensuring adoption on the ground. Solely targeting patients was not seen as an effective way to achieve scale either. It is challenging to predict in advance which 'commissioning route' will be most effective for each innovation (Cox and others, 2018). Innovators might therefore be helped by greater clarity about responsibilities for commissioning and providing services, alongside support to understand the most appropriate routes for targeting their innovation.

Recognising that a single strategy would be insufficient, many innovators spoke about the importance of developing a multi-pronged strategy over time. This would involve multiple groups such as patients, staff, providers and commissioners, and likely use a combination of tactics simultaneously, including:

- raising patient awareness and stimulating demand, while engaging and supporting health care professionals to ensure 'buy-in'

- working with regional and national bodies on centrally supported rollout across the population, while engaging NHS organisations to encourage and sustain adoption at the local level

- approaching commissioners directly to fund adoption and implementation of the innovation, and working with providers of services to use and deliver the innovation.

4 Adapting and evolving

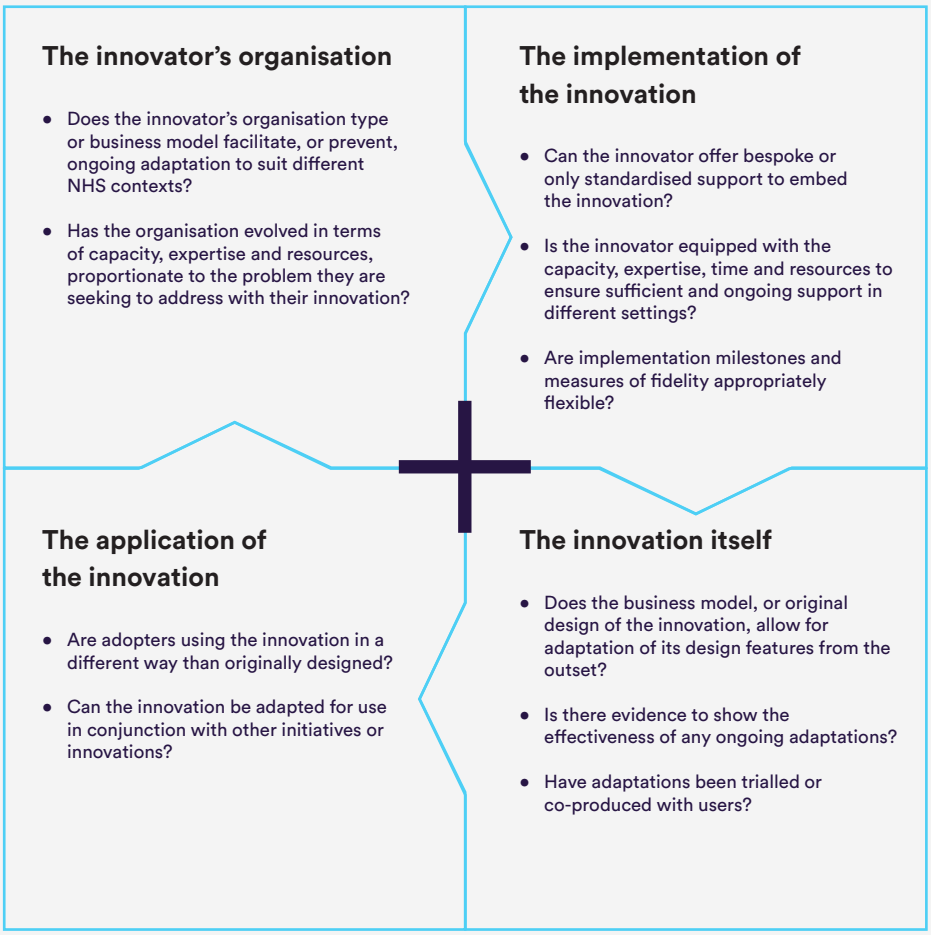
Types of adaptation to facilitate scale and spread

The need to adapt in order to scale successfully within diverse and complex systems has been widely recognised. Markets and innovations themselves do not remain static (see Lanham and others, 2013; Willis and others, 2016), meaning there are often significant opportunities for innovators to spread to new organisations within an existing market or to move into a new market to meet new service requirements by adapting. We identified four types of adaptations that innovators can consider to facilitate scale and spread (see Figure 4):

- the innovation
- its application(s)
- implementation support
- the innovator's organisation itself.

The process of spreading itself can demonstrate useful lessons that reaffirm innovators' understanding of which adaptations work, and which do not (Horton and others, 2018).

Figure 4: Types of adaptations innovators can consider to facilitate scale and spread



Remaining 'open' and 'willing' to adapt and evolve while balancing priorities

Innovators stressed the importance of maintaining an open and inquiring mindset. This included being "humble enough" to appreciate that adopters and users are joint partners in shaping what the innovation should look like and how it should be used. In practice, this can mean changing the conversation from a pitch about a static product, to a conversation about the adopters' needs and requirements. This can help to ensure that the innovation's value proposition is not 'boxed in' and facilitates ongoing dialogue about how the innovation can continue to support adopters in new

ways, to sustain its use. For some of the innovators we interviewed, adaptation of the innovation prompted decisions later about whether to enable adopting sites to rebrand the innovation as their own (known as 'white labelling'), or to share their intellectual property.

The process of continual adaptation to meet the bespoke needs of multiple users can pose challenges to remaining 'clinically, operationally, and financially viable' (Greenhalgh and others, 2017). This may be particularly acute if the innovator has limited resources. For example, some innovators found that having to expand the evidence base to cover evolving uses for their innovation can accrue unexpected, significant costs.

Prioritising adaptations

At all stages, decisions to adapt must be balanced against other factors. Some innovators regarded fidelity to core components of the innovation, its original identity and demonstrated evidence base as a key marker of success (see also Albury and others, 2018), which took priority over more widespread adoption *at all times* in their scaling journey. Yet for other innovators, granting adopters greater freedom to choose any components of the innovation they felt would be useful was more important. In this latter scenario, adopters therefore had greater flexibility to tailor and implement the innovation in different ways. However, this entailed a trade-off with the innovation's original identity and the innovator's ability to measure spread subsequently.

Focusing on outcomes can help innovators demarcate the boundaries of what can be adapted about their innovation in order to continue achieving the same impact (see Albury and others, 2018). This reiterates the importance of seeking clarity on what represents success for each of the stakeholders (see Chapter 1). Innovators should consider staying pragmatic by clearly defining the problem they are trying to fix and prioritising this when considering ongoing adaptations. Similarly they should ensure that the problem they are trying to address (and pace of adoption) is proportionate to their organisation's size, skills and capacity, to prevent any waste of resources and to stay financially viable.

Of course, some innovations may be harder to adapt than others. In one case, an international developer granted the innovator a licence to use the innovation in England but it offered limited scope to make adaptations to suit an NHS context. The scope for adaptation also depends on an adopter's pre-existing 'absorptive capacity' (Cohen and Levinthal, 1990). For more 'complex' innovations intended to support the delivery of care that cuts across multiple sectors or professional teams, the scope for further adaptation is likely to be more limited than 'simple' innovations and will require more strenuous, proactive effort on the part of both innovators and adopters.

Iterative adaptations

Innovators tried to embrace the unpredictable nature of scaling, with some making adaptations iteratively through deliberate experimentation (see also Deacon, 2016), and identifying tolerance to variation. In practice, this meant being bold enough to trial adaptations iteratively, but also developing clear red lines and sticking to these by refusing to accommodate adaptations which could be clinically unsafe or which they knew from previous experience would not work. Innovators described a number of effective approaches:

- using clinicians in their teams to help work through requests deemed unsuitable
- seeking to tackle only those issues they felt were proportionate to their organisational size, skillset and capabilities at the time
- incorporating new elements to the innovation in response to the latest clinical best practice.

Engaging with adopters and users to be guided by their requirements

Many adopters, throughout their scaling journey, respond to opportunities to spread by adapting the ways in which innovations can be used to fit the requirements of different settings, or purchaser or patient needs (see Cox and others, 2018; NHS Confederation, 2015). Innovation often needs further work as a reciprocal partnership between innovator and adopter (Illingworth

and others, 2018). Indeed, scaling is rarely a simple matter of replication, but entails 'a continual process of adaptation, refinement and reconfiguration by an expanding… group of users' (Albury and others, 2011).

As well as adapting the innovation, the innovator may provide bespoke implementation support to achieve greater scale and spread. As one innovator found, adapting the infrastructure around the innovation (including the implementation support) has been effective; Keown and others (2014) note this helps to address local constraints and demands. This could include, for example, train-the-trainer initiatives, helping to sustain and widen spread within an organisation (Hunter and others, 2015). In a further example, an innovator used external funding to recruit data administrators, as part of a broader effort to use quality improvement methods to implement and monitor the use and effectiveness of their innovation at adopting sites.

Egan and others (2018) stress that adapting to suit local circumstances is key. This is important at various stages of adoption. Innovators reiterated the importance of listening to questions from clinicians and commissioners, continual grassroots engagement with users and co-production with patients as essential parts of the adaptation process. In this light, national bodies may not be best placed to decide how innovations should be adapted within a local system for greatest impact (Collins, 2018). Instead, to help ensure sustainable adoption, national bodies could support innovators and adopters to have the time and resources to co-develop solutions based on the particular adopters' needs. As recommended by Albury and others (2018), innovators may also consider building in flexibility as a key design feature from the outset to help them meet the different objectives of potential adopters.

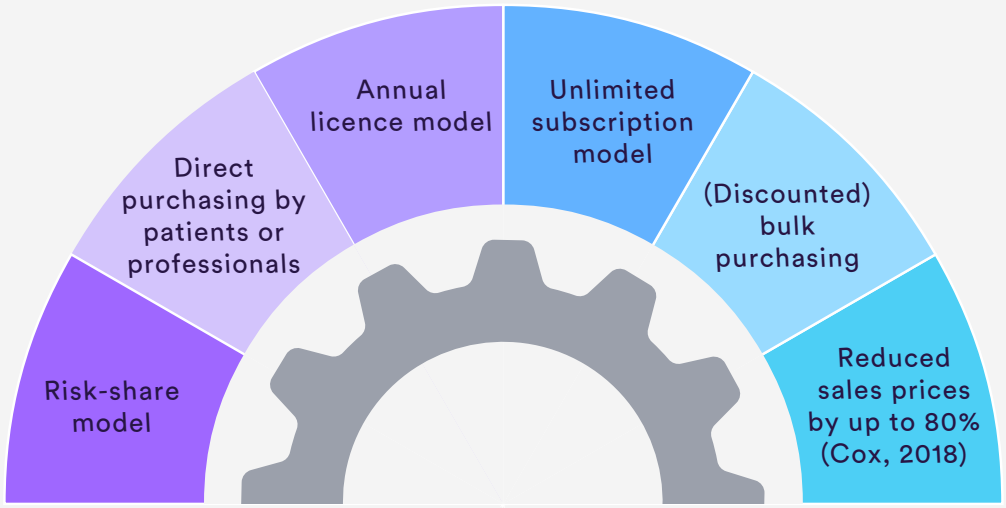
Amending their business model

Innovators also considered ways of amending their business model to support wider spread or sustainability (see Figure 5). For some, this involved moving to a subscription fee. For one innovator, the shift to a subscription fee was a recent decision after having first achieved a significant degree of spread under a different business model; for another innovator, the decision to shift to a subscription fee was directly informed by suggestions from existing adopters. One innovator described the unlimited subscription model as providing

people with "a runway" to embed their innovation, which may be particularly important for digital innovations. For another innovation, the subscription model was seen as beneficial for both the innovator and the adopter because it provided certainty over cost implications and future financial planning. Balancing financial sustainability alongside offering an attractive package to potential adopters is therefore a key consideration for innovators.

Deciding on the most appropriate business model is important. Innovators with non-commercial products at times found it easier to spread because they were not trying to "sell something" to the NHS.

Figure 5: Purchasing/business models pursued at scale



Evolving the innovator organisation to operate at scale

The importance of growing the innovator's organisation has been well documented by Albury and others (2018). At certain points in their scaling journeys, innovators' focus may have to switch from external engagement to internal capacity-building. This includes considering the most effective organisational type and business model to facilitate ongoing adaptation to suit different NHS contexts. Certain organisational types may be more beneficial for spread depending on the context. One innovator decided to establish themselves as an independent charity – rather than, say, a commercial

company – as they felt this would be more advantageous in securing research and development funding and aligning with the values of the NHS. Albury and others (2018) report that elsewhere, social enterprise models have been used to offer greater flexibility to adapt innovations and spread internationally.

Innovators also benefited from recruiting staff with appropriate expertise to respond to the demands of scaling. Some also sought to build cultural alignment with the NHS, for example through:

- hiring doctors and nurses with experience of working in the NHS
- removing the word 'sales' from job titles, to try to align motivations and grant greater credibility
- employing doubly qualified staff with experience in medicine, marketing, pharma or data analytics
- hiring proactive engagement officers and account managers to enhance their user experience. This has been previously noted by Greenhalgh and others (2012) who consider that when good relationships are maintained, the 'informal wheels are oiled for further improvement and adaptation'.

Some innovators reported using their smaller size to grant them greater agility to respond to the demands of adopters and market niches, compared with larger companies and suppliers. This in turn helped them build trust and led to a greater likelihood of achieving further spread and sustained use within existing adopters. Stirling and Shehata (2016) note this is a particular trend within the medical technology industry.

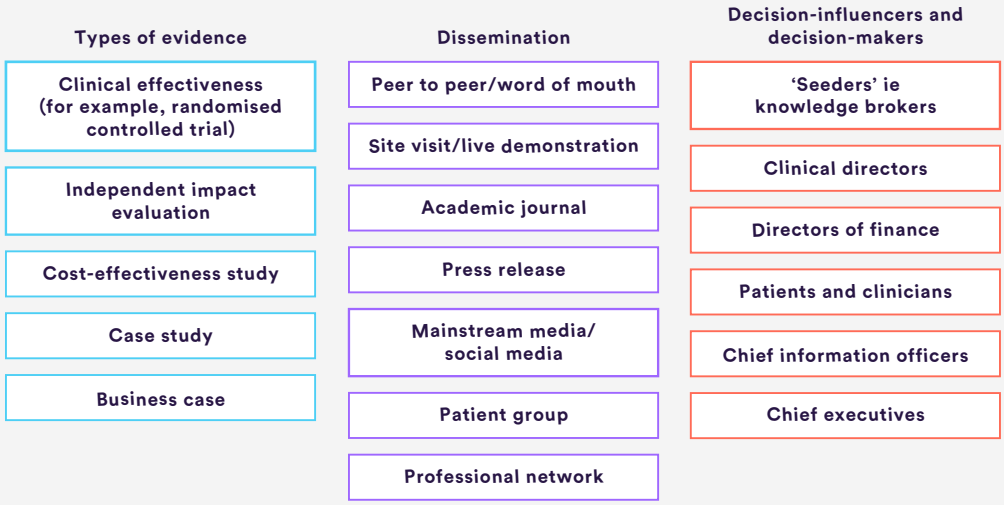
Some innovators standardised processes to respond to the demands of scaling, with some actively 'designing for diffusion' by seeking to streamline use of resources or using technology where appropriate. The scope for this varied by innovation type, though tactics included:

- introducing disciplined processes for communication with adopters and tracking potential adopters in the pipelines
- taking time to embed staff and transfer knowledge internally
- systematising and standardising "anything that is standardisable", for example by making materials available online rather than hosting resource-intensive workshops with potential adopters.

5 Generating and disseminating evidence

A plurality of evidence is required at all points in the scaling journey to overcome barriers to spread. Rarely is there one sole decision-maker and one evidence base, and different decision-makers may require different evidence to convince them to support adoption. Demonstrating the clinical effectiveness, financial implications and real-world success of an innovation requires significant time and resources on the part of the innovator. Evidence can also act as a powerful tool for "conferring trustworthiness" (Barnett et al, 2011). Working alongside adopters on continual evidence generation and implementation is also key. The array of types of evidence, communication routes, and evidence recipients – as will be discussed in this chapter – is highlighted in Figure 6. The importance of evidence – and opportunities for innovators to tailor it – are discussed in more detail in the accompanying *Issues and ideas on adoption of innovation* paper.

Figure 6: Evidence requirements when scaling and spreading



Note: Based on findings from our interviews; not intended to be comprehensive.

Evidence: audience, types and timing

All innovators were clear that generating evidence on their innovation's effectiveness is an essential precondition for getting it into the market, adopted and spread in the NHS. But the type of evidence – for example cost-effectiveness studies, real-world evaluations, local audit data or randomised controlled trials – that is necessary depends on the audience and when it is used (for example, with early enthusiast adopters, 'champions' or budget-holders). Spreading therefore requires more than just a presentation of the evidence (Illingworth and others, 2018), but careful consideration of how best to deploy it. Our work suggests the importance of considering different professions, the channel of communication and the stage of the adoption cycle.

- **Different professions**. Health care professionals typically follow in the tradition of evidence-based medicine (Barnett and others, 2011) but will place different value on different methodologies and sources and have different perceptions of credibility (Fitzgerald, 2002). Interviewees – both innovators and adopters – affirmed this. Some decision-makers, such as finance directors, might also place higher priority on evidence of an innovation being cash-releasing as opposed to improving efficiency as a whole.

- **Channel of communication**. Braithwaite and others (2018) recognise that research evidence rarely disseminates widely to the front line and that it is difficult to implement research into practice. Some innovators found that certain pieces of evidence – for example, a study carried out by the National Institute for Health Research (NIHR) highly prized by the innovator – did not always act as a "game-changer" in attracting more adopters. Instead, some innovators viewed this evidence more useful as a tool for individuals at adopting sites to convince others of the value of the adopted innovation.

- **Stage of the adoption cycle**. Adopters' appetite for different types of evidence varies across an innovator's scaling journey. Early adopters are more likely to be self-selected enthusiasts who require a narrower range of evidence. Published research and business cases may be less important

than sheer affordability for early adopters but become "essential… much later in the [scaling] cycle".

Individuals based within later adopters were thought to use various types of evidence to persuade others. Scientific evidence is only one source, but there are others (Denis and others, 2002). Therefore, for larger numbers of later adopters, growing a stock of different types of evidence – such as business cases, peer-reviewed papers, practical case studies and peer-to-peer recommendations – may help.

While there is a need for a range of evidence, our work suggested that some forms are particularly useful for scale and spread. Innovators recognised the value of independent impact evaluations, with some funded by the NHS Innovation Accelerator. For adopters, economic impact evaluations may be particularly advantageous in informing their decision-making, allowing for comparison with competing products.

Targeted use and dissemination of evidence for different purposes

Innovators used different types of evidence for different purposes. Similar findings have been reported by Barnett and others (2011), who describe the role of evidence as a precondition (for spread), as proof of effectiveness, or as a means of diffusion in itself. Some innovators focused on market-making from the outset, in part by paying close attention to more vocal sceptics (as recommended by Randall, 2015) and gathering a combination of evidence to bust common myths, making this accessible through wide dissemination on social media. For others, independent research was considered to help secure bids for further research and development (R&D) funding.

Innovators also focused on growing their reputation as a good organisation to work with, and evidencing this in a number of ways. One innovator worked intensively with fewer adopters at a time, on bespoke solutions to enhance trust, and used a variety of materials and channels to evidence their reputation and attract potential adopters. These included press releases, social media, case studies, recommendations by early adopters and the "badge" of being a

Fellow of the NHS Innovation Accelerator – to help build a "good reputation in the market, with a good product [and] good people". The innovator saw these methods as more effective than cold-calling adopters, but recognised that they slowed the pace of adoption and absorbed more resources. Other innovators used remote working to enable their employees to be based closer to adopters around the country, thereby increasing their direct contact time, or enhanced their reputation through building clinical associate networks and membership communities. They considered that building their reputation as a good company to work with was equally as important as building evidence on the innovation itself. Where relevant, early adopters and the NHS Innovation Accelerator should continue to support innovators to collate and promote evidence of their reputation as a good partner for the NHS.

Presenting evidence in a discerning way

Innovators consistently said that they framed and carefully presented their evidence in various ways to overcome adopters' perceptions of risk. Some innovators focused on identifying and engaging "seeders" within organisations (such as senior registrars) as 'decision-influencers' (Turner and others, 2017), helping to persuade anxious clinical or nursing directors to become clinical champions, who in turn influenced decision-makers such as the chief executive. For others, demonstrating cost savings in a variety of NHS settings has been critical in countering risk aversion, by promoting case studies and information sharing between earlier and later adopters, so that the decision to adopt their innovation is "a no-brainer". Using case studies to prove that no 'adverse' events had occurred helped some innovators to "get rid of the veto vote"; in this way, framing their evidence around safety, rather than explicit benefits, helped them to reach beyond early adopters.

In combination with this, some innovators overcame perceptions of risk by encouraging potential adopters to observe first-hand the innovation in action. This was achieved through live demonstrations at conferences, where people are in "curiosity mode" and willing to listen. Elsewhere, innovators enabled local site visits, to help potential adopters understand what the innovation looks like in a real-world setting, and to convince them of its value. This was particularly effective for innovations that could not demonstrate return on investment in financial terms as easily; instead seeking to 'win hearts and

minds' (Albury and others, 2018) by emphasising qualitative evidence and stories of improved patient and professional experience and satisfaction.

Framing existing evidence for local NHS contexts

Where an evidence base is international, some innovators felt it important to "leverage" this and "tweak" it to suit a local NHS audience, informed by questions from clinicians and commissioners. Combining relevant international case studies with narrative about local adopters' experiences to date has helped innovators with "winning over the clinicians and the sceptics".

Framing the innovation and its benefits in terms of an adopter's priorities was critical. Indeed, both innovators and adopters noted the importance of innovators using 'the language of the NHS' to demonstrate their organisational ethos and alignment with that of the NHS.

The importance of continual evidence generation

Many innovators suggested that continual evidence generation after adoption is critical to achieve further spread and prevent decommissioning. For adopters in particular, continual data collection on how the innovation is being used – as well as patient outcomes and scale of use – is important. In one case, funding was used to provide each adopter with a local data collector for a two-year period, to help monitor quality improvement. For another innovation, adopters were clear that any renewal of contracts was dependent on demonstrable evidence of how effectively the innovation was working in practice in a local context.

Not all innovators appreciated from the outset that adopters' motivations are driven by the next effective, affordable innovation – and continual evidence generation to stave off competition is needed to demonstrate that the innovation is the best value for money. This is difficult as not all innovations can easily demonstrate return on investment, for example

when the innovation is a care model or pathway, which seeks to enhance patient or professional experience and satisfaction but is less amenable to a causal analysis.

6 Discussion

The NHS undoubtedly offers considerable opportunities to scale and spread innovations. In the past decade, the NHS has witnessed concerted effort at national policy level to drive and support greater spread of innovations across the NHS, through coordinated national policies and programmes. In parallel, innovators have proactively developed their own tactics to work alongside national policies, through a process of trial and error, and many have successfully achieved greater spread as a result. Nevertheless, some innovators in our study still felt they were working 'against the tide' in some respects.

A single strategy is unlikely to be sufficient and will depend on the type of innovation, which can range from specific technologies to pathway redesigns. Indeed, many innovators noted the importance of developing – over time – a multi-pronged strategy using varying combinations of tactics simultaneously. From the array of measures and considerations, we have highlighted four themes in this report: defining and refining success; identifying and understanding the market; adapting and evolving; and generating and disseminating evidence. Within each of these categories, we detail below (see Figure 8 on page 46) a range of tactics that could act as prompts – rather than a comprehensive or prescriptive list – for innovators to better understand the motivations and interventions needed to achieve scale and spread.

While greater scale and spread may have significant advantages for innovators, achieving this goal may require an innovator to reflect on their mission and priorities. For instance, an innovator may have to relinquish a degree of control over how and when their innovation is used. Supporting this goal may require, for example, significant resources (such as sufficient internal capacity to work at scale) and change for the innovator (for example, revising their commercial model). Figure 7 gives further details on some of these trade-offs.

Figure 7: Examples of innovators balancing priorities when spreading

On defining and refining success

- a good organisational reputation or financial sustainability for the innovator may not necessarily require comprehensive coverage in all instances
- it may be necessary to share, for example, ownership of intellectual property or financial risk in order to scale further

On identifying the right market

- spreading into a new market may mean the innovation is not necessarily employed as originally intended
- moving into new markets may also require collection of new or different evidence

On adapting and evolving

- adapting for specific NHS contexts may help scale here but make spreading globally more challenging
- adaptations may help scale and spread but may change the innovation's original identity and pose a challenge to consistent measurement of spread

On evidence gathering and disseminating

- generating comprehensive evidence and communication of it can facilitate spread but requires significant resource and time from the innovator
- adaptations (of the innovation, its application or use setting) to enable scale and spread may require further evidence generation and resource to do so

This research particularly sought to look at innovators' journey to scale and spread beyond early adoption. While some of the tactics for spread may apply equally to early and late adopters, some are fairly distinct. Certainly, at the early stage, an innovator may see success as demonstrating value through implementation at one site, focusing on the most eager segments of the market who may be content with the innovation as it stands (without adaptations) and not require a broad evidence base (including business cases).

This research supports the findings of Albury and others (2018) and Collins (2018) but using a different set of case studies. This research also documents the various phases of scaling (assessment of scalability, development of a scaling plan, preparation of resources, and scaling an intervention) and the information needed to foster the use of these strategies – as recommended by Ben Charif and others (2017) in their systematic review of scaling evidence-based practice. It builds on existing work in the field of implementation science to distinguish and classify different types of strategies in granular

detail (see Leeman and others 2017) and provides new insight on the perceived effectiveness of tactics against outcomes for success specified by innovators themselves, in a range of health settings.

However, despite this evidence, what successful adoption and spread look like to a range of actors – innovators, commissioners, providers and national bodies – needs further unpicking. Certainly, many questions for future research remain, including those suggested by our policy roundtable delegates:

- When might successful scale of an innovation represent the best value for the public sector?

- How can you gain assurance that innovations will be commissioned equitably across populations and patient groups and so addresses inequalities?

- What is the relative importance of the various actions that innovators and others can take given certain contexts?

Implications for policy

In recent years, there has been a concerted policy focus to support the scale and spread of innovations in the NHS. This includes national funding schemes such as the Innovation and Technology Payment (ITP) and the creation of dedicated organisations that provide support and act as a knowledge broker, such as Academic Health Science Networks (see Figure 1, p.11). In addition, as innovations continue to develop at pace, the requirements for their evaluation may be subject to change over time, for example the National Institute for Health and Care Excellence (NICE) evidence standards framework for digital health technologies. While much of the focus has been on measures and considerations for innovators, the NHS as a whole also needs to reflect on what benefits – such as economies of scale and consistency of care – are delivered by the greater scale and spread of certain innovations, and what initiatives could facilitate this. Our work suggests the following:

1 The focus should be, where possible, on **metrics of success** (particularly for national initiatives) beyond measures of spread (such as number of sites 'live'). These metrics should account for the desired outcomes for both the NHS and the innovator, and the innovator's level of tolerance for adaptations. The Accelerated Access Collaborative have sought to address this by considering not only uptake, but also sites involved and clinical outcomes.

2 The impact of previous **funding** to support implementation, such as the Pathway Transformation Fund, should be evaluated. If deemed value for money, it could be made more readily available and widespread for implementing some innovations, including for training and releasing clinical time.

3 Guidance should be made available to support potential adopters as they develop their **business cases**. Such documents should include full implementation costs (including staff time) as well as consideration of upfront and indirect costs.

4 Maintaining and expanding national funding streams for independent **research** (particularly pragmatic and real-world evaluations) may help support innovators to continually generate evidence of their innovation in practice. Routinely collected data should, where appropriate, be made more accessible to both innovators and adopters so that they can track the ongoing impact of innovations.

5 Policy-makers should not assume that innovators want to spread their innovation as far as possible, or that NHS organisations will respond to a single policy lever (such as a financial incentive). Where widespread adoption of an innovation would be particularly beneficial to the NHS as a whole (for example, to promote economies of scale), a **range of measures** should be considered such as contractual requirements, regulation, incentives, guidance and skills development.

6 While adopters' **evidence needs** may vary according to the adoption stage, there would be benefit in defining the evidence thresholds for national initiatives across important dimensions (such as clinical outcomes, user experience and cost-effectiveness). Where this has not been done,

organisations can be resistant to national initiatives and lose trust in national programmes more broadly.

7 Academic Health Science Networks can provide valuable **support** to both adopters and innovators. Our fieldwork suggests that there remain opportunities for greater consistency in their approach, which the recently launched AHSN Network Innovation Exchange for supporting collaboration should help address.

8 Adopting innovations can be time and resource-consuming for both innovators and adopters, and it is important to ensure the NHS **workforce** as a whole is engaged and equipped to support this. Preparing the clinical workforce for future innovations (see e.g. the Topol Review) is key. However, recognising the role of the non-clinical workforce in supporting adoption of innovation (particularly with digital innovations) is also essential (see Castle-Clarke and Hutchings 2019). Current workforce shortages may limit the capacity for adoption of innovation, but may also provide opportunities for innovations which support staff to work more efficiently.

A significant number of innovators have forged ways to scale and spread their innovation, making use of the undoubted opportunities that the NHS has to offer. Achieving this requires innovators to be resilient, to continually reassess their vision of success and scaling strategies, and to be willing to adapt and evolve. Often this requires significant time, energy and resources in order to overcome a range of cultural, operational, structural and regulatory challenges – many of which they did not anticipate – and to make the most of the opportunities available. This report highlights an array of tactics and considerations for innovators, proven to have worked successfully in a variety of settings, as well as lessons for national and local NHS bodies.

Figure 8: Examples of key considerations for innovators to achieve scale and spread

Defining and refining success

Continue to reassess your priorities	Be prepared to reassess, and where necessary, deprioritise some of your objectives at a certain point in time in order to facilitate future spread. For example, sharing intellectual property or lowering your price point.
Align your ambitions with those of the NHS	Align your ambitions with the pressing problems facing potential adopters.
Ensure your vision is built into metrics for success	If you are part of national spread programmes, try and ensure your own measures of success are considered in order to ensure 'authentic implementation' of your innovation.

Identifying and understanding the market

Focus on aims and objectives	Identify your initial market based on your desired aims and objectives. Take assurance that your market(s) will likely change over time in response to adopter needs and policy developments. Remain mission-driven and guided by your overarching aims for success when entering new markets.
Stay alert to new opportunities for scale	New structures (such as integrated care systems and primary care networks) may offer new opportunities to reach new parts of – or more comprehensive coverage across – the system.
Target more than one 'part' of the NHS	Solely targeting the buyer, decision-maker or patient is unlikely to be sufficient for ensuring adoption on the ground. It is important to develop a multidimensional strategy over time.

Adapting and evolving

Remain open to adapting while recognising the trade-offs	Adapting and evolving to meet new contexts and user needs is key to spreading. This may involve changing the innovation's design, its application, its implementation or the innovator's organisation. Engaging with users of the innovation, listening to their priorities and identifying where they need support are fundamental to this. Decisions to change must be balanced against fidelity to core components of the innovation and the existing evidence base, as well as remaining clinically, operationally and financially viable – particularly if you are a small organisation.
Support implementation in partnership with adopters	Provide support for implementation in partnership with adopters, for example via training, responsive account managers or data administrators.
Adapt iteratively	Through a process of iterative developments and experimentation, it is possible to identify the core components of your innovation and your tolerance for changes. This is important for understanding the different ways in which your innovation can be usefully applied (particularly if it becomes part of a national programme).
Prioritise outcomes	Prioritising intended outcomes, rather than the technical components of the innovation itself, can help you demarcate the boundaries of what can be adapted. To continue achieving the same outcomes and impact, innovations must be flexible enough to adapt to new contexts.
Focus on shaping your organisation	At a certain point in your scaling journey, you may need to switch from external engagement to internal capacity-building. This may be in relation to your business model (see below), your capacity, standardising processes or your culture. For example, some have found success in aligning their culture with that of the NHS by, for example, hiring clinical staff or removing the word 'sales' from job titles. Build a reputation as a good partner for the NHS to work with.
Consider evolving your business model	Consider financial models that balance financial sustainability with attracting new adopters – for example, an annual licence model, discounted bulk purchasing, an unlimited subscription model, sharing of financial risk, direct purchasing by patients or professionals, or reducing sales prices at certain times.

Generating and disseminating evidence

Gather different types of evidence	Rarely is there one sole decision-maker and one evidence base, and each potential adopter may require different evidence to convince them to adopt an innovation.
Understand the differences in evidence requirements	Early adopters are more likely to be self-selected 'visionaries' who require a narrower range of evidence to inform their decision-making. Substantial, robust evidence of a variety of types is essential for later adopters.
Use different types of evidence to overcome adopters' perceptions of risk	Use evidence to help counter risk aversion – for example by promoting information sharing between early and later adopters, using 'seeders' to transfer knowledge or offering site visits. Use site visits and peer-to-peer communications to spread an understanding of the innovation and an appreciation of its value.
Frame existing evidence for local NHS contexts	Identify the most pressing problems for and interests of your target organisation, and frame evidence appropriately.
Constantly build the evidence base	Continual evidence generation after adoption is critical to demonstrate impact to existing adopters, sustain spread and prevent decommissioning. High-quality evidence – including studies by the National Institute for Health Research (NIHR) and guidance from the National Institute for Health and Care Excellence (NICE) – may not be enough, alone, to convince adopters. A comprehensive body of evidence including (amongst other things) case studies and real-world evaluations is also essential.

Glossary

Accelerated Access Collaborative (AAC): formed in 2018 following the independent Accelerated Access Review (2016), the AAC is a cross-sector partnership comprising industry, government and the NHS, based in a new dedicated unit within NHS England and NHS Improvement. The AAC works to support and spread innovations by identifying the most beneficial innovations for patients, and streamlining activities for those innovations deemed to have high potential.

Adopter: an NHS organisation that purchases and/or uses an innovation – for example, a clinical commissioning group, a secondary care provider, a single-handed general practice or an integrated care system.

Diffusion: the permeation of a sector or system by the innovation, which has a connotation of passive spread.

Dissemination: planned and active efforts to persuade target groups to adopt an innovation.

Innovation: a novel drug, device, app, model of care, set of behaviours or way of working that is directed at improving outcomes, efficiency or experience.

Innovator's organisation: the organisation supporting an innovator's efforts to scale and spread their innovation, elsewhere referred to as a 'scaling vehicle' (Albury and others, 2018). The organisation may take various forms, including, for example, a charity, a commercial company, a virtual social enterprise or a small or medium-sized enterprise.

Integrated care system: an alliance of NHS organisations, local authorities and third sector providers with collective responsibility for planning and organising the delivery of health and care services for their local populations. There are currently 14 integrated care systems in England, each at different stages of maturity.

Scale: increasing the numbers or sector share of those using an innovation.

Spread: an innovation being adopted by others, often displacing existing ways of working, procedures or devices.

Sources: Adapted from Albury and others (2018) and Greenhalgh and others (2004).

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Appendix 1: Detailed methodology

In this research, we sought to cover four questions:

1 To achieve widespread adoption of innovation in the NHS across the different categories of adopters in the S-curve (Rogers, 2003), are different strategies (for example, approaches and tactics) and policy interventions required?

2 When is wholesale adoption across the NHS desirable and to whom?

3 Where it is beneficial for both innovators and the system, what can national policy bodies, regional bodies (such as academic health science networks), innovators and NHS organisations do to overcome the cultural, operational, structural and regulatory barriers to adoption?

4 More generally, how can national policy bodies and academic health science networks help the NHS to embed an innovative culture across the system, rather than taking piecemeal approaches with regard to particular innovations?

Conceptual framework

We started by developing some assertions about the risks and opportunities with regard to greater scale and spread. This resulting conceptual framework – available here – raised some potentially key issues and ideas by describing the value judgements that various stakeholders theoretically make.

Literature review

The body of literature on the diffusion of innovations in health care is eclectic and extensive in scope, ranging from evidence-based medicine, to complexity science, to management. Given the time constraints, our focus was necessarily pragmatic. Our initial search strategy returned results that were neither specific nor sensitive to our topic. As well as this, due to the challenges in terminology in this area, we predominantly used a snowballing approach – a manual hand search of references – to identify the most important academic and 'grey' literature.

We initially prioritised 40 academic papers and 39 'grey literature' papers, alongside a pragmatic review of policy literature, with a focus on spread and scale beyond early adopters and which were not single case studies of implementation. These were supplemented by papers recommended by the Research Advisory Group, which was hosted by the NHS Innovation Accelerator.

Case study selection

We conducted 14 interviews in eight innovator case studies. Nine of the interviews were with the innovators (for one innovation, we interviewed two people). For two of the eight innovations, we also interviewed five adopter sites (three and two respectively).

We used maximum variation sampling to identify our interviewees, representing the range of variation within the population of innovations in the NHS. Our decision was based on the widest range of characteristics possible:

- innovation type (for example, digital, device, pathway, new care model)
- complexity of the innovation (for example, intended level of disruption)
- patient-facing or non-patient-facing (for example, clinician-facing)
- commercial or not-for-profit
- type of adopting site
- innovators who received support from the NHS Innovation Accelerator and those who received support through other means.

Workshop

We also conducted a workshop with 21 NHS Innovation Accelerator Fellows, organised by the NHS Innovation Accelerator. The purpose was to test our findings from the interviews and triangulate our results.

Policy roundtable

In September 2019, we held a roundtable with 25 stakeholders representing a variety of sectors, including health care providers and commissioners, national policy organisations and academia. The purpose was to present our emerging findings, discuss the implications for policy and practice and identify possible recommendations.

Research Advisory Group

The Research Advisory Group informed and guided our approach throughout the project. This group met three times during the course of the project. We are very grateful for their insights and comments.

Member	Role
Adrian Baker	Senior Manager, NHS England and NHS Improvement
Amanda Begley	Director, NHS Innovation Accelerator
Laura Boyd	Deputy Director, NHS Innovation Accelerator
Sophie Castle-Clarke	Senior Fellow, Nuffield Trust
Nigel Edwards	CEO, The Nuffield Trust
Gary Ford	CEO, Oxford AHSN
Elena Georgiou	Patient Representative
Nina Hemmings	Researcher, Nuffield Trust
Sarah Henderson	Assistant Director, The Health Foundation
Tim Horton	Associate Director, The Health Foundation
Rachel Hutchings	Researcher, Nuffield Trust
Elizabeth Lloyd-Dehler	Patient Representative
William Palmer	Senior Fellow, Nuffield Trust
Saskia Roddick	NHS Innovation Accelerator Fellow
Harry Scarbrough	Co-Director of CHIR (Centre for Healthcare Innovation Research), City University
Debbie Wake	NHS Innovation Accelerator Fellow

Appendix 2: Innovator case studies

The following eight case studies provide details about:

- each innovation
- how innovators' tactics were formulated
- their effectiveness in achieving spread in a variety of settings
- the considerations innovators made when choosing these tactics against achieving other objectives.

Two of the eight case studies include insights from adopting organisations.

KardiaMobile

KardiaMobile is a mobile electrocardiogram (ECG) recorder that instantly analyses and interprets heart recordings. It can identify atrial fibrillation (AF), a leading cause of stroke.

Key insights for scale and spread:

- A dual strategy to reach patients and health care professionals
- Continually building a large and varied evidence base
- Remaining open and flexible to adapt to new applications for the innovation
- Using champions, events and marketing to reach new adopters
- Involvement in national initiatives – building networks and utilising funding opportunities

A dual strategy to reach patients and healthcare professionals

KardiaMobile is marketed directly to patients, health care professionals and NHS organisations. At the start, the approach was to try everything to see who would want the innovation, and who would benefit most. It became apparent early on that the device demonstrated the greatest value for patients with symptomatic atrial fibrillation. Focus therefore moved to targeting uptake in the care pathway for this group of patients. The first uses in the NHS were within secondary care.

Targeting patients and professionals in a dual process has consistently been a focal point of Alivecor's scaling strategy – solely targeting one group was not viewed as a sustainable approach to scale.

> *"It's fair to sell directly to patient groups who are looking for these things but you cannot neglect the physician. Patients may ask physicians whether or not to buy them – they might buy it themselves, or act as a recommender or adviser to patients. No matter what we do we must focus on both."*

For Alivecor, views of success have changed over time to match the reality of scaling. At first, Alivecor felt huge expectations from both patients and professionals about the transformative potential of the device, but the reality of how long it took to scale was different. These delays partly related to the nature of the innovation, which cuts across a lot of established ways of working. This meant it took a lot longer to achieve the levels of success that were originally anticipated.

Initial implementations in secondary care were driven by individual clinical champions who were particularly enthusiastic about the product. However, the innovator did not view this as a way to achieve widespread, sustainable spread.

> *"Although there were champions committed to seeing the patient benefit, it was not enough to say it was a business."*

There were also challenges in achieving scale within the direct-to-patient market. Patients could purchase the devices directly and most communication regarding the device was on health forums and via patient organisations. However, this was only reaching people who were actively looking for a device. Alivecor felt that in order to reach the maximum number of patients who would benefit, it needed to shift its focus towards primary care.

Adapting to a new setting – moving to primary care

The focus in the NHS on primary care came after Alivecor's involvement with the NHS Innovation Accelerator. The intention was to ensure that patients could receive the innovation and benefit from it "as early in the food chain as possible." However, this was not without its complexities. Often, it was a case of having to win every single GP over in turn, which was labour intensive. As well as reaching out to groups of clinicians through conferences and events, Alivecor was supported by the work of the Arrhythmia Alliance – a coalition of charities, patient groups, patients, carers, medical groups and allied professionals – who (along with the Academic Health Science Networks) were at the time continuing to raise awareness of Atrial Fibrillation in general.

Continually building a large and varied evidence base

Building the evidence base has been an important part of Alivecor's journey to scale and spread and there are currently over 80 peer reviewed studies on KardiaMobile.[2] The evidence base is hugely varied including randomised control trials, local audits, case studies and cost-effectiveness studies. At time of interview, the Lancet had recently published a paper about the identification of atrial fibrillation in emergency care. KardiaMobile has also been the subject of a NICE Medtech Innovation Briefing (2015).

Although there is a lot of evidence on KardiaMobile, the innovator felt its usefulness depends on the type, audience and time it is used – evidence around how well the technology works is essential for getting it onto the market, but information on cost-effectiveness and how well it would work in a real world-setting is also necessary. In primary care, peer-to-peer recommendations were seen as most influential.

2 www.alivecor.com/research

Remaining open and flexible to adapt to new applications for the innovation

While the core elements of the innovation and how it works have not changed, the way it has been used and the different applications for it has.

> *"With an innovation, you bring it to the market and have a certain picture of what customers want. It's only when you are in the market that you see what patients want to use it for."*

As KardiaMobile can be purchased directly, people have begun using it to solve problems that the innovator had not necessarily envisaged. Their approach has been to stay fairly open to new applications for the device. As such, it was seen as an advantage that the device is so easily accessible. Customers can just buy it, try it and feed back to the company about how they use it.

This means that the conversation around how KardiaMobile can be used in the future is a live one; its ambition for scale and spread continue to expand, with some discussions about whether KardiaMobile could be used more extensively in screening.

> *"You need to understand where the gaps are in the market and how your solution fits in."*

Using champions, events and direct marketing to reach new adopters

On reflection, reaching early adopters in primary and secondary care was seen as quite straightforward because they were already enthusiastic individuals who were "willing to have a go." Alivecor felt that a key enabler for moving to the "mainstream", was to find advocates from the early adopters to act as champions. This proved very effective. Where clinicians were keen to demonstrate it to colleagues, Alivecor did its best to support. Patient champions were also always important throughout their journey and the patient voice has always been central to promoting the device.

Attending events and conferences is also important – the "trick" is how to get the right people to come and visit the stands. Direct marketing (for example through television and newspapers) was viewed as the "best thing we did." Finding the right distribution channels and networks, and partners to work with was also an essential part of their scaling strategy.

Involvement in national initiatives – building networks and utilising funding opportunities

Alivecor has been involved in numerous national initiatives to support innovation spread including Wave One of the NHS England Test Beds programme, and the Innovation Technology Tariff (ITT). The AHSNs have also been key, particularly for building awareness of the innovation through their work on arrhythmia, and for this reason were seen as "crucial in that success story." Although not the "silver bullet", Alivecor considered that national programmes can be especially helpful for building networks and generating learning and experience. Timing of support is also important; they became a part of the NHS Innovation Accelerator in 2015 at the point of moving from early adopters, and found the personal support particularly important at this time.

> *"The biggest support was on a personal level. I had a system of allies and people that will help you, open doors for you, and introduce you to people that can help you."*

Patients Know Best

Patients Know Best (PKB) aims to help patients manage their health by providing them with all of the data that is held about them from any health or non-health institution, as well as data that the patient provides themselves. Founded in 2008 by a patient with a rare condition who wanted to have access to his own records, their intention is to:

- Transform clinical pathways and improve efficiency through better, more accessible data and;
- Empower patients and help them to self-manage

PKB is currently in use in over 200 sites across seven countries.

Key insights for scale and spread:

- A worldwide vision of scale and success
- Evolving the scaling strategy – from individual specialists to Trust-wide implementations
- Being clear about what they can be flexible on and how they can adapt
- Using a gain-share approach to persuade later adopters
- Developing the organisation – careful recruitment and working close to adopters

A worldwide vision of scale and success

PKB's ambition for success and scale was clear at the outset: that every person should have access to, and control of, all the data that is held about them. This is a global ambition but they decided to start in the NHS for clear reasons: compared to the United States for example, it was felt that there were greater incentives for co-operation resulting from less competition between NHS organisations. The digital infrastructure in the NHS, particularly in primary care was viewed as better. Furthermore, following the failure of the National Programme for IT, the environment was considered fertile for innovation.

> *"We thought the NHS was the best place to start, not the best place to finish."*

PKB's view of success hasn't changed, but how long success takes has. In hindsight, they accept they were overly-optimistic on timescales. Their recent "overnight success" was a culmination of ten years of small scale and slow progress. For PKB, they view one of the most important things they have done as "staying alive long enough to get through the long decision-making cycles."

Evolving the scaling strategy – from individual specialists to Trust-wide implementations

Initially, PKB deliberately chose to target professionals despite being a patient-facing innovation – they were clear that they needed to create something that

overcame those professionals' legitimate concerns. For PKB, it was lucky that senior doctors were both budget holders and key opinion leaders.

> *"We could give scale to 100,000 patients, rather than just getting 100 patients to pester their doctors."*

To reach these professionals, PKB tried everything, including cold calling anyone who would take a meeting. They also focused on documenting the research around data-sharing with patients, understanding the problems of potential adopters, and learning "their language." These early adopters tended to have innovation funding, and capitation budgets for looking after their patients. In retrospect, PKB can see why those individuals were keen to work with them. However, they were also clear that scaling beyond this group would require a different approach.

Being clear about what they can be flexible on and how they can adapt

The turning point for PKB came in 2015. They gained interest in North West London, which had a population of 2.3 million patients. At this point, PKB was able to point to examples of small-scale adoption by particular departments to convince North West London of its effectiveness.

Moving beyond the initial implementations to working across large populations meant that PKB had to take a more assertive approach to roll-out. At the start, they were always very iterative and experimental. Working at such a big scale where any mistake could have a significant delay meant being prescriptive about how roll-out should be done. They refused anything that they knew from previous experience would not work, for example preventing patients from being able to edit their own care plans.

Using a gain-share approach to persuade later adopters

As they have become more established, PKB has evolved their scaling strategy, drawing on their experience working with these early adopters. They acknowledged that scaling beyond this group was outside their "comfort level". To persuade the early majority, they adopted a gain-share approach. The gain-share approach meant that instead of setting a subscription fee, PKB agreed to

track every time a patient reads a letter within 48 hours, to prevent the letter from being posted. This saved the cost of postage. Conversations with finance directors then switched from trying to get them to buy into the vision, to presenting PKB as a cash-releasing benefit.

> *"It was clear in retrospect that the middle majority won't go on vision, they need something practical."*

As a result, PKB have been able to move beyond large teaching hospitals with innovation funding, to district general hospitals that have limited funds saying they need it as soon as possible to deliver cash savings.

Developing the organisation – careful recruitment and working close to adopters

Focusing on customer experience has been a significant part of PKB's journey. Originally built by clinicians and entrepreneurs, PKB has recently grown to the point where it has been able to recruit people with expertise of working at scale. PKB felt that it was important not to scale prematurely.

> *"Health care is very complicated so you have to scale safely – we've probably scaled a bit behind, but it's been in response to users."*

The company's 70 employees all work remotely from 12 countries around the world. This means they can physically work close to the customers, improving relationships.

> *"Customers prefer people to work close to them rather than next to me. It's meant we could deliver much more, much more quickly given our small size."*

Recruiting carefully is also essential. The culture of people who like each other and like working together can "leak out" to the customer, continuously helping to support the company's reputation and attract newer adopters.

> *"Particularly in health care, if they think you're decent, they'll trust you."*

Schwartz Rounds

A **Schwartz Round** is a structured, facilitated, multi-disciplinary monthly meeting which allows staff to reflect together on the personal nature and impact of their work. Schwartz Rounds are run in the UK by the Point of Care Foundation (the Foundation), an independent charity, but were developed by the Schwartz Center for Compassionate Care in Boston, United States. The Foundation became aware of the Rounds in 2008 at a point when it was a funded project based at the health think tank, The King's Fund.

Schwartz Rounds currently operate in over 200 sites, including non-frontline and non-NHS organisations. The innovation is not currently on the NHS Innovation Accelerator.

Key insights for scale and spread:

- An evolving ambition
- Maintaining fidelity to the intervention design and being part of an international community by using a licence model
- Using pilot sites to champion the innovation
- Re-establishing its governance and goals as part of a more 'determined' strategy
- Developing a sustainable funding model
- Using evidence and exposure to the innovation to support buy-in

An evolving ambition

The Foundation's initial desire was to see the Rounds "in every NHS organisation." However, they were concerned that the approach may prove countercultural, and in the UK people would not be as willing to talk openly about their feelings as in the United States. Initially, the primary goal of the pilot was simply to test whether the Rounds could work in the UK. Now that the Rounds have become much better known and established, the Foundation views success as being about whether the Rounds are used authentically and sustainably. From its experience, the Foundation sees the key issue as how to scale in a way that lasts, and maintains fidelity to the fundamental aspects of the intervention.

"Don't go about it too fast. I feel it's more important to make change gradually that lasts and is meaningful, than to go for spread and scale."

The Foundation was always aware that some organisations would take more convincing than others. It considered that discussion around adoption and spread of innovation focuses too much on the "pull" and "push", and even that the language of "laggards" implies force and coercion. Instead, there was an expectation that the Rounds would grow gradually.

In any event, the spread of Rounds has far exceeded their original ambitions – and are now operating in private healthcare, as well as hospices and charities, and national bodies such as the Care Quality Commission and NHS England and NHS Improvement. There are also pilots in prisons, vets, dentists and medical schools.

Maintaining fidelity to the intervention design and being part of an international community by using a licence model

Whilst at The King's Fund, the Foundation (at that time known as 'The Point of Care') were investigating the evidence around interventions which improve patients' experiences of care. Because of the weight of evidence about staff experience shaping patients' experience, they developed an interest in interventions which supported staff in their work with patients, and wanted to test how they would work in the NHS. The Point of Care identified a number of criteria to base its selection of which interventions to test.[3] These were that the interventions:

- Had spread beyond the place (or team) that had originally thought of them;
- Were flexible and able to fit into different environments;
- Were replicable and described in enough detail that people could implement them;
- Had already been objectively evaluated by someone who was not the innovator.

3 These were set out in the 2008 report, *Seeing the Person in the Patient* – www.kingsfund.org.uk/sites/default/files/Seeing-the-person-in-the-patient-The-Point-of-Care-review-paper-Goodrich-Cornwell-Kings-Fund-December-2008.pdf

The Point of Care was able to work directly with the Schwartz Center, who granted them an annual licence to use the Rounds. This was important to retain respect for the model and the name, fidelity to the original design, and to enable the Foundation to maintain strong relationships with the Schwartz Center.

In the early days, there was a "deep suspicion about a product under licence" (especially an American product) from some potential adopters. However, despite this reaction, the Foundation felt that accepting the licence model would allow the Schwartz Center to grow and the Foundation to become part of a wider international community of individuals and organisations. It was therefore an acceptable trade off.

> *"I felt strongly that the prize would be to try to be part of an international community all doing the same thing, who recognised what they were doing."*

Using pilot sites to champion the innovation

The first two pilots took place in acute trusts, and successfully demonstrated that the Rounds could work effectively in the NHS. The Point of Care team encouraged people from the pilot sites to talk about their experience at conferences, which resulted in others wanting to know more. They also established a buddying scheme between the pilots and other sites to support initial spread.

Re-establishing its governance and goals as part of a more 'determined' strategy

Following the success of the early pilots, the Foundation's approach became more "determined", and it made some specific changes to their approach in order to operate at scale. Firstly, it successfully received a grant from the Department of Health to promote and spread the concept. Using the grant, it established itself as an independent charity, becoming the 'Point of Care Foundation'. Moving away from being a project within The King's Fund and becoming a separate organisation was a significant decision in the light of the need for a model to scale the Rounds. However, there was considerable burden attached to setting up an organisation from scratch, including setting

up a Board, website and a system for financing. While refusing to set a target for scale, the Foundation aspired to reach 40 organisations in two years. This was surpassed by a long way. It also moved away from a buddying system to a "batching system" of training, where it trained facilitators using a bespoke training programme it had developed. In the early days, the Foundation spoke at conferences and events to promote the Rounds and as a result was "overwhelmed with demand". As a result, it focussed its attention more on how to cope with such high demand, rather than on scaling further. However, it did think about certain regions that had not adopted the Rounds and tried to question why.

Developing a sustainable funding model

When working with early adopters, the Foundation charged a small fee. At that point, it was still being funded by The King's Fund, but was aware that using buddying and charging a small fee wasn't a sustainable model.

> *"We were aware that this wasn't really a model, just an attempt at that point to give people access to this thing that we thought was really good."*

Becoming a new independent organisation and moving to the batching system of training meant changing this. As well as the grant from the Department of Health, the Foundation received funding from Macmillan Cancer Support to establish the Rounds across 24 London sites, and from Marie Curie for their own (nine) hospices. It also received funding from the Kent, Surrey and Sussex and the North West branches of Health Education England which helped the Foundation reach multiple organisations in one go. Although from the Foundation's point of view more bulk buys would be preferable, the more common model for contracting for training and support remains that organisations (not just NHS) enter into individual contracts with the Foundation.

Using evidence and exposure to the innovation to bring in new adopters

As described above, before testing interventions, the Foundation sought reassurance that there had already been an objective evaluation of the Schwartz Rounds in the United States. Since then, the evidence base for

the Schwartz Rounds in the NHS has developed, most notably with an NIHR-funded mixed-methods evaluation.[4] The Foundation had expected the publication of the evidence of impact to act as a "game-changer" but they found that it did not have the immediate effect of bringing in more organisations. Rather, there have been a range of reasons that organisations have adopted the Rounds, which have also varied over the years. Evidence was considered to be particularly useful for already bought in individuals to convince others.

> *"Evidence helps people who are wanting to do them [Schawartz Rounds] inside organisations to legitimate the argument they try to make internally for why they should do them."*

The Foundation has tried to analyse the Return on Investment in order to demonstrate the financial impact of Schwartz Rounds. However, translating the impact into tangible outcomes measured at the level of the whole organisation (such as staff retention or reduced sickness absence) is challenging. It is also difficult to demonstrate the direct impact on patients, because individual NHS staff across different teams can attend voluntarily, making the connection between their attendance and quality of care in any particular service difficult to pinpoint.

The Foundation provides support for potential adopters before, during and after adoption. It helps enthusiasts think about who they should talk to within their organisation, and who holds the relevant budget. It also encourages potential adopters to observe first-hand the Rounds in action, to help them understand what they are and to convince them of their value. Recently, it has also held demonstration Rounds at medical school conferences. Younger doctors who move around a lot have acted as "seeders" of Rounds, which has also helped.

4 www.ncbi.nlm.nih.gov/books/NBK533087/pdf/Bookshelf_NBK533087.pdf

Allowing flexibility in the delivery without changing the core offer

The Foundation is clear that the core elements of the Rounds do not change as new adopters take them on.

> *"There's something about trusting that process, we know it works. It's an incredibly powerful simple process in which a lot of non-simple things are allowed to happen."*

However, being open to ways that the infrastructure around the Rounds can adapt has been an important part of supporting the Rounds spread to new types of organisation. For example, the Rounds are designed for fairly large entities and some types of NHS organisation (such as individual GP practices) are much smaller. This can affect the dynamics, as well as the logistics of being able to organise a monthly meeting. Where the Rounds have been used in primary care, these have been with GP federations, or across larger regions involving multiple practices. Organisations where staff are more widely dispersed or that have limited resources can also be challenging. Modifying the model by, for example, training a larger number of facilitators who are able to work across different locations within the same organisation has helped address these challenges.

The Foundation has also adapted some elements of the model to address reasons for why organisations have stopped using the Rounds. Some adopting organisations have stopped providing the Rounds due to, for example, trained facilitators leaving the organisation and not being replaced, or trained facilitators having insufficient protected time or resource to dedicate to the Rounds. To address this, the Foundation has introduced, as part of the contract, the need to train more than two people as facilitators so that organisations are not dependent on certain individuals. The Foundation also set up a membership scheme for the Schwartz community to support organisations at the end of their two-year training and membership programme.

> *"We're constantly evolving and trying to think about all the time hanging onto the purpose of the thing and not overwhelming it with bureaucracy."*

Although the Foundation feels that the Rounds are now well-established, it "doesn't get any easier", and although it is constantly vigilant and anticipates demand will fall, it has not done yet. In fact it has grown and spread across boundaries into social care and prisons. The lessons the Foundation has learned along the way – including the importance of remaining mission-driven have been invaluable.

Enhanced Recovery After Surgery Plus (ERAS+)

ERAS+ is a care pathway aimed at improving patient outcomes from major surgery. It places patients and their families at the centre of their own surgical care and specifically focuses on reducing post-operative pulmonary complications after major surgery. It achieves this through a programme of pre-op cardiovascular exercise, strength training, smoking cessation, nutrition and lifestyle advice, a stepped recovery programme in hospital with ICOUGH respiratory bundle, and a structured exercise programme following surgery. It was developed by Manchester University NHS Foundation Trust and piloted locally from 2014.

ERAS+, a non-commercial innovation, has been adopted by six NHS Trusts in Greater Manchester as of 2018. Elements of the innovation are known to have been adopted by at least a further 40 hospitals nationally and internationally.

Key insights for scale and spread:

- Adapting to enhance relevance to, and interest from, new communities of adopters and advocates
- Being flexible on both adoption and implementation to encourage authentic and meaningful adoption
- Developing a variety of evidence types to persuade potential adopters
- Ensuring sustained capacity and responsibility for delivering the innovation
- Building a reputation of being within, and aligned to, the NHS and its principles

Adapting to enhance relevance to, and interest from, new communities of adopters and advocates

ERAS+ itself evolved out of an existing innovation: the Enhanced Recovery After Surgery (ERAS) pathway. The latter focuses on just the in-hospital journey, whereas ERAS+ incorporates 'prehabilitation' interventions before major surgery, a respiratory care bundle, surgery school education events for patients and their families and rehabilitation interventions to support recovery afterwards.

As part of a drive of continual adaptations to their innovation, ERAS+ have incorporated pharmacy interventions to help optimise patients' medication pre-operatively as well as ensuring good use of pain-relief medications post-operatively. They developed their prehabilitation component, Prehab4Cancer, by working with GM Active local gyms. This final change has proved important for achieving spread as, with the help of the NHS Innovation Accelerator, it caught the attention of the cancer charity Macmillan Cancer Support. The decision to incorporate new elements to their innovation has therefore helped gain traction amongst a new audience, the cancer community.

> *"That was just at exactly the right moment when Macmillan were exploring the idea of prehab".*

ERAS+ has also incorporated early nutrition in its core elements similar to the enhanced recovery initiative DREAMing (Drinking, Eating, Mobilising), which may have helped spread the innovation.

ERAS+ seek to ensure their adaptations are appropriate through continual sense-checking with the patients they help look after. Surgery schools provide a unique interface for ERAS+ to understand from patients and their families what works and what doesn't:

> *"A test bed which involves direct patient feedback is extremely helpful for each ERAS+ team".*

Being flexible on both adoption and implementation to encourage authentic and meaningful adoption

Since 2017, The Health Foundation have supported the structured rollout of ERAS+ as a standard pathway to six sites within Greater Manchester as part of their Scaling Up Improvement programme. Beyond this, however, ERAS+ have taken a far more flexible approach to wider adoption across the country, encouraging hospitals to take "aspects which support their service model". While ERAS+ have taken a flexible approach to service improvement, they do seek to ensure some quality assurance and make suggestions for implementation.

Fidelity to all components of the model is not felt to be key, as the innovation comprises multiple components which can be implemented by different professional teams (surgical, nursing, physiotherapy) in different ways. Typically, adopting Trusts will choose and tailor elements of the innovation, frequently resulting in a hybrid.

Rather than being prescriptive, "it's very much for hospitals to take the bits that they feel helpful to them" and "trying to showcase to them what's possible".

Developing a variety of evidence types to persuade potential adopters

For the ERAS+ team, being published in a peer-reviewed journal has been extremely positive in substantiating their work and helping to secure funding. They feel the innovation and evidence base has "landed well" at national-level meetings and conferences, which has helped their scaling efforts.

In addition to developing published evidence on the effectiveness of the innovation, they have taken time to offer live demonstrations to potential adopters on how to use the website, app, Perioperative Quality Improvement Program dataset and surgery school. Offering observations at the original site, the Manchester Royal Infirmary and other MFT site, Wythenshawe hospital, has been very helpful in gaining traction with hospitals outside of Greater Manchester.

Ensuring sustained capacity and responsibility for delivering the innovation

The ERAS+ team consider that ensuring adopters have the capacity and responsibility to deliver the innovation could be advantageous to scaling and spreading. They believe there is some constructive learning from the experience of the ERAS program and its accompanying Enhanced Recovery Partnership Programme (ERPP), established by the Department of Health in 2009. The ERPP provided funding for the national spread of ERAS, enabling Trusts to recruit ERAS nurses with the aim of reducing patients' length of stay in hospital. Once the ERPP programme ended, however, Trusts were encouraged to continue to fund these nurses themselves.

> *"However, a number of Trusts subsequently moved their ERAS nurses back to ward-based roles either because ERAS was considered successfully implemented or through pressure on nurse numbers".*

With many ERAS+ nurses on fixed term contracts or secondments, the team are working hard with adopter Trusts to try to demonstrate the on-going benefit in having a nominated ERAS/ERAS+ nurse. In fact, ERAS+ believe that in order to successfully improve perioperative care pathways for major surgery in the future, NHS England and NHS Improvement may want to consider mandating the specific role of an ERAS/ERAS+ nurse at each hospital.

Building a reputation of being within, and aligned to, the NHS and its principles

The innovation is not trademarked, and their ethos is "it's all meant to be free for the NHS". As part of this, they believe that having core members of the team continue to work in the NHS has been advantageous in efforts to scale and spread to later adopters, granting them "genuine authority" compared to potentially being seen as external salespeople:

> *"Remaining clinical and operational within the NHS has supported the ERAS+ innovation and scaling within the NHS… Because you're not trying to sell people something, the response is commonly positive."*

Earlier in their journey, ERAS+ considered taking a more commercial route, after being advised that monetising their innovation may help to increase its perceived value in the eyes of potential adopters. Ultimately, however, they considered this to be inimical to their aim of being free for the NHS, and felt it would have been ineffective for scaling and spreading:

> *"Now, looking back, on reflection, I'm glad I didn't try too much to try and do that".*

Next Generation Electronic Patient Record

Next Generation Electronic Patient Record (EPR) is a mobile technology designed to deliver real-time information to clinical and operational staff to improve hospital communication, patient safety and patient flow. It was developed by Nervecentre, a private company founded in 2010.

The EPR has been adopted by over 35 NHS Trusts in England, and used by 50,000 clinicians as of 2019.

Key insights for scale and spread:

- Agility and willingness to be flexible to adopters and their requirements
- A focus on breadth and depth of spread
- Shift towards internal focus: scaling the organisation as well as the innovation
- Refining the reputation rather than chasing the next contract
- Different evidence bases for different audiences at different points
- Find the champion, not the decision-maker

Agility and willingness to be flexible to adopters and their requirements

Nervecentre set themselves a broad ambition from the start, with the overall aim being to improve patient care using mobile technology. Their Next Generation Electronic Patient Record system has been adopted in secondary care but a key part of their approach to scale and spread aims to

"not put yourself in a box" with respect to potential adopters. For them this means including primary, secondary and community care sites as future potential adopters.

To deliver on their ambitions around spread, including across different settings, means they have been willing to flex their offer. Nervecentre recognises that every Trust is different, in terms of its staff makeup, operating procedures and local population. Understanding how to navigate these differences and accommodate the Trust's requests, by adapting their offer, has been key for Nervecentre to achieve spread. However, they also suggested "adaptability isn't about saying yes to everything" and have refused to accommodate requests that are not consistent with their overall objectives, including where they consider a change may hinder safety or efficiency.

While the adoption time per adopting site is necessarily higher as a result of accommodating requests, they continue to make adaptations (for example, evolving the application of their innovation to vital signs and sepsis) and, in fact, believe their willingness to listen and adapt is what sets them apart from larger companies or large suppliers who they consider to be less agile. They also believe that their smaller size and readiness to engage with adopters has positively impacted on the trust they are granted.

A focus on breadth and depth of spread

Nervecentre have sought breadth of scale, through spreading to a greater quantity of Trusts. However, equally important for them is "increasing the footprint [they] have within the Trusts" by increasing the number of ways in which they support clinical and non-clinical staff within existing adopters. This latter dimension to spread takes advantage of the fact that an innovation is more likely to be taken on board by people that have already heard of it and trust it, than by people who have never heard of it. Nervecentre believe that, had they focused only on scaling to more Trusts, this would have been an ineffective scaling strategy.

> *"…your easiest opportunity to sell things is to sell them to people that already buy from you because sales… and marketing is fundamentally trust-based".*

Shift towards internal focus: scaling the organisation as well as the innovation

A critical turning point in their scaling efforts was securing funding from the Nursing Technology Fund (2015). At this time, Nervecentre was also able to grow from eight to 30 people. Their organisational development was not just about increasing their staff numbers and they stressed the importance of taking time to, for example, embed staff and transfer knowledge among colleagues. Certainly, increasing their workforce capacity has been critical to achieve spread.

> *"…to be used at scale within the NHS, you've got to have a small army behind you."*

Nervecentre grew from one founder in 2010 to 50 staff in 2019. Unlike other software organisations, their first hire was a nurse – a deliberate intention arising from "a strong desire to set a culture for the organisation around us being a partner with the NHS", with "shared objectives, shared goals, and shared motivations" with the NHS. Having an appropriate mix of skills in the team (sales and clinical) supports the credibility of the organisation; for example employing senior clinicians has proven helpful in negotiating and rejecting adaptations with Trusts.

> *"…you have to switch so that you're using your skill and knowledge to train people within your organisation because that's the only way you can meet the volume that you want to be able to hit."*

Refining the reputation rather than chasing the next contract

Many of Nervecentre's earliest wins were facilitated by national funding schemes, or leftover capital that early adopters were willing to use. More recently, working on their own reputation and image has been more important than following up with initially disinterested potential adopters. They have particularly focused on developing their own reputation during periods of financial restraint where NHS organisations have limited their spending. This reputational development has involved:

- working with existing NHS Trust customers who did not have the finances but were keen to collaborate further;
- refining their innovation;
- developing their staff;
- actively promoting their work through press releases, social media and relying on word of mouth within the NHS.

In combination with the relationships and reputation offered through the NHS Innovation Accelerator, the result for Nervecentre was that "the impact is far greater than you could effect" by calling up potential adopters every three months. However, they suggested that reputation may not cross borders and this is partly why international spread is so difficult to achieve.

> *"It's much easier to secure the contract if they've heard of [you], and heard nice things."*

Different evidence bases for different audiences at different points

Nervecentre's experience of scaling so far suggests that the type and role of evidence, and appetite for it from adopters, comes into play at various points in the scaling process. Early adopters appeared to focus primarily on price and affordability. At that stage, business cases were mainly a tool which an advocate can then use to persuade their colleagues to adopt.

However, their experience of spreading beyond the early adopters is that the evidence base becomes a more critical tool for persuading potential adopters, particularly with management consultancies who advise Trusts on their technology strategies. Nervecentre believes that whereas the 'early majority' are open minded, various types of evidence are needed to overcome the concerns and doubts which are more prevalent among later adopters.

> *"There's clearly a point at which [evidence bases and proof points] become essential but it's definitely much later in the cycle than I think most people think it is."*

Find the champion, not the decision-maker

Nervecentre's experience of applying for the NHS Innovation Accelerator and Small Business Research Initiative funding has introduced them to various advocates, who have helped them in their efforts to scale and spread. However, the process of identifying the right people to speak with always entails a degree of luck. They acknowledge "you think you want the decision-maker" in any organisation, but "the decision-maker isn't always the champion, and the champion is the person that you want to get to".

OBH Outcomes Platform

Outcomes Based Healthcare (OBH) is an organisation founded in 2013, which offers a tool intended to support commissioners and providers better understand their population's health and monitor outcomes in near real time. OBH's mission is to support the NHS to change the way it measures and funds health care providers for the care they deliver, by focusing on outcomes which are meaningful and make a difference to people's lives (as opposed to just measuring and paying for activity or processes of care).

As of 2019, the Outcomes Platform has provided near real time outcomes data to CCGs, providers and ICSs, covering over 3 million people. OBH hold a national contract with NHS England and NHS Improvement, to develop the 'Bridges to Health' segmentation model within the national data environment.[5] This underpinning enabler of population-level outcomes measurement requires processing of a range of datasets, which provide national population coverage.

5 Lynn J, Straube BM, Bell KM, Jencks SF and Kambic RT (2007) Using population segmentation to provide better health care for all: the "Bridges to Health" model. *Milbank Quarterly*, 85(2):185–208.

Key insights for scale and spread:

- Taking a broad view of success, where scale across the population and creating national policy impact take equal priority
- Seeking to challenge the status quo at the outset
- Evolving and adapting the innovation and the offer
- Using support from national bodies to accelerate and broaden spread
- Developing their own capacity and approach to achieving scale by maximising and standardising resources
- Developing a sustainable business model

Taking a broad view of success, where scale across the population and creating national policy impact take equal priority

OBH's vision of success is ultimately to "rewire how the NHS does business", to support a more sustainable health and care system. Specifically, in 2016 OBH set a target for spread of 10% coverage of the UK population in local systems. Three years later, they are now close to this target. However, rather than only supporting local health and care systems, OBH also sought national policy impact. OBH aim to provide the building blocks to measure outcomes by population cohorts with similar health and care needs, to understand how people develop serious illness over their lifecourse. They have been working in collaboration with NHS England and NHS Improvement, Arden and GEM Commissioning Support Unit, and Public Health England, to build the segmentation model above, as well as some national measures of HealthSpan™, a suite of measures monitoring the proportion of people's lives spent in good health.[6] Supporting local health and care systems, as well as national policy and capability, are both equally important to OBH in working towards a sustainable health system overall.

6 https://appg-longevity.org/events-publications

As part of their view of success, they suggested many clinicians and finance directors' strategic priorities and incentives are markedly different, and that instead, establishing the right payment system can:

> *"…create the right gravity, the right surroundings, right circumstances for innovation to flourish".*

Seeking to challenge the status quo at the outset has helped smooth the path for later adopters

In the early days, OBH focused their efforts on challenging the status quo, being provocative through myth-busting (targeting policy-makers and potential adopters)[7] and market-making. They sought to tailor international evidence on value-based health care for local NHS audiences by "taking the principles and tweaking them for a UK audience".

While they reflect that some of their myth-busting on social media "might now look quite naïve in retrospect" they believe they are continuing to reap the benefits from this approach trialled for early adopters. In particular, they haven't had to argue the academic, patient and business case for change "for at least 2–3 years, whereas in the early days we were having those conversations all the time". Two of their earliest adopters were "swimming against the tide". This occasionally conflicted with national bodies' previous guidance, but this is not now the case for later adopters.

> *"Now people would be going with the grain of things if they adopt our platform directly".*

Policy-makers have begun to prioritise outcomes and cross-organisational working, meaning the aims of OBH are now much more compatible with prevailing system thinking: "the emergence of integrated care systems is the most obvious sign of that".

7 http://outcomesbasedhealthcare.com/OBH_Outcomes_Myths_2014.pdf

Evolving and adapting the innovation and the offer

The biggest step change in scale and spread was a result of adapting their offer. The turning point arose from the continuous work they conducted over a number of years, to develop a unique tool (the HealthSpan™ metric[8]) which appeared to prompt interest centrally, and is now being trialled for use at national level. They reflect that co-production with patients, and listening to questions from clinicians and commissioners, are important in making successful adaptations.

> *"By really working out what the problem was that we were seeking to try and fix… we were able to not waste as much time, effort, resource, energy and keep the business, the organisation viable, when otherwise it would have failed".*

Using support from national bodies to accelerate and broaden spread

OBH's approach to scaling has changed over the years. Initially, they sought to spread organisation by organisation through, for example, educational workshops on value-based health care to clinicians and CCG boards. But they subsequently recognised that engaging directly with local areas would limit them to working with a handful of areas at any one time: "it would probably [have been] another 10 years before we got to meaningful coverage of the population, let's say 40% plus".

Instead, they considered the "best route" to scaling would be to seek support from the central bodies. Their approach to doing so has been by developing their relationship with central bodies through an incremental approach: mobilising clinicians, making the case for change, working with patients at the local level, presentations, developing personal connections and being accepted onto the NHS Innovation Accelerator. That offered learning interventions, such as building business cases for adopters, to unblock processes "that would have got blocked or stuck, or just never happened".

8 www.outcomesbasedhealthcare.com/healthspan

OBH believe the trigger for their work centrally was the continual evolution of their data processing and analytical work – this has included the development of HealthSpan™. That said, they have also continued to support ongoing local adoption, through dialogue and effective partnerships. With that in mind they are now seeking to scale their approach further directly in partnership with Commissioning Support Units, and teams at the centre. OBH believe this is critical to success for two reasons: even with national support, success "ultimately still depends on local adoption" and secondly because of more detailed data which only exists at local level, whilst satisfying necessary information governance requirements. OBH anticipate that pursuing their current approach, there will be greater local adoption and are aiming to achieve 30–40% local population coverage over the next two to three years, rather than 10 years. But they are still waiting to see whether encouragement from the direction of national policy influences the rate of local adoption.

> *"Even if central policy encourages it, doesn't mean local areas [will adopt it]… we're slightly back to where we started because we are doing work with local areas and we now need to see it being picked up by local areas as something they want to do as well".*

Developing their own capacity and approach to achieving scale by maximising and standardising resources

OBH have developed a number of tactics to maximise their resources. While their core team has not grown rapidly in size, standing at 13 in total currently, they have grown in skills through the careful recruitment of doubly-qualified staff (e.g. finance and medicine; computer science and medicine). OBH are able to work with large population datasets because they have "tried to systematise and standardise anything that is standardisable". For example, their website offers all the resources an interested and sufficiently motivated adopter needs to build and configure a local outcomes framework "by lunchtime", rather than the one year it might previously have required for a local team to build an outcomes framework. They have also sought to use clinicians and advocates to reach beyond the early adopters, through a strong and active Clinical Associate Network. This is partly educational and partly networking. Early adopter CCGs have advocated for OBH's work, contributing to its publication as a case study on NHS England and NHS Improvement's online collaborative network for new care models, the FutureNHS platform.

Developing a sustainable business model

OBH acknowledged that scaling entailed making trade-offs, with the most challenging being "managing the commercial and intellectual property (IP) tension". Having intellectual property meant they had a commercially viable innovation. However, to achieve scale and spread they recognised they would need to share key parts of their intellectual property. Having a clear mission has meant they have generally been able to determine the right point in time to transfer intellectual property to the NHS.

Similarly, navigating an affordable yet sustainable business model has required careful judgement. They were able to continue to develop when their scaling rate was low, with support from three Innovate UK grants, to aid in research and development and financial sustainability. OBH have found that their price point has come down significantly over the years, and between each additional function they develop, enabling them to achieve substantial scale and spread. As such, each subsequent adopter benefits from the cumulative investment of previous adopters in the innovation and this appears a "palatable approach for the NHS".

Lantum

Lantum is a digital innovation which supports NHS organisations to manage their workforce combining scheduling and shift-filling, including reviewing human resources documentation. It is a cloud-based tool where organisations can build virtual staff banks and fill empty shifts in rotas. It is currently in use in over 2,000 NHS organisations, as well as in the United States.

To support our understanding of the spread of Lantum we spoke to three adopting organisations, as well as the innovator:

- The **Jubilee Street Practice** in Tower Hamlets, a "digitally forward" general practice adopted Lantum in 2015 as a way to access local doctors when in need of support from sessional staff.

- **Salford Primary Care Together (SPCT)**, a GP federation and evolving GP Support Unit with a particular ambition to use new innovations, adopted Lantum in 2017.

- The **Northampton GP Alliance (NGPA)**, a GP federation with an organisational value around innovation and using technology to support the workforce, adopted Lantum in October 2018.

Key insights for scale and spread:

- An evolving ambition – moving to new sectors and markets
- New policies and initiatives act as catalysts for adoption
- A continual focus on user need and grassroots engagement through adaptation
- Evidence – showing the impact and sharing experience
- Using advocates and champions to promote the innovation to later adopters
- Developing a sustainable funding model that works for innovator and adopter
- Growing up as an organisation – a focus on processes, skills and data

An evolving ambition – moving to new sectors and markets

Lantum entered the NHS as a marketplace under the name of Network Locum. Their original model was to take a fee for matching doctors to available posts. Since becoming Lantum, they have evolved into a platform which supports organisations to comprehensively schedule their workforce, to ensure they have safe levels of staffing. Lantum's journey began principally in primary care, but more recently they have moved into secondary care as well.

Lantum's approach to scale has been fairly pragmatic. Although they had overarching aims around addressing workforce challenges in the NHS, they didn't start with a comprehensive scaling strategy. However, they did always rely on and encourage word-of-mouth through the use of champions and peer-to-peer recommendations.

> *"At the start, we didn't think about scale. We just tried anything and everything to get someone to adopt it."*

Lantum's initial focus was always on the NHS, and the possibility of operating elsewhere was more of a "pipedream". However, after being accepted onto an accelerator programme at the Cedars-Sinai hospital in Los Angeles, California, they were awarded a pilot and are now rolling out the platform across the United States. The experience demonstrated that even though the systems in the two countries are very different, the challenges around workforce are universal. This helped Lantum to realise that their offer was applicable to a much wider market than first envisaged.

> *"It's given us the confidence that although we developed something for the NHS, we're now able to offer it to the world. It's completely reset what our ambitions are. If you can make something work in the NHS, you can make it work anywhere in the world."*

New policies and initiatives act as catalysts for adoption

New policies such as the introduction of the GP extended access hubs have acted as a catalyst for Lantum to achieve scale and spread, and enabled the innovation to "get really ahead". While some of the issues that Lantum was designed to address were already present for the adopting organisations, the need to staff these hubs accelerated the need for adopters to consider a solution such as Lantum. Adoption at each of the three general practice services we interviewed was prompted, in part, to respond to underlying national policy shifts:

- The Jubilee Street Practice had already been looking for a digital tool to address very high agency and locum fees at the time the accelerated access hubs were introduced. The need to provide staff for these hubs became the catalyst for adopting Lantum across the area – after the practice signed up, others in the area followed suit and Lantum then went on to support the Urgent Care Centre and GP Federation.

- SPCT won the contracts for, amongst other things, extended access. While some clinicians in the region were already using Lantum, it was not comprehensive and the introduction of extended access services meant filling these gaps was a "necessity".

- The Northampton GP Alliance (NGPA) were already considered adopting Lantum at the time they won the GP extended access service contract, which made the "process happen quicker".

Lantum have also found that a national strategic focus on using digital technology (for example, The Future of Healthcare) has meant that organisations are more proactively searching for innovative ways of working, in particular how technology can support back office functions.

A continual focus on user need and grassroots engagement through adaptation

Lantum consider two things as essential to their success:

- A complete dedication to user experience and;
- Continual grassroots engagement with the people that would be using the platform.

Lantum emphasises the importance of working collaboratively, as well as continuous communication and prototyping. This has meant always being user-driven, and adapting their product and model to respond to the particular problems and needs of adopters. At Jubilee Street, for example, Lantum developed a model whereby the practice was able to communicate with their own GPs via a local staff bank. This supported the strong local culture of relational continuity, and the Tower Hamlets' ethos for using local GPs.

> *"They managed to speak the language of continuity which is the language Tower Hamlets loves."*

This commitment to continuous adaptation has continued. For example, in response to requests, Lantum built a function to enable GPs to be paid the day after their shift ('Rocketpay'). Remaining open and flexible to addressing their adopters' problems is a key feature of their approach.

> *"Every time we see a user complaining about something we think how can we turn this weakness into a strength of ours – the thing that's common, is being humble enough to understand that you probably don't*

know how your product should look – the end users who have day-to-day problems know what the product should look [like] and do."

As the innovation has spread, balancing the requests from different adopters can become challenging – a company that is still fairly small does not necessarily have the capacity to respond to every request. Lantum suggests that this then becomes a question of prioritisation – about listening to everyone's feedback, seeing what is being raised by the most people and deciding which adaptations will have the most impact. Lantum believe that being continuously guided by their overall ambition to support the NHS workforce, has helped them to remain focussed throughout his process.

This commitment to flexibility and user needs is also important for adopting organisations. For SPCT, the willingness of Lantum to be flexible was important, such as tailoring the functionality to support communications between the organisations and clinicians. Lantum had a proactive Engagement Officer and an Account Manager, who worked closely with SPCT to meet their requirements. The fact that Lantum was a start-up was also appealing for SPCT, an organisation that was also growing – they were viewed as agile, and clinicians who were already on board found the product flexible and accessible. The two organisations seemed to be "in the same boat" – SPCT was looking to scale their services, and Lantum was also seeking to scale further across Greater Manchester and the Midlands.

Adopters therefore see their partnership with Lantum as something that can evolve and adapt, and conversations about how Lantum can continue to support the organisations are ongoing. For example, in Salford, extended access required other staff cohorts such as Advanced Clinical Practitioners (ACPs), administrators and practice nurses to be brought onto the platform.

"We didn't realise until we were using it how it would grow into something bigger."

This is also important as new policies and initiatives are introduced. In Northampton, conversations about how Lantum could help match social prescribing link worker volunteers, or staff within the integrated care system are ongoing. They're also working with Lantum to include the primary care network workforce (such as clinical pharmacists), and to consider further

options for integration with other services. NGPA were clear that remaining flexible in order to react to new services coming along is a key requirement of Lantum to be a sustainable solution for the area.

Working closely with individuals at adopting sites is also a key part of Lantum's approach to implementation, which is considered to be "hands-on" and essential for ensuring smooth transition, as well as sustainability. For NGPA, this included training for staff and tailoring the platform in a way that means staff can instantly use it – this was viewed as essential for embedding the innovation into existing ways of working, and getting buy-in from clinicians.

> *"We had to get it right. We needed to avoid people signing up and not having anything to book on to. You need to get it right first time otherwise people disengage, and a rumour goes around that the technology doesn't work."*

Evidence – showing the impact and sharing experience

Lantum started, in part, as a response to what they saw as unnecessarily high spend on agency staff. Evidence on cost-savings generated by Lantum – predominantly lower agency spend and freeing up staff time usually devoted to administrative tasks associated with temporary staff – therefore plays a big role in reaching newer adopters. Lantum primarily use case studies from particular adopters to demonstrate this impact but also place importance on evidence of improved staff satisfaction. Evidence on cost-savings was seen as more important in the NHS context, and seen as absolutely essential for countering the risk-aversion that exists. This was a particular challenge in secondary care where there is a high amount of public scrutiny.

> *"You have to have evidence – case studies, names of people who have used it before. You have to make it a no-brainer."*

For SPCT, however, their main interest was in evidence that Lantum was capable of operating at scale. The portfolio of work that Lantum had developed in primary care in London demonstrated that they were able to scale up projects very quickly, and this appealed to SPCT. Furthermore, there were already clinicians within the area that were using Lantum – "they had a proven methodology and a portfolio of people on the books." For NGPA, they were

also keen to hear about Lantum's "fill rates" from other case study sites – as they needed to mobilise the service very quickly, knowing that Lantum would be capable of delivering this was key.

Evidence of what works in implementation is also important for adopters. For NGPA, communication was an integral part of implementation, both to encourage staff to sign up to the bank, and to relay details about the shifts that were available. Based on prior experience and the data Lantum had generated around use of the platform, key information such as location, type of service and travel times were included in the communications to staff. As well as this, Lantum provided a mouse mat to staff which included details of the app and how to sign up, and the NGPA communicated widely about the platform via posters and the internal practice website.

Using advocates and champions to promote the innovation to later adopters

Lantum views champions as having played a key role in helping them move beyond early adopters. After their initial adoption, they were talked about at conferences and events by trusted and respected advocates, which generated interest, as well as helped reduce their marketing and sales costs. Meeting potential new adopters at conferences was also seen as key, because people are in "curiosity mode" and willing to listen. Adopters also talked about hearing of Lantum via word-of-mouth, from trusted individuals and organisations already using the platform.

Developing their organisation's reputation – through, for example, their champions and a user-focussed approach – has also been important for Lantum. They feel it is this approach that's helped them to grow, particularly because when you're starting from the beginning "nobody knows if they can trust you."

> *"It's not just about your tech, it's all about people at the end of the day. If you can make the experience of working with you great, you can create these trusting relationships. It also means people are more likely to give you feedback, which is really valuable."*

Adopting organisations also reflected on the value of champions, particularly during implementation. At NGPA for example, Lantum worked with a GP during implementation who helped support others to on-board the GPs and other clinical staff.

Developing a sustainable funding model that works for innovator and adopter

Lantum has predominantly been funded by the private sector through venture capital and investments. However, they have also adapted their funding model to something they consider works best for them and their clients. When they moved to the staff bank model, they also moved to a subscription approach – instead of organisations paying Lantum a 'matching fee', organisations paid a flat rate and could add as many of their own clinicians as they want. This worked better for Lantum – who knew what their revenue would be making it easier to plan – and for clients, who could be clear on what their costs would be. This fee also means that organisations have a dedicated Account Manager as well as access to usage data, which were seen as vital for ensuring Lantum can become embedded into organisations, and demonstrates the importance of sustainability for both parties. Lantum acknowledge that to achieve spread they have had to be flexible in the level they charge. Some clients have had particularly limited budgets but because Lantum have recognised the wider value in doing the work, they have taken on less profitable projects.

Lantum have also benefitted from other funding streams dedicated to specific initiatives for example, an NHS Improvement funding pot dedicated to supporting Trusts use e-rostering.

Growing up as an organisation – a focus on processes, skills and data

As Lantum have spread, they have looked internally and the organisation itself has evolved too. They now have disciplined processes for how they communicate with people, and keep track of potential adopters in the pipeline. They report being data-driven, multi-disciplinary and have developed an infrastructure to ensure they can continue to spread. Recruiting people with experience of scaling (not necessarily within health) was seen as the best way to do this. They have also, where necessary, recruited people with

particular expertise, including hiring a doctor to support the development of their secondary care platform.

> *"We want to consistently deliver for our customers and can only do that with systems and processes in place – the best way to do that is to find people who've done it before. You might figure it out yourself but it would take a long time and a lot of trial and error."*

Lantum recognise that sales cycles are not quick and "there's a long way to go." Despite this, the current policy direction, in particular the introduction of NHSX and a clear national agenda provide cause for optimism around future scale and spread.

myCOPD

myCOPD is a digital application which provides support to people diagnosed with Chronic Obstructive Pulmonary Disease (COPD) – a group of lung conditions that cause breathing difficulties. The application helps people manage their condition and access respiratory services in the setting of their choice. myCOPD combines education, symptom reporting, inhaler training and pulmonary rehabilitation support and enables clinicians to provide access to services and remotely monitor their patients' care.

myCOPD is one of a suite of applications owned by *my mhealth Ltd*, a commercial company established in 2012.

myCOPD is currently deployed and being used by just over 50% of all CCGs in England. Through the NHS Innovation and Technology Tariff scheme, the NHS purchased around 75,000 myCOPD licences, which are in the process of being deployed into services up and down the country. At the moment there are around 15,000 patients actively using the application.

This case study also incorporates views of two adopters we interviewed:

- Sunderland CCG adopted myCOPD in 2017. They are in the process of continuing their roll out and have also recently agreed a pilot to use MyHeart for up to 500 patients.

- Dorset CCG originally adopted myCOPD in 2017 and have played a role in co-producing another application, myHeart, with *my mhealth*. The CCG has subsequently become part of Our Dorset Integrated Care System who are building up a potential business case for adoption across the county.

Key insights for scale and spread:

- A continual process of demonstrating effectiveness and developing the value proposition
- Finding the right market for commercial adoption
- A realistic and iterative view of success and proactive growth into new settings
- Adapting the commercial model can increase the scale and pace of spread but there are trade-offs
- Supporting clinicians to drive up service adoption levels
- Capitalising on national funding initiatives to overcome affordability constraints and perceived risk of adoption, to help drive scale and spread
- Revising the Innovation and Technology Tariff arrangements to ensure it allows spread across all settings
- Encouraging services and commissioners to be invested in the innovation
- Maximising on national initiatives

A continual process of demonstrating effectiveness and developing the value proposition

My mhealth's first priority was to demonstrate their innovation's effectiveness and they have been building their evidence base since 2014. Several randomised control trials of myCOPD and evidence on its effectiveness have been published widely. The Small Business Research Initiative funded Public Health England to do an economic impact evaluation of myCOPD.

Focusing on the four largest problems in COPD management (inhaler technique training, access to pulmonary rehabilitation, education and self-management) and seeking to combine solutions to address these has helped

my mhealth develop their initial value proposition. This, combined with the published evaluations, were critical to securing commercial adoptions.

For Sunderland CCG, it was the type and quantity of *my mhealth's* evidence base – including an economic evaluation focusing on COPD in particular – which gave myCOPD an advantage over similar innovations, and were key in persuading their lead GP and practice nurses:

> *"... it had some unique elements that other products didn't have... and combined them."*

However, *my mhealth* have had to build upon their novel product design and published evaluations in order to sustain existing contracts, by collating evidence of myCOPD's effectiveness in practice. After requests from adopters, they have begun to develop a resource to provide access to data on patients' usage of the platform.

In this respect *my mhealth's* generation of evidence has been continual and also bespoke, and necessarily so: in order to justify any further contracts, sites such as Sunderland CCG and Our Dorset ICS are keen to see how myCOPD can be shown to improve their local patient outcomes and reduce hospital admissions.

Finding the right market for commercial adoption

Identifying the right market has been a key feature of *my mhealth's* scaling journey. In the early days, they found that services appeared reluctant to adopt an online, self-management application on the basis that the service could lose income or patient activity. Subsequently, *my mhealth* began to contact CCGs directly, where they were more commercially successful in achieving adoption of their platform.

As existing CCGs become part of ICSs, as in the case of Dorset CCG, there are new considerations to be made about the nature of *my mhealth's* market and the most appropriate applications of myCOPD within these new varieties of services and settings.

A realistic and iterative view of success and proactive growth into new settings

Commercial adoption is one matter; actual usage and adoption by users (patients and clinicians) is another. *My mhealth* are cautious not to "overwhelm services" and developed a strategy for scaling their innovation within the services themselves, based on mapping points of entry in existing patient COPD pathways. Understanding the patient journey and what patients receive, provides a delivery point so that patients can begin to understand that this part of the service can be revisited on the application or delivered through it. From the clinician's point of view, they could deliver part of their service in a scalable form to more patients, with all the time efficiency savings and reduction in variation of the care being accessed and delivered to their patients. As their customer-base is spread across settings, they initially targeted community and secondary care (such as cardiac and respiratory services). That said, they recognise that exhaustive coverage is not realistic – at least not imminently. While *my mhealth* state 80% of COPD patients are seen in primary care, achieving "the holy grail" of spread across the whole of primary care in one CCG is currently felt to be "almost impossible", and they have instead initially sought to grow organically, looking for early adopter sites.

My mhealth acknowledge that it can take years to embed fully into a health service. In the early days, they did not have a plan for delivery at scale through the three levels of care, primary, community and secondary, but have had to develop one once they were confronted by barriers to spread – particularly the ability to support clinician training at scale.

Adapting the commercial model can increase the scale and pace of spread but there are trade-offs

Over time, *my mhealth* have also adjusted their commercial (pricing) model to try to incentivise use of the application at scale.

Individual licence model	Unlimited subscription model
• Choice of myCOPD/myAsthma/ myDiabetes/myHeart • Lifetime access for individual patient • £40 per patient • Rolling contract, with ability to widen patient access through top-up purchases of additional licences	• myCOPD/myAsthma/myDiabetes/ myHeart • Lifetime access for individual patient • 50p per patient (across a CCG population) • Unlimited delivery to CCG population • Longer-term contracts

Currently, 90% of their customer accounts are using an individual licence model. This model enables clinicians to prescribe lifetime access to the platform in a bulk bought process, paid for by the CCG. However, they found that clinicians appeared to only use the innovation sparingly as clinicians would want to hold on to "their allocation" of access.

A year ago – taking inspiration from the telecommunications market – *my mhealth* introduced a subscription model. This new model offers unlimited lifetime access to their entire suite of applications. The subscription model aims to provide patient access "at scale across a whole area", at a lower cost per capita to CCGs, and for a longer contractual period, although it can take longer to negotiate with adopting sites. The unlimited subscription model allows for a seamless entry point for patients with any of those conditions my *mhealth* cater for, with no variation in access. A patient being diagnosed in any setting would be have the chance to access the digital service.

For adopters like Dorset CCG, the new model is considered to be potentially more financially viable. However, the innovator may find that they have to adapt their offer further. For instance, any future adoption by Our Dorset ICS will be dependent on shorter contracts allowing for regular review; the ability to white label the innovations under Our Dorset ICS; and most importantly, access to a breakdown of patient usage data. Similarly, at Sunderland CCG, the deciding factor for re-adoption will be whether *my mhealth* can offer affordable and timely access to patient usage data.

My mhealth are continuing to monitor the effectiveness of their new unlimited model on scale, spread, and rates of de-adoption.

Supporting clinicians to drive up service adoption levels

My mhealth have sought to ensure spread across the commissioner and end-users (the clinicians and patients). Over the last 18 months they have focused not only on reaching potential adopters, but on training clinicians to prescribe licences so these can be actively used by patients:

> *"We initially thought that going into a service, doing a bit of training… would be enough. Now that is enough for early adopters. Early adopters just get it… But most people aren't early adopters, and that isn't anyone's fault".*

My mhealth are continuing to work with clinicians to change their practice and behaviours in order to drive up use of myCOPD. They have sought to overcome reluctance from some clinicians to switch from paper-based to digital tools for their patients. They are also addressing some instances where clinicians appear to be "using the application in the right way but not for the intended purpose initially" by running meetings to familiarise staff with the platform.

The innovator alone is unlikely to achieve scale and spread; adopters have also worked hard to support clinicians and patients in using myCOPD. At Dorset CCG, *my mhealth* invested effort to meet the needs of different clinical teams. Now, two years on, clinicians at Dorset CCG reportedly could not imagine the innovation being taken away. At Sunderland CCG, the technology programme manager was pivotal in assembling a working group to ensure clinicians were 'bought in'. They have also channelled resource into ongoing clinician training, social media campaigns and marketing to raise awareness among patients with COPD.

Lastly, working with local patient groups has been a helpful route to further spread and adoption within the patient population.

Capitalising on national funding initiatives to overcome affordability constraints and perceived risk of adoption, to help drive scale and spread

Inclusion on the NHS Innovation and Technology Tariff (2017–19) (ITT) meant CCGs could be reimbursed for the cost of myCOPD up to a maximum of 20% of their total COPD patient population. This resulted in a step-change in scale of adoption, resulting in 70,000 new licences being purchased. *My mhealth* believe two key obstacles to adoption are adopters' lack of financial resources and perceived risks of adoption; the latter persisted even when adopters were provided with what *my mhealth* felt to be sufficient evidence of the innovation's effectiveness. The ITT "helped immensely" in addressing both of these. Critical to *my mhealth's* success was their engagement with CCGs before the ITT announcement, to overcome a potential lack of general awareness of the ITT itself.

The ITT appears to have been a catalyst in achieving greater levels of adoption although it has not been the only factor.

For Sunderland CCG, the ITT helped accelerate the adoption process, as their directors and managers comprise "tenacious characters… quite happy to take risks and that just propels [the CCG]". They stressed that a key enabler in their success was having the resources, time and capacity to complement the ITT funding.

For other adopters, such as Dorset CCG, the role of a clinical champion accompanied with the award of Estates and Technology Transformation Funding were key factors in addressing the barriers of financial resource and perceived risk.

Revising the Innovation and Technology Tariff arrangements to ensure it allows spread across all settings

The initial NHS ITT arrangements in 2017–19 were restricted to secondary care and community care only, effectively concentrating on patients diagnosed with severe or very severe COPD. This posed an obstacle to *my mhealth* in scaling myCOPD to those patients with a mild to moderate diagnosis (as the application has been made for any patient regardless of severity of disease).

Under this restricted version of the ITT, the company estimate that 30–40% of their CCG adopters were making additional purchases to cover COPD patients in primary care. This was true in the case of Sunderland, where the CCG made the strategic decision to negotiate additional licences using their own non-recurrent funding.

To improve both the scale and quality of adoption, *my mhealth* – along with clinicians and CCGs – engaged with NHS England to have the ITT expanded to any care setting and eligible COPD patient. While neither quick nor easy, this new arrangement is now considerably more straightforward as the ITT is available in primary care, the sector which sees and treats the majority of COPD patients.

Encouraging services and commissioners to be invested in the innovation

My mhealth were concerned about a risk that adopters "devalue things if they're free". They considered that the inclusion of myCOPD on the ITT might jeopardise their attempt to rollout. *My mhealth* believed that charging adopters – for example, for training and digital service transformation work – would "make sure the adopters were invested", by elevating the perceived value of the innovation. As described above, my *mhealth* alone are unlikely to achieve scale and spread across the intended patient group as this will also require commitment from adopters. My *mhealth* believe clear, strong clinical leadership is needed to embrace change within any service, and consider the best success of the platform to have been within those areas.

Maximising on national initiatives

My mhealth have benefited from not only being on the NHS ITT, but also the NHS Innovation Accelerator. They have received Small Business Research Initiative funding (phases 1 and 2), and were awarded funding in 2012 under the Health Foundation's Shine programme. *My mhealth* believe that the NHS ITT and NHS Innovation Accelerator in particular offered significant value in boosting their reputation, aiding in their ongoing efforts to spread the innovation. In the case of Sunderland CCG, the AHSNs were key in helping overcome market frictions by introducing the CCG to *my mhealth* early on in their decision-making process.

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