The King's Fund

A 'curious experiment'

the birth and growth of the Innovation Agency

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INNOVATION AGENCY
Academic Health Science Network for the North West Coast

This independent paper was commissioned by the Innovation Agency, the Academic Health Science Network for the North West Coast of England. The views in the report are those of the author and all conclusions are the author's own.

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Introduction

In December 2011, the Innovation, Health and Wealth White Paper made the case for a more systematic approach to diffusing innovation in the NHS, not just to improve health services but to support economic regeneration.

Eighteen months later, fifteen regions across England started to recruit leaders for new Academic Health Science Networks (AHSNs), their mission to promote innovation, improve health outcomes and generate prosperity.

At the time, it felt like a curious experiment. Few other developed countries had agencies to promote innovation specifically in healthcare, although some other European countries have since created them. In some ways, the new bodies felt at odds with the rest of Lansley reforms, which pinned their hopes on markets rather than state-funded support to address the NHS's productivity challenges.

The recruitment package hardly looked attractive: short-term contracts, unclear objectives, limited resources and a history of failed initiatives to support healthcare innovation in the previous decade. It was an unusual person, one with a high tolerance for risk-taking, who would leave an established position for these roles.

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Things now look very different. Government has re-commissioned the AHSNs for a second licence period. Their funding and their remit have expanded significantly, with the AHSNs playing much more substantial roles in improving patient safety, delivering national quality improvement programmes and working with the Office for Life Sciences to accelerate adoption of technology.

In early 2020, the majority of their staff were finally moving onto permanent contracts. Since the COVID-19 pandemic hit in March 2020, the AHSNs have also redeployed staff to national roles and to support local health systems and adapted their programmes to help providers move services online. While there is continuing debate about how best the AHSNs should use their resources, they now have a much stronger mandate and a clearer role in supporting regional health systems.

This paper, commissioned by the Innovation Agency, the AHSN for the North West Coast of England, takes stock of its development over this period. As staff move onto permanent contracts, now is a good time to consider the development path the Agency has taken. The paper draws on interviews with the board of the Innovation Agency, around 25 members of staff and other stakeholders including NHS commissioners, NHS providers and entrepreneurs it has supported. The paper does not assess the Agency's performance – although stakeholders' extremely enthusiastic views on its work do come through. Instead, it attempts to codify the particular skills and resources the Agency has developed and the approach it has adopted to supporting its region.

In business, the transition from start-up to established enterprise is notoriously difficult. The management practices that work within a start-up run into trouble in larger organisations where there is a greater need to coordinate activities and manage risks. Larger organisations typically put in place different governance models, more rigorous planning processes, consistent procedures and sub-specialisation.

The problem is that the agility, dynamism and fun of a start-up are often lost along the way. The paper reflects on how the Innovation Agency can protect its distinctive identity and approach to its work as it becomes a more substantial organisation embedded within two integrated care systems (ICSs).

Starting from scratch

One staff member, who joined at the very beginning, provides an amusing description of her first few weeks at the Agency: phones ringing off the hook, a stream of companies asking for support, a pot of money and only a sketch of a plan for using it.

A few days into the job, she was asked to attend a national event with the other fourteen AHSNs –the NHS Expo in Manchester. There was no-one more experienced available. With almost nothing written down, her job was to staff a stand and talk convincingly about the Agency's work. Visiting the other AHSNs' stands was no help. None of them was sure either.

In the English NHS, almost no new organisations start this way, with close to a blank piece of paper. Conventional thinking on good planning practices points in an entirely different direction. Fund holders should define clear objectives upfront, determine precisely how they will measure achievement of those objectives, and hold organisations to account for delivery.

The creation of the AHSNs must be an almost unique experiment in relatively unstructured approaches to transformation in the NHS: what happens if, rather than defining precisely what needs to happen, you give people some resources and a degree of flexibility to work out how best to support a local health system?

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Early direction

A number of critical things happened at the end of 2013 and the beginning of 2014 to set the trajectory for the Agency. The first was the appointment of Gideon Ben-Tovim as Chair and Dr Liz Mear as Chief Executive. Liz describes giving up her job as Chief Executive of The Walton Centre in the autumn of 2013, before the government had actually committed any funding to the Agency, hoping that it would be the right thing to do.

Both brought with them slightly different backgrounds to the leaders of other newly formed AHSNs, many of whom came from pharmaceutical companies and other industries. As well as being the former Chair of Liverpool Primary Care Trust and then of NHS Merseyside, Gideon had a background in local politics as a Liverpool City Councillor and in academic research on race and ethnic relations. Liz was one of relatively few of the first wave of AHSN leaders with experience of managing NHS services, as Chief Executive of The Walton Centre NHS Foundation Trust and a director in NHS mental health and ambulance trusts in the North, as well as local government.

While organisations are more than their leaders, the people at the top obviously play a critical role in shaping the culture and setting its direction. This is particularly so at the Innovation Agency where the chair and chief executive were founders of the organisation and have led it for seven years. One feature of Gideon and Liz's early leadership was identifying the Agency's potential as a connector within complex local systems. As Gideon put it, 'I had seen myself how people tend to work in quite separate fields in the NHS, let alone between the NHS and the academic and business communities. We saw early on that we could play a unique role in creating links between the NHS, local authorities, universities, the business community and the voluntary sector; not delivering things on our own but enabling collaboration to support innovation.'

Another distinctive feature of Gideon and Liz's leadership is the strength of their commitment to the region and the regeneration of a part of the UK with substantial inequalities and deprivation. At this early stage, the AHSNs could choose between any number of strategies for supporting their regions. Some focused primarily on connecting major industries with the NHS or embedding quality improvement in NHS providers. Gideon and Liz made an early decision to rebrand as an 'innovation agency' – ditching the arguably misleading 'academic health science network' title – and to focus on grassroots economic development: supporting local enterprises as a route for creating jobs, sharing prosperity and improving people's health and wellbeing, as well as improving the quality of NHS services. At this stage, there was also a strategic decision that the Agency should be governed and run as an NHS organisation, whose role was to reach out and connect with academic and industry. The Agency created a 40-person partnership board – undoubtedly extremely unwieldy, but which gave partners from across its sectors and sub-regions a voice in shaping the Agency's strategy. The Agency also agreed that it would be hosted by an NHS Trust rather than operate entirely independently, largely to emphasise that it was part of the NHS family reaching out, rather than an external organisation reaching in.

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Gaining a foothold

It was far from obvious how the Innovation Agency would deliver on these early aspirations. Back in late 2013, relatively few health and care leaders would have known of the AHSNs' existence, let alone seen them as key partners.

They did not have any brand, reputation, or authority, whether formal or informal, to act as convenors or connectors within complex systems. There was a bitter blow for the Agency at the start of the first licensing period when resourcing for each AHSN was cut from an expected £10 million per year to below £3.5 million, with eight AHSNs including the Innovation Agency receiving a lower level of funding than the others. The rationale was that these eight AHSNs didn't have the existing networks and infrastructure to deploy large amounts of innovation funding effectively. (This funding discrepancy was rectified in year three.)

Dr Liz Mear describes the first few years as a painstaking process of making connections and working out how a small organisation supporting innovation could be effective within the system. Liz and other senior staff spent almost all their time outside the Agency, networking with businesses, sitting in on trust board meetings and joining the boards of key partners such as the Liverpool City Region and its Local Enterprise Partnerships. The aim was to get as close as possible to partners, understand the detail of their agendas and gradually work out how the Agency could be useful to them.

Senior staff at the Agency describe this as a period of pragmatic testing to find out how a small agency could have impact in a large system. Rather than a detailed strategy, they considered the needs of different partners and the existing assets in the region, and then tried things to see if they helped. While innovators in Oxford, Cambridge and London had easy access to finance, it was much harder for innovators on the North West Coast to make contact with investors. So the Agency tried to attract new venture capital funds to take an interest in the region. Conversely, there was already an established improvement organisation, the Advancing Quality Alliance (AQuA), providing support for improvement programmes in the region. So the Agency spent less time on quality improvement in the initial years.

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A connector across the region

One early lesson was on the value of even a small organisation playing an outward-facing role for the North West Coast's health and care systems. In the first few years, the Agency was tiny with no more than ten staff. Nevertheless, it was probably the only NHS-funded organisation in the region able to spend the majority of its time on outward-facing work: networking, cross-pollinating and spotting opportunities to join things together. Lorna Green, the Agency's Director of Enterprise and Growth, describes a common pattern of turning up at different meetings, holding separate conversations with people who were all working towards a shared agenda but had rarely met or even knew about each other. The Agency started to make strategic investments to bring these partners together, for example, funding a new post focused on economic development within the Liverpool City Region's Combined Authority, its task being to bring together the local authority, companies and academia to support regeneration. In Lancashire, they supported plans by Chorley Council and Lancaster University to secure European Regional Development Funding (EDRF), leading to the creation of a digital hub in Chorley and a health innovation campus by the university.

A significant amount of the Agency's impact appears to come from bringing together people who aren't talking to each other but need to be. Its quarterly ecosystem events bring together anybody across the region, whatever their role or organisation, with an interest in addressing a major system-wide challenge, moving care into people's homes, improving care for people in care homes or addressing regional workforce challenges. In a recent programme, the Agency brought together the pharmacists in acute trusts with community pharmacists to reduce medication errors during transfers of care. The chief pharmacist from a major trust admitted that he had never met the community pharmacists before.

Another related role has been to help organisations across the region take a more strategic approach to their work on innovation and economic development. The Agency systematically puts small amounts of resource into mapping exercises to identify what resources the system has, what activities are already happening, and where and how partners could combine resources more effectively.

"A significant amount of the Agency's impact appears to come from bringing together people who aren't talking to each other but need to be."

Building innovation infrastructure

In the early years, there was clearly a strong desire to demonstrate that the North West Coast could be a major engine of innovation for healthcare alongside innovation hubs such as London, Oxford, Cambridge and Manchester.

At the end of the first year, the Agency began a programme to address the perceived weaknesses in the North West Coast's innovation infrastructure, launching a series of projects to create innovation hubs within universities and health services.

In 2014, a paediatric surgeon, Iain Hennessey, approached the Agency with a plan for an innovation centre within an empty basement in the new Alder Hey Children's Hospital. The Agency provided £280,000 – just enough to lay a concrete floor, build a proper roof and install the electrics. The space is now a 1,000 square metre dedicated innovation hub with fifteen staff and a few million pounds of equipment. One of the biggest barriers to partnership working between businesses and healthcare is getting access to clinicians as consultants don't have the time to leave the hospital to visit a medtech firm or an offsite innovation centre. Businesses can move into the Alder Hey hub to work with hospital doctors on projects. In January 2020, the BBC reported on a successful six-hour operation to save a six-year-old with an 'impossible' tumour wrapped around her spine, an operation made possible by a 3D print of the tumour created in the innovation hub.

Achieving leverage

With a budget of just £2.5 million per year at the start, the Agency focused on bringing external funding into the region to support its work and regeneration.

It won match funding from the European Regional Development Fund for business support programmes and joined the European Institute for Innovation and Technology's innovation community for health, winning funding to support European entrepreneurs with innovations that could help the NHS. It encouraged pharmaceutical firms, in partnership arrangements, to provide resources and expertise for programmes, for example funding project managers to support and deliver quality improvement projects in GP practices.
With these strategies, the Agency was able quite quickly to double its resources to support innovation and regeneration.

One lesson from these early projects was on the impact of small but strategic investments to support innovation. A development agency can deploy very small amounts of money in ways that have a dramatic impact, if doing so provides momentum and helps to unlock other resources. For Iain Hennessey, what really mattered was finding an organisation that would provide public support for the project, give it credibility and provide a small amount of money at the right time to get the plan off the ground. Without the Innovation Agency's seed funding and backing at a critical moment, the opportunity would have passed.

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Creating a bridge into the NHS

As soon as the Innovation Agency was established, local businesses started knocking on the door asking for help. Some people had assumed that the North West Coast did not have large numbers of medical innovators. An early review by the Agency found that there were over 100 companies in each of its three Local Enterprise Partnership (LEP) sub-regions actively developing and selling products to health services. These organisations faced astonishing obstacles in even making contact with the right people in NHS commissioners and providers, let alone presenting their products to medical staff, navigating procurement processes or establishing commercial partnerships to develop new products.

Within three months, the Agency hired Lorna Green as its Commercial Director to connect entrepreneurs with potentially beneficial innovations with the NHS. Lorna and her team connected with local entrepreneurs through LEPs, small business trade associations and their networks. The team also developed a list of really effective innovations that addressed the NHS's immediate challenges and started to help these entrepreneurs to present compelling offers to NHS services.

In 2015, Lorna's team contacted a digital entrepreneur, Lee Omar, through an LEP. Lee's company, Red Ninja, had been experimenting with using artificial intelligence to control traffic light signals so that ambulances could get to people faster. Dr Liz Mear connected Lee to the North West Ambulance Service, which agreed to partner

with Lee to test the model. The Agency also helped Lee to apply to Innovate UK for research and development funding, money that allowed him to set up a data science team and develop and test algorithms for controlling traffic lights.

Talking to these entrepreneurs highlights the range of skills and highly bespoke support they rely on from the Agency. Some such as Lee need support in accessing funding and building research partnerships with the NHS. Others need early-stage management consultancy support, for example, on where to focus their efforts, how to develop a value proposition, how to develop a sales strategy and how to make a compelling pitch to the NHS. Others are experienced business people running medium-sized organisations, who simply need introductions to one or two key people in NHS providers.

The Agency unlocked a huge opportunity for a local company manufacturing non-latex surgical gloves by helping it to question unnecessarily restrictive procurement practices, something it would not have been able to do on its own, such as requirements for bidders to be established companies with a minimum of £1 million in annual turnover.

As this work has evolved, the Agency has developed more structured approaches to identifying entrepreneurs and innovations and connecting them with the NHS.

The Agency has recruited a group of 'Innovation Scouts' from across NHS services to help track down useful innovations. A clinician-led 'curation assessment panel' assesses the merits of innovations and whether to promote them.

Staff make strategic decisions on which innovators to put in front of which senior clinicians or managers in NHS service, matching solutions with needs as precisely as possible. The model requires a breed of staff with particularly acute judgements about innovators and their products and close understanding of the needs of NHS providers, not just generic knowledge but granular knowledge of the challenges faced within individual local services.

One piece of learning is on the need to target support for the innovators with the strongest ideas or products that have the strongest chances of success. While the Agency can create platforms for a wide range of entrepreneurs to showcase their ideas, it can only provide effective tailored support to a small number of these businesses.

One of the senior managers of the Agency's commercial support programmes has a list of ten names on the first page of his diary. These are the entrepreneurs and products that he is most determined to get adopted in the NHS in the next five years.

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Regional adoption programmes

Like the other AHSNs, the Agency took responsibility for delivering campaigns and large-scale adoption and spread of innovations in the region from 2014. Dr Julia Reynolds, one of the first managers of these programmes, described early experiments to develop a programme to introduce proven innovations for diagnosis and treatment of atrial fibrillation, an arrhythmic heartbeat associated with heart disease and risk of stroke.

The first challenge was to raise awareness of the issues and generate interest in improving early-stage detection. The Agency started to use low-cost, portable electrocardiograms such as MyDiagnostick and AliveCor's Kardia to test people's heartbeat at NHS events. It purchased 150 devices and gave them to GP practices and community services so they could test people quickly and generate broader interest in the technology. In a subsequent wave, it gave these devices to pharmacists, social workers, the fire service and members of the public, carrying out thousands of screenings that would not otherwise have happened.

A second major challenge was to improve treatment and address variations between services, for example, ensuring that people were taking the right doses of anti-coagulation drugs and that their blood clotting times remained within an appropriate range. The Agency secured more than £250,000 in match funding from pharmaceutical firms and device manufacturers, using the funds in part to improve GP practices' diagnosis and treatment practices.

In a third phase, it worked with clinicians, the British Heart Foundation and the British Stroke Association to develop a new pathway for treatment of atrial fibrillation, with the focus on using available technology and making better initial routine assessment of patients with atrial fibrillation, better approaches to calibrating warfarin doses, use of alternative drugs for some patients and more effective support for patients to manage their conditions on their own. The work continues in developing quality improvement tools for roll-out at scale in primary care.

Dr Julia Reynolds reflected on the AHSN's experience of running these programmes over the last seven years. Some programmes, such as improving diagnosis and treatment of atrial fibrillation or increasing administration of magnesium sulphate for mothers in preterm labour, have had a dramatic impact. In some other programmes, there was lack of agreement about the innovation to be spread or the problem that needed to be solved, which meant that innovations could be spread more effectively in some areas than in others. There were also differences in regions' readiness for innovation and support for these types of programmes.

Key principles and practises

Over the first few years, the Innovation Agency developed a non-executive and executive leadership team that was well placed to deliver boundary-spanning roles covering health care and local authority services.

The non-executive team brought links into local government, medtech companies, pharmaceutical companies and academia. Dr Liz Mear and other senior staff brought strong links into local government and the NHS. Lorna Green brought her experience as a consultant to medtech start-ups, a capital investor in start-ups and a director within large medtech firms. Dr Phil Jennings, the medical director for the Agency and NHS England's deputy medical director for Cheshire and Merseyside, brings connections into the medical professions in primary and secondary care.

Dr Liz Mear describes a moment of truth at the end of the second year when senior leaders realised that they hadn't recruited the right staff to deliver the Agency's emerging work. Many of the staff were managers from health and care services who were used to much more structured roles. The senior team rewrote the job descriptions for all the Agency's positions and asked people to reapply for their jobs, emphasising the importance of being outward-looking, achieving change primarily through developing strong networks, having impact without positional authority and working flexibly and responsively to support enterprises and health services. Only a couple of staff members from the original team of ten people successfully reapplied for their roles. The few current staff members who witnessed this transition describe a fundamental change in the culture and effectiveness of the organisation. The new staff members brought a much wider range of backgrounds, including a manager from the construction industry, several staff who previously worked with pharmaceutical companies, a consultant to small businesses, researchers from academia and people with backgrounds in coaching and teaching, as well as managers with experience of running health and care services. Interviewees describe a difference in attitude from 2016 onwards, with a team of staff who didn't want to sit in the office or work to narrowly defined job specifications but to be out and about in the health and care system, finding out what matters to people, spotting opportunities and finding practical ways to help.

The Agency also used the Investors in People framework effectively as a guide for its internal staff development policies and procedures. Dr Liz Mear described this as fundamental in helping to create a positive working environment. The Agency initially applied for bronze status, gained silver and then gained gold Investors In People status a year later. It has retained this status after two assessments and is now working towards platinum status.

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An emerging sense of what works

Caroline Kenyon describes a period of bewilderment when she joined the Innovation Agency as Director of Communications in late 2015.

One of her priorities was to raise the profile of the organisation and clarify its role in supporting innovation. At the end of the Agency's second year, though, it was hard to articulate persuasive stories about the Agency's work and its impact. At this stage, almost all the Agency's projects to support entrepreneurs, deliver adoption programmes, connect systems and create infrastructure were still a work in progress.

By autumn 2018, it was much easier to look back and make a clear assessment of which activities had made an impact during the Agency's first licence period.

- Backing entrepreneurs such as Lee Omar has had a substantial impact on the economic development of the region. Many of these start-ups are now medium-sized enterprises providing well-paid jobs to twenty to forty local people and, in some cases, delivering services across the UK and internationally. The challenge is to decide which of hundreds of innovators in the North West Coast to focus on with substantial support.
- Curating a set of high potential innovations and connecting NHS services with these innovations can have a dramatic impact on the quality of individual services, for example, the 3D print that makes it possible to attempt a life-saving surgery.
- Regional programmes to ensure adoption of simple but important innovations, such as portable electrocardiograms or administration of magnesium sulphate, appear to have significantly improved the quality of services at a larger scale, saving lives and reducing and costs. Challenges include the time and resources needed to get these programmes off the ground and support many organisations in implementing these innovations. (Even introducing troponin testing for heart attack requires substantial service change if pathology services lack capacity or are based on another site.)
- Small but strategic actions to create more effective partnerships have helped to combine the region's existing resources more effectively, for example, building partnerships between pharmaceuticals companies, universities and the NHS.
- Creating infrastructure with partners such as the ten health innovation hubs has made it easier to attract early-stage innovation funding into the region and enabled partnerships at the design stage between innovators, clinicians and patients that would have otherwise been impossible.
- Using the Agency's resources strategically to attract new resources into the region, for example, support from pharmaceuticals and medtech firms and match funding from other development agencies can mean that even small amounts of funding have a dramatic effect.
- By the end of the first licence period, the Agency had also built a much higher profile. Its profile was again highlighted as a key strength in a stakeholder survey carried out in 2019.

Getting the right staff

It is also easier now to point to a small set of guiding principles and working practices that seem to shape how the Agency does its work and contribute to its effectiveness.

Almost all the staff in the Innovation Agency now play outward-facing roles, spending the majority of their time networking, building relationships and understanding the needs and priorities of partner organisations. Staff at the Agency must be unique or almost unique in the health and care system in spending 60 to 80 per cent of their time talking to partners and using much of their resources to support partners' agendas.

The Agency has also developed a noticeably pragmatic approach to deciding how it uses its staff and resources to support the local system. Beyond its initial decision to become a boundary spanner, it has not developed a prescriptive view of what it should do and how it should use its resources.

Instead, the decision-making process is often simply to ask: 'What are our partners struggling with?' and 'Do we have any particular skills or expertise that could help them?' Again, this is odd. Management theorists have encouraged organisations to 'stick to their knitting'.

The Agency's process has led it to do useful things that might not be seen as within its core remit. The Agency recruited staff with experience in developing digital health infrastructure, so these staff are supporting Cheshire and Merseyside and Lancashire and South Cumbria in developing a single login, sharing patient records and dynamic consent mechanisms for use of personal data.

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Within the Agency, staff have developed an entrepreneurial culture that mirrors the start-ups and small enterprises they support. Dr Liz Mear has a reputation for rarely saying no to new ideas from staff or to requests for support from partners. Many staff explained that they had much less structured roles than in previous jobs and were expected to expand their job descriptions. The expectation is that they will offer practical support for enterprises and health services wherever possible. One consequence is that, as well as doing lots of things that worked, the Agency has also tried many things that didn't. As Dr Liz Mear and other staff put it, the aim is to test things rather than over-plan, and to 'fail fast and pivot' if they don't seem to be working.

Speaking to the Agency's partners, it was also clear that the Agency has built a reputation and developed behaviours that support its convenor and connector roles. Senior leaders in the two ICSs explained that the Agency had developed a reputation as an 'honest broker' and a useful partner in system-level discussions. People we talked to had the sense that the Agency would make a useful contribution to joint work where possible, without seeking to take control, impose its own agenda or block partners from making progress.

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It is possible that these principles and practices provide a particularly good model for an organisation that sees itself as a catalyst within a complex system. There are similarities with emerging principles for effective collective action to address complex problems, such as those set out by John Kania and Mark Kramer, who highlight the need for a loose rather than prescriptive sense of purpose, flexibility in using the organisation's resources, attending to partners' agendas and reciprocity between partner organisations).

Adapting to a changing environment

Since the end of 2018, there have been further substantial changes to the leadership and organisation of health and care services with the creation of ICSs.

The Office for Life Sciences has commissioned the AHSNs to develop a new innovation exchange to help innovators connect with health services. As chair of the AHSN Network, Dr Liz Mear led the AHSNs' discussions with government on renewal of their licences for a second five-year term, which led to increased funding and an expanded remit, in particular, to deliver larger-scale national programmes for patient safety and quality improvement. One consistent feature of the Agency's approach has been to keep a close eye on these changes in national and local partners' priorities and adapt its internal structures and use of resources to respond to them, even when some of the changes were unpalatable to staff.

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Working with ICSs

In 2019, the Agency reorganised its staff to create two teams whose task is to support the sustainability and transformation partnership for Cheshire and Merseyside and the aspirant ICS for Lancashire and South Cumbria. It hired two new, experienced staff to sit within and act as the Agency's liaison workers for the two systems.

In a continuation of the pragmatic and experimental approach described above, it didn't devise detailed job descriptions or plans for these new staff. Instead, it asked them to sit within the new systems' central teams, get to understand their agendas, find ways of being useful and spot opportunities for the Agency to support their work.

One key role these staff have played is in connecting the new health and care systems with partners who share their agenda. An example is the Engage, Promote, Innovate and Collaborate (EPIC) programme that brings together health services, entrepreneurs, academics and the voluntary sector to work together on the Lancashire and South Cumbria ICS's improvement priorities.

Delivery of national programmes

Before the end of the first licence period, the Agency expanded its capacity so that it could play a larger role in delivering national patient safety and improvement programmes. This has included the recruitment of new staff with a background in applying quality improvement methodologies and running improvement collaboratives.

It has also developed a new patient and public involvement team whose responsibility is to help engage patients and the public in the innovation process from the early-stage testing of new products to the implementation of national improvement projects.

capability building

Another important recent change has been the development of the Agency's team of improvement and coaching staff whose role is to support colleagues delivering innovation and improvement programmes and to develop the capabilities of health and care services to deliver improvement.

The new team has developed an unusual approach, reflecting both the individuals and the organisation, one which focuses closely on the relational and cultural factors that enable or prevent improvement, with the technical tools that figure heavily in other methodologies playing a supporting role. People who have participated in the Agency's training programmes told us that they were life-changing.

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Responding to COVID-19

Since March 2020, the Innovation Agency like other AHSNs rapidly redeployed staff and refocused its activities to help its two regional health systems respond to the COVID-19 pandemic.

By May 2020, half of the Agency's sixty staff had been redeployed to work directly within teams addressing the pandemic. The remaining staff have restructured existing support programmes so that they focus specifically on service challenges during the pandemic.

In part, this has involved helping to bring together different partners across the system. For example, the Agency is leading a regional partnership of health and academic organisations to capture learning on effective strategies in response to COVID-19. It is also helping to coordinate support from local businesses to health and care services, including the pipeline of personal protective equipment for frontline health and care staff.

The Agency is working closely with the digital teams in Cheshire and Merseyside and Lancashire and South Cumbria to support implementation of digital services in primary care, community and hospital services. It is supporting local services in making use of new, nationally procured digital platforms such as Attend Anywhere as well as helping clinicians to identify innovative digital solutions for treating COVID-19 and post COVID-19 symptoms.

At the same time, the Agency has refocused its patient safety programmes to support services in their response to COVID-19. For example, it is helping primary care practices and care homes to use the NEWS2 and RESTORE2 tools to improve detection and response to deterioration in adult patients and older people. It is also supporting services in providing effective care for increasing numbers of patients with tracheostomies during the pandemic, including ensuring that they are transferred from intensive care units to hospital wards and discharged safely.

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Where next?

Since its establishment in 2013, the Innovation Agency has matched the growth trajectory of many of the start-ups it has supported, moving from a chief executive and a phone line to a medium-sized enterprise in seven years.

Interviewees described the concertina rhythms of a fast-growing enterprise, with staff working close to exhaustion to complete the latest bid for resources, the latest recruitment drive to double the workforce or the latest rush to get a programme up and running, with the most recent being its response to COVID-19.

There is an established roadmap for the transition from start-up to medium-sized or large enterprise, and not all of the landscape looks particularly attractive. As they grow, firms typically hire a greater number of people with experience in managing larger organisations, and these people introduce the planning tools and human resource practices designed to cope with complexity in those organisations. Start-ups have an idea and a plan for the next few weeks. Corporations have annual strategic planning cycles, committees to coordinate the organisation's activities, head office functions, protocols and approvals processes to control what people are doing. While the reasons are obvious, they don't do much to support entrepreneurship.

"One immediate challenge for the Innovation Agency is surely to put in place appropriate structures and practices for a larger organisation while retaining agility, pragmatism and joy in work."

One immediate challenge for the Innovation Agency is surely to put in place appropriate structures and practices for a larger organisation while retaining agility, pragmatism and joy in work. The Agency had already started to put in place more detailed decision-making processes before COVID-19 hit, for example in its approach to screening and selecting innovations. While this has paused during the first half of 2020, the Agency will surely return to these organisational questions when the pandemic has ended. One question for the Agency is whether there is a middle ground between the anarchy of a start-up and approaches adopted within large pyramid organisations, say guiding principles rather than protocols, or consultation mechanisms rather than approval processes?

Another challenge is how to manage the Agency's increasingly wide range of activities effectively. As companies mature, they typically take on a much broader range of functions, some of which sit more neatly together than others, and they often struggle to combine them. Large tech firms oscillate between being great at

blue skies innovation and poor at the disciplined grind of lean manufacturing, or poor at innovation while fantastic at running efficient production lines. What culture or organisational structures would help the Agency retain its excellence in finding early-stage innovators – the thing that makes many of the early recruits to the Agency tick – while being equally good at running national improvement programmes?

For the foreseeable future, the Agency like other NHS organisations will need to focus exclusively on the response to COVID-19 and transition after the pandemic. It is considering how it can support its two regional systems in taking stock of recent service changes and sustaining the transition to effective online services. However, commissioners and providers have already restarted planning for the next phases of development of integrated health systems. There is an endless number of unanswered questions about the role of innovation and improvement agencies within these systems: how close do they need to be to these systems, how closely aligned, and what specific functions should they assume in them? In some ways, the Agency already has similarities with, say, Jonkoping's Qulturum Centre or Canterbury New Zealand's HealthPathways Organisation, both of which play a defining role in bringing different parts of a complex system together. If the Agency becomes fully embedded in its two integrated systems, this opens up new possibilities for diffusing innovation quickly. It also creates challenges such as how to retain a degree of independence, continue to think creatively, continue to serve enterprises and continue to support regional development effectively while meeting the health and care system's needs.

The one thing start-ups are short of is time. Nobody has a second to reflect on the internal workings of the organisation, when simply getting through the next few months is a challenge. Start-ups that don't focus intently on the product and the end-user don't last long enough to have away-days. While things are changing, leadership and staff at the Agency have by necessity focused on their relationship with the outside world rather than the internal functioning of the organisation, for example on unpicking the particular values, principles or ways of behaving that lie at the heart of what they have done well over the past seven years. As organisations grow, it arguably becomes much more important to codify the ethics, working practices, routines, rituals and cultural norms that make them special, not least because these characteristics need to be sustained amongst larger groups of people working in separate divisions. The new improvement and coaching team is playing a role in doing this. There is also a natural fit between the team's formal approach to coaching and working practices that have developed naturally within the Agency.

When you spend time learning about a new organisation, there is almost always a range of views on the leadership, the strategy and how the organisation is organised. While this was true here, the staff were uniformly enthusiastic about the non-executive oversight, the executive leadership and the culture of the organisation. Many volunteered that the chair and the chief executive were the most supportive leaders they had worked with. Entrepreneurs and staff within health and care services were also hugely appreciative of the Agency's support. That is surely a fantastic foundation to build on.

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