The Kings Fund

Ideas that change health and care

Interoperability is more than technology

The role of culture and leadership in joined-up care

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About this project

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Contents

Key messages

- Integration of care services, collaboration and digital transformation may seem separate but in reality they are deeply inter-related. Digital technologies are key to enabling collaboration between health and care partners in the new integrated care systems.
- Leaders and staff often have different interpretations of what interoperability is and how it can benefit staff and patients, with no clear consensus.
- In this report, we define interoperability as how people, systems and processes talk and work together across organisational structures and professions, supported by technology.
- Interoperability has three equally important aspects that are vital for success: good co-working relationships between staff so that they want to connect; technology that makes co-working as easy as possible; and an enabling environment (in which funding, capacity, skills, education and governance are aligned).
- Although traditionally seen as a technology problem, good technology is not enough for interoperability.
- To build and strengthen relationships, people need space and time away from their day-to-day responsibilities, and a structure that can help remove existing power dynamics.
- Relationships need to be continually developed and strengthened across organisations and professions for interoperability to progress.
- There need to be improvements in how digital technology functions, specifically: use and adherence to standards for how data is captured and shared; addressing the fragmentation of technologies; and simplifying the multiple approaches to data-sharing.
- Leaders need to work collectively to minimise power dynamics; staff need to be supported to lead change projects; and communications should reinforce a collaborative working culture.
- National NHS bodies should consider making changes to funding and funding timescales, using whole-system incentives and national initiatives to enable progress on interoperability.

1 Introduction

Background

People view the NHS as a single organisation and, as such, they expect it to be able to share information smoothly between its component parts. However, in reality, when people move from one care setting to another, they often find that they have to give the same information again and provide details on medication or past treatments. As well as being frustrating and time-consuming, this can also put people at risk. For example, a person could be at risk of side effects from dental treatment if they are unable to remember their medications correctly when asked for this information by a dentist. The lack of information flow also creates challenges for staff. For example, in an emergency situation, staff may need to make quick decisions but might not have the information they need about the patient, their care support needs or medications in order to give them the best care possible at that time. There are also missed opportunities for better care. For example, when a person has their eyes checked at an opticians, there is a missed chance to check some broader aspects of their health where this might be helpful for prevention or early diagnosis.

This disjointed care experience for people and staff alike has its origins in a health system that works in silos. However, the health and care system in England has been moving towards more collaborative and joined-up care (**The King's Fund 2017**). This has seen a shift to providing care closer to home through integrated care systems (ICSs), provider collaboratives and primary care networks. As the health and care system is changing, so are people's needs; there is now an ageing population and an increasing number of people living with long-term conditions who need to access support across the health and care landscape. These changes mean that it is now even more urgent to provide more joined-up channels of communication between different parts of the system.

Alongside the care integration agenda, there is also a greater focus on using digital technologies to modernise how services are planned and delivered. Digital technologies are reshaping people's lives. In banking, shopping and communications, for example, digital technologies have changed people's behaviours and expectations,

and there is the potential for the same to happen in health and social care. There are many areas where technology can improve services to achieve the standards expected by the public and by staff, including health and care.

Integration and digital transformation may seem separate but, in reality, they are deeply inter-related. Digital technologies can help with sharing medical information but can also join up people, processes and organisations to enable care to be delivered in a way that meets people's expectations (now and in the future) while also improving workflow for staff (Mistry 2020).

This joining up of people, services and organisations – often referred to as interoperability – has been viewed as a technology problem. There have been attempts to improve the technology underpinning interoperability since 1998 (National Audit Office 2020). Although technology clearly has a significant role to play, the importance of culture, leadership and skills continues to be overlooked. Digital technologies can join up care providers by enabling them to share information, but this is not possible unless the people who hold that information want to communicate, share information and be part of cross-organisational teams. This means they need to recognise the benefits and be comfortable with the way these happen.

Past and present policy context

The NHS Long Term Plan (NHS England 2019) set out an aim to improve interoperability by focusing on access to records for patients and clinicians. It also envisioned that clinicians would, in future, be able to access and interact with patient records and care plans from any location. This access is now in place in the form of shared care records.

Recently there have been several national policy developments aiming to improve interoperability. *Integrating care: next steps to building strong and effective integrated care systems across England* (NHS England 2020) established the expectation for ICSs to have system-wide digital transformation plans. As a result, many ICSs have a digital strategy that may include interoperability projects, such as shared care records, cross-system data use, and tools for collaborative working across organisations. These ICS digital plans are likely to be updated soon in response to two new policy papers: *A plan for digital health and social care* (Department of

Health and Social Care 2022a) and *Data saves lives: reshaping health and social care with data* (Department of Health and Social Care 2022b).

The first of these, *A plan for digital health and social care*, summarises the existing commitments on digital and data in health and social care. It recognises that the key to interoperability is getting health and social care providers and their tech suppliers to adopt the same technical standards – a move that is expected to be driven by the forthcoming interoperability and standards strategy (Faculty of Clinical Informatics undated). The plan confirms that the Health and Care Act 2022 makes it mandatory for all health and adult social care providers to comply with any standards that the Department of Health and Social Care publishes as Information Standards Notices (ISNs). It sets out the intention to work with the Department for Digital, Culture, Media and Sport to change Section 250 of the Health and Social Care Act 2012 to include a new enabling power to apply technical standards to IT suppliers. The routes to market will be consolidated and there will be some convergence of electronic patient records to improve interoperability. All these changes will have an impact on digital transformation and interoperability projects within ICSs.

The *Data saves lives* strategy provides more detail on the nationally led ambitions to improve interoperability in health and social care. It sets out the approach to developing digital and data standards that are open, realistic and protect privacy and safety. New powers for the Secretary of State for Health and Social Care mean that standards for how information is collected and stored can be mandated. The document indicates that digital social care records will enable interoperability by flowing social care information into shared care records. The strategy encompasses broad, data-led changes to services and research, and links to the draft interoperability and standards strategy (Faculty of Clinical Informatics undated).

The draft interoperability and standards strategy sets out many of the technical and process details on how standards for digital and data will be developed and managed in future. It introduces how the approach to standards will change so that they are treated more like a product. This means having an end-to-end model – from commissioning and prioritisation, through to development, adoption, maintenance and retirement. The draft strategy includes the intention to have a mechanism to assess how products conform to standards. In future, suppliers could be required to publish this information openly. When combined with procurement frameworks, the intention is to improve the incentives and levers for applying

standards consistently. This will have an impact on how technology is selected for use in ICSs. The aim is to make standards more visible to NHS and social care providers and commissioners, vendors and policy-makers so that they can be used effectively as part of ICS digital transformation plans.

About this report

Before starting our interviews and workshops, we carried out a literature review that focused on three main search terms: digital transformation, interoperability and digital leadership. The review covered journals and grey literature over the past 10 years to understand the progress and gaps in these topic areas.

We conducted 14 one-to-one interviews to explore participants' understanding and experiences of interoperability. We used five virtual group workshops to test structured group conversation as a way of helping participants to make practical progress in improving the relationships that form a central part of successful interoperability. These workshops also helped to generate findings for our research. Participants included members of the public, patients, service users and staff across care settings, including dentistry, ophthalmology and optometry, ambulance trusts, mental health trusts, pharmacy, general practice, social care, and the voluntary and community sector (VCS). Participants' level of seniority and technical expertise varied, and included ICS board leaders, provider leaders, chief clinical information officers, chief information officers, team leaders and frontline staff. The interviews focused on senior system and organisation leaders, whereas workshops engaged with frontline staff who also have expertise and knowledge of digital transformation. This created a research process that engaged broadly across the system, gleaned insights and tested an intervention approach.

We also conducted semi-structured interviews with four leaders across each of two case study sites: Cambridgeshire and Peterborough ICS, and Humber and North Yorkshire Health and Care Partnership (a multi-partnership ICS) (for more details on the case study sites, *see* Appendix A). We wanted to understand how they have created interoperability as part of their digital transformation in line with national priorities, and what their long-term plans are. We chose these sites as examples of successful digitalisation projects that have created effective interoperable systems that have improved patient care and staff experience.

Structure of this report

This report combines findings from the literature review and our interviews and workshops to create a deeper understanding of how interoperability can be successfully achieved by using technology so multiple organisations can work together – albeit with very different organisational cultures and professions – to achieve shared aims.

Section 2 discusses definitions of interoperability and describes the benefits it can bring for organisations, staff, patients and the public. Sections 3 to 5 present our research findings on the three areas that are key to putting interoperability into practice: building working relationships based on trust across systems and organisations; technology; and creating an enabling environment. In each section, we conclude with some brief suggestions as to what leaders can do to begin putting interoperability into practice. Section 6 discusses how to prepare leaders, staff and organisations for change. It also presents a generative dialogue methodology that we used during our research. This five-stage model can be used by leaders or staff involved in ICSs to create space to think about interoperability and connect with partners across their system so that they can begin (or accelerate their efforts) to put it into practice. Section 7 concludes the report by summarising our recommendations for local leaders and national bodies.

2 What is interoperability and what benefits can it bring?

How is interoperability defined?

There is no universally agreed or shared definition of what interoperability means. However, NHS England's *Interoperability handbook* (NHS England *et al* 2015) defines it in two ways:

- technical interoperability: the process of moving data between two systems
- semantic interoperability: ensuring that each system can understand the information received from the others.

The draft interoperability and standards strategy defines interoperability more by what it enables:

> *In a health context, achieving interoperability allows people involved in the provision and receipt of care to seamlessly exchange and access the data they need to inform care decisions across a whole pathway, using the tools that work best for them. It also enables sharing of data for research and planning purposes, helping us better understand and manage population health, and develop new treatments.*
>
> Faculty of Clinical Informatics undated

This draft strategy and the policy paper *Data saves lives* (Department of Health and Social Care 2022b) both frame successful interoperability as being dependent on addressing technical issues that have plagued interoperability initiatives in the past. These documents choose to focus on developing shared records, standards, roadmaps and technical specifications that enable data to flow across systems. However, solutions that centre around technology overlook the non-technical aspects that our findings suggest are central to effective interoperability: building relationships and cross-organisational working within an enabling environment in which digital skills, capability or workflows are used to improve outcomes and experiences for staff and patients alike.

The NHS staff and leaders involved in our research did not have a coherent sense of what interoperability is; individuals and organisations held different views. It is therefore vital for everyone involved to have a common understanding of interoperability, as this will increase the likelihood of success by improving staff buy-in and readiness for change. It also ensures that everyone involved in an interoperability project is driving towards the same aims for change and impact.

> *Interoperability works best when 'people are willing to be part of a bigger thing, not ruler of their own fiefdom'.*
>
> Cardiology consultant

The question 'What does interoperability mean to you?' garnered a range of responses from interviewees and workshop participants. They described three main aspects as being necessary for describing interoperability.

- Technology – for example, connecting separate digital systems together or sharing data across digital systems, or reducing the multiple logins and windows needed to access medical information.
- Relationships – for example, having a culture where staff have good knowledge about each other's roles and responsibilities, with co-working relationships based on trust, recognising that relationships include not just staff but also patients, carers and the public.
- An enabling environment – for example, complementary workflows and information governance that supports the creation of joined-up services provided by cross-team working.

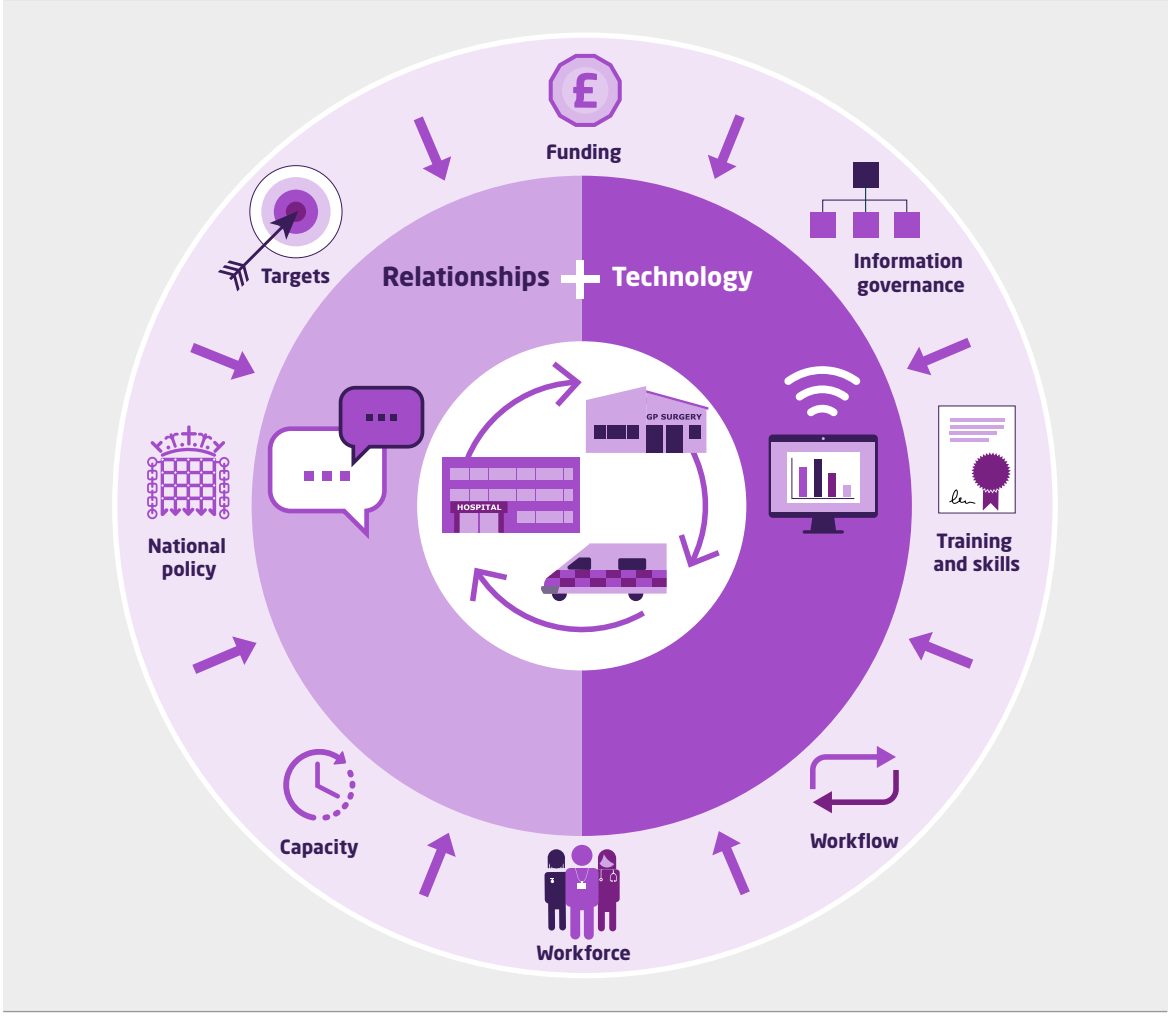
One interviewee compared interoperability with the process of merging organisations, whereby different organisations with very different skills, culture and sometimes professions need to work together to jointly provide care with and for patients. But close working across these organisations can result in a clash of cultures, arising from differences of opinion, such as what is the best practice or optimum workflows. Professional boundaries can also create problems, typically where there are overlaps and gaps in staff roles and responsibilities.

> *Its closest proximity is to a form of merger or acquisition… There's similarity because it involves people, it involves ways of working, and it involves some form of change.*
>
> Senior digital leader

Interoperability is a complicated concept, but our research indicates that for it to become a reality for staff and patients, it cannot, and is not, achieved by technological changes alone.

In this report, we define interoperability as how people, systems and processes talk and work together across organisational structures and professions, supported through technology. This technology may include asynchronous messaging tools (eg, MS Teams chat), video calls or shared care records. Interoperability is not a single project or change process; it is an ongoing process and improves as more projects enable teams and organisations to work together with digital tools.

Figure 1 Three key aspects for interoperability: technology, relationships and an enabling environment



Making the case – the benefits of interoperability

Participants shared many reasons for establishing and improving interoperability. They range from the national policy as a driver to the need to better structure services for the complex needs of patients to improving staff and patient experiences. Table 1 (*see* p 14) summarises some of the benefits of interoperability as described by our research participants.

Some of these benefits can also lead to improvements in other areas. For example, easier access to information not only streamlines workflows but also saves staff time and reduces some frustrations; and reduced duplication of tests not only improves the patient experience but also reduces costs.

Table 1 The benefits of interoperability

Benefit of interoperability	What does this look like?	Delivers improvements in...
Better experience of care services	Staff can access patients' information wherever patients interact with the system	Patient experience Staff experience and time
	Services are joined up	Patient experience
	Access to information reduces repeat tests	Patient experience and safety System costs reduced
	Access to information (eg, tests) means some clinical decisions can be made sooner	Patient experience and safety Staff experience and time
Improved patient safety	Staff can access patient information in emergencies or without relying on patient memory, ensuring correct medication and optimal care	Patient experience and safety Staff experience
Better clinical decision-making	All relevant patient information available alongside communication from other staff	Patient and staff experience
Streamlined workflows	Quicker and easier access to information and colleagues (fewer passwords, fewer software systems to navigate, video and messaging with colleagues)	Staff experience and time
	Avoid duplication of questions and recording of patient information	Staff experience and time
Improved services	Improved data to ensure service responses are valid (eg, ambulance)	Patient experience and safety Staff experience and time Use of system resources
	Better service development using rich data to target inequalities	Patient experience
	Joined-up services more capable of delivering high-quality complex care	Patient experience and safety Staff experience and time
Improved research and development	Better-quality and more comprehensive data for research and evaluation	Improve interventions and evidence available to the system

3 Achieving interoperability: building positive working relationships

This is the first of three sections presenting our research findings on the three areas that are key to putting interoperability into practice. In this section we report on the need to build working relationships based on trust across systems and organisations. The findings on technology and creating an enabling environment will be detailed in the next two sections.

For organisations to achieve interoperability, they need to have a culture whereby people want to work together. However, developing this culture can be difficult; organisations need to build trust around shared understanding and shared goals, and, in some cases, power dynamics across professions and organisations need to be addressed. Most of the literature on digital transformation focuses on transformation within single health care organisations, and is mostly concerned with hospitals adopting electronic health records. With this context in mind, the literature shows that trust is an important factor in the success of transformation projects – trust in leaders, other staff and professions, technology and the processes themselves (Greenhalgh *et al* 2017). Other important factors are staff skills, education and engagement (Oung *et al* 2021).

Building trust and relationships

Participants explained that when establishing cross-organisational working, staff and leaders can sometimes lack an appreciation of the difficulties, frustrations, pressures and priorities experienced by those in other organisations. Staff and organisations need to understand each other's experiences, motivations and priorities in order to create a culture in which organisations can work together to achieve a common goal (Timmins 2019).

This was a common theme in our interviews and workshops. Misunderstandings can arise in a range of areas. For example, one VCS leader described how working

with a hospital is challenging when the payments to VCS organisations are not prioritised; what may seem like a small sum of money to hospital services can be large enough for a VCS organisation to risk staff losses. In another example, social care providers described the difficulty in ensuring that their priorities and those of the individuals they support are adequately understood:

> *When we've had council contracts, I've seen very person-centred workers morph into system-pleasers and what they have to do in order to get a support plan through is jump through the hoops of the system rather than to work with what the person wants.*
>
> VCS chief executive

Social care staff also described poor experiences when trying to access health information for the individuals they care for. One interviewee described how a social care provider dedicated resources to completing the Data Security and Protection Toolkit (**NHS Digital 2022a**) to demonstrate its good data practices in line with NHS expectations. However, local NHS organisations would still not give social care staff access to information, the technical compliance to handle data appropriately was in place but insufficient trust between professions stops data flowing between organisations.

> *Because they [the social care provider] haven't got a clinician on site, they're excluded from any level of interoperability, because as far as the health service is concerned, they haven't got the clinician to view the information, and therefore it's not a safe transfer of information, so that interoperability doesn't happen.*
>
> Social care digital leader

Our research found that this type of experience is not limited to social care but also happens with organisations in the voluntary and community sector.

> *There perhaps does need to be a bit of communication about how the voluntary sector does work and that, you know, we are professional in our own ways, we do know what we're doing and our practices are good.*
>
> Charity chief executive

Another chief executive noted that:

> *A lot of the questions were asked of me, my security, my data, my training, was I professional enough? I answered every single question but it was very amusing to me, the thought process was that perhaps we weren't as professional as the NHS.*

With jointly provided services comes a need to unify workflows. This can result in disagreements about what is good practice, and these disagreements can create problems for cross-organisational working. For example, in one workshop, we heard how a charity's attempt to work with local services failed because of administrative demands stretching the charity's staff.

Participants shared that one important source of friction is the unequal distribution of risk, reward and cost across organisations working towards interoperability. For example, one organisation might be providing more funding and staff time for a project, while another is taking on more data risk.

> *One of the big problems with sharing of data is, are those risks and benefits held equally? Because it may be that some organisations are picking up all the benefit, others are picking up more of the risk, and yet someone else is picking up more of the cost.*
>
> Chief clinical information officer

Where interoperability has progressed, we heard from leaders and staff that it had been important to create space and make time to build co-working relationships based on trust across organisations.

> *The challenge is trying to have a sense of team across multiple trusts and multiple local authorities. But actually, you can do it.*
>
> ICS chair

Establishing and strengthening relationships across organisations is an ongoing process, and is not something that can ever be fully 'done' and put aside. Staff, and their roles and responsibilities, may change, and behaviours can begin to revert to siloed thinking. Participants shared that leaders who prioritise building relationships across organisations view digital tools as an extension of these relationships. Staff

that do not work well together tend to keep control of the digital technologies they use and the medical information held, rather than sharing and collaborating:

> *I still encounter territory disputes which then contaminate relationships… more people controlling their bit of kit and their data… This depends where a system and partners are, in actually understanding the benefit of collaboration.*
>
> ICS chair

Without a peer group of leaders with good co-working relationships who lead collaboratively as equals, interoperability projects are more likely to fail or have less of an impact:

> *The main factor is where you haven't got agreement of common purpose and the relationships and the collaboration of leaders of organisations are not in that joint team space. That's the critical risk, you've got to invest in crucial, well-partnered and quite deep relationships to work as a team.*
>
> ICS chair

The relationships between leaders are important for interoperability change projects to succeed. Interoperability means that leaders need to work collaboratively across organisations as a peer group of equals (**Timmins 2019**), able to empathise with their colleagues and seek to understand the challenges they face (**Bailey and West 2022**). Leadership skills are essential to create and improve digitally enabled cross-organisational services, but traditional leadership approaches are challenged by cross-organisational working. To behave and work as equals requires a shift in leadership culture among the organisations involved, Cambridge and Peterborough ICS are using matrix leadership approaches to help with this (*see* box below).

Using matrix leadership for cross-organisational working in Cambridgeshire and Peterborough Integrated Care System

The partners in the Cambridgeshire and Peterborough ICS felt it was important to have a shared sense of ownership of the ICS's digital strategy and workplans, as well as effective leadership, accountability and a clear roadmap to achieving the aims set out in the strategy and plans. To achieve this vision and to address the challenges of siloed working, as well as the potential for resistance from staff, they needed to put in place the right model of leadership and the right approach to changing organisational cultures. They chose to implement a matrix model of working whereby the ICS partners have shared understanding across their organisations and work as a group with shared leadership responsibility.

Using a matrix leadership model in the digital enabling group supports organisations to collaborate across workstreams to deliver digital change. The group's role is to: review and refresh the digital strategy; provide governance and oversee digital transformation projects; ensure that digital systems align with national standards and agreed principles; and identify the assets they have and how best to use their resources. The group includes strategic and operational digital and transformation leads from key organisations. The compassionate leadership approach adopted by the ICS has helped to change organisational culture (Bailey and West 2022), with leaders themselves modelling organisational values and expected behaviours.

Addressing power dynamics

The organisations involved in an ICS can range from providers and local authorities to charities and community groups. Although they are all focused on supporting the care and wellbeing of patients, there are large differences in terms of their budgets, size, activity and professions, and these substantial differences can create power dynamics across the ICS. In particular, there is a risk that the NHS – historically the more powerful partner – will continue in this role, with ICBs (integrated care boards) being the dominant power rather than an equal force with the ICP (integrated care partnership). Financial differences can also cause substantial power imbalances, as can workflows. Both can lead to unanticipated expectations and cross-organisational pressures.

We decided to use a generative dialogues approach to explore relationships and power dynamics in our workshops. The resulting conversations helped participants

to develop empathy towards the risks and pressures facing others, and a shared understanding of how to provide better care together. More information about this approach can be found in section 6 and Appendix B.

What can leaders do?

- Take time to understand the needs and motivations of each partner organisation.
- Be aware of power imbalances across the organisations involved and work collaboratively to minimise them.
- Invest time and energy in relationships to build trust.
- Work collaboratively with other leaders to minimise cross-profession power imbalances.

Creating digital 'champions'

Staff who are interested in digital technologies and interoperability can become 'champions' of change (Dougall and Ross 2018). They can lead projects and champion digital technologies, building cross-organisational relationships by doing cross-organisational projects. Champions are a successful and pragmatic approach to supporting, engaging and motivating staff through professional peer group relationships.

> *Digital champions are out evangelising for the projects and getting people excited and engaged in it as well.*
> ICS chief information officer

Many organisations will already have staff who are interested in driving forward digital health and interoperability and are well placed to start a 'digital champion' peer group. Being a champion gives staff the opportunity to improve skills and lead interoperability initiatives (Timmins 2015), and we heard from participants that the opportunity for portfolio working can help organisations with retention:

> *Start with the champions, the people that are really interested and you get them to use it and then other people become interested.*
> ICS chair

Champions can bring many benefits; they can help to improve communication and shared understanding among peers while also providing staff feedback to senior leaders. They can be instrumental in understanding the morale, buy-in, reservations and challenges of their peers, which can feed into adjustments to change projects.

Participants' experiences of these roles were that champions are likely to self-select and so are already interested in the potential of digital technology to improve cross-organisational working; they have a peer group of colleagues less interested in or aware of this work, and are involved in care delivery. This means they can be well placed to be involved in cross-organisational teams to work on or lead projects that improve interoperability such as governance, technology implementation or co-producing workflows. Champions can help to lead projects and initiatives, ensuring they fit with the expectations of the professions concerned as well as addressing the immediate needs of staff, reinforcing buy-in by demonstrating value:

> *The easiest way to demonstrate value is to show something happening.*
> Chief clinical information officer

For champions to thrive, they need support from leaders across the organisations and at the level of the integrated care board. They need to feel empowered as champions to then own interoperability projects and drive the projects forward to meet the expectations of their peers.

Leaders need to ensure that champions have dedicated time to engage across and within organisations, and have access to the training and skills that enable them to lead and contribute to technical projects. Training and education can be internally or externally provided, for example Cambridgeshire and Peterborough ICS have developed a cross-organisation peer-to-peer approach (*see* box below).

What can leaders do?

- Cultivate and empower champions in different professions and across organisations.
- Ensure that champions have a voice and protected time to be involved in and lead transformation projects.
- Support champions to develop the skills they will need to deliver successful transformation projects.

Cambridgeshire and Peterborough Integrated Care System: champions support peer-to-peer learning

Cambridgeshire and Peterborough ICS experienced a number of challenges in implementing its digital strategy, including differences in organisational digital maturity and staff skills. These challenges have had an impact on the ICS's ability to create interoperable systems.

To reduce differences in digital maturity, partners have supported organisations that are struggling by providing funding and staff training. Although some training is delivered externally, their approach to staff development is peer-to-peer, with an emphasis on integrating digitalisation into people's core work and delivery of care.

The peer-to-peer training includes the 'train the trainer' method whereby departments nominated champions who are 'super users' or 'experts', and these champions are trained to provide training to others. Champions promote and support their teams to deliver digital change. However, ICS leaders recognise that it can be challenging for champions to balance their workload and training requirements, and so the leaders ensure that the ICS invests time and resources to support champions to improve approaches and requirements for training. The ICS plans to continue to widen the scope of organisations that have interoperability through the shared care record, to include more non-NHS organisations. They also plan to continue building trust with patients and the public on data use and sharing.

4 Achieving interoperability: making the most of technology

The technology used within a system or organisation is as important as the relationships between the people or organisations involved. However, in many cases, technology can create barriers that need to be addressed if digitally enabled cross-organisational services are to benefit patients, the public and staff.

Technology fragmentation

Technology fragmentation limits how much a service can be joined up and how much staff across organisations can work together and share medical information to improve care services. In the longer term, fragmentation also prevents more radical transformation whereby interoperable technology, with co-working staff and complementary processes, could facilitate more easily accessible care provided in the community instead of in hospitals.

Joining up technology can be difficult if organisations are using different software and hardware with different capabilities, functions, information captured and formats. We heard that for some areas such as optometry and ophthalmology, fragmentation is more problematic than others. In these cases, different hardware and software, different capabilities and numerous small organisations being involved make it very difficult for community optometry and ophthalmology to work with specialists in acute settings.

> *Our primary referrers are optometrists in the community and they've now got lots of cameras and scanners. Ideally, we would get the images that they've taken and get to see them in hospital. But we have problems transferring them across and also storing them when they do come across.*
>
> Clinical leader, eye care

A whole-system approach to standards

One of the reasons behind this is that in order to supply products (both hardware and software) to the health and care sector, vendors must first comply with data standards and are then added to frameworks so that provider organisations can procure their products. However, these standards are not applied consistently across all frameworks (**Baird and Maguire 2021**). So, while the technology within one organisation might meet the standards, an equivalent technology in another part of the NHS or social care may not, so the two systems cannot connect together and share data. This is due to inconsistencies in how standards are applied to different frameworks and accredited supplier lists.

> *Until this year, there was no accredited supplier list for any solution in social care. So, there's a bit of a 'wild west' of procurement really. So, standards-wise, how do you know that anything you buy is actually going to be good enough to do what you want it to do, if you did want it to talk to something else? You wouldn't. So, that's been one of the problems.*
>
> Social care digital leader

Improving supplier compliance with standards

Our research participants suggested that suppliers may be reluctant to make the changes to their technologies to comply with data standards because of uncertainty about the permanence of those standards. Also, if standards are not issued as a final version, suppliers may not use resources on engineering developments that then need to change again if the standards change.

> *If you look at the Care Connect profile on the NHS Digital GitHub [an online repository of software], 95 per cent is still Beta. So if they're all on Beta, why is the supplier going to implement? I do have a level of sympathy that, if you haven't even issued the standards, why are you expecting people to use them?*
>
> ICS chief information officer

> *Suppliers aren't necessarily incentivised to be more interoperable. It's not in their commercial interests.*
>
> National leader in digital strategy

In addition to the complexity around data standards and procurement, our research found that health and care staff perceive the technology itself and suppliers to be a source of problems, hindering cross-organisational working rather than providing an enabling environment. Participants said that existing suppliers whose technology is already widely used may not implement data standards, making it difficult for data to flow across systems and for technologies to connect.

> *Some suppliers are being more open to making… their products open to data-sharing. I think that's getting a bit better, but it's still a bit of a challenge with other suppliers.*
>
> ICS chief information officer

Leaders are developing approaches to overcome some of these challenges, working collaboratively across the ICS to create business cases that are aligned with the tender process to ensure that the technology supports their vision of cross-organisational working. This is helped by having the support of the ICB and organisational leaders:

> *[We] made that a requirement of our tender process and our business case, that we needed to ensure that any supplier we chose would be able to allow us to create an environment to share records across different providers.*
>
> ICS chief information officer

In Humber and North Yorkshire Health and Care Partnership they have cultivated good relationships with small to medium-sized enterprises which has helped to ensure the same standards are used and applied across the partnership (*see* box for more details).

Working with local small to medium-sized enterprises in Humber and North Yorkshire Health and Care Partnership

Humber and North Yorkshire Health and Care Partnership has received awards for its digital health innovation, including its care records developed in partnership with local communities, health and care providers and businesses. Its community engagement approaches have helped to engage with diverse communities, some of whom are digitally excluded.

The partnership's digital transformation plan started with creating a local health and care record (LHCR), which was developed sub-regionally in Leeds and Rotherham. The care records were successful in joining up care and resulted in the region being included (one of only five) in the NHS Local Health Care Record Exemplar programme in 2018. As an exemplar, the partnership received £7.5 million over two years to extend the LHCR to other geographical areas. In the future, more organisations will have access to the LHCR and the data collected will be used for population management and research and development.

What is different about this work on interoperability and shared care records is how the partnership is working with local small to medium-sized enterprises to create the technology that sits behind the shared record, as opposed to using a big, single-solution systems provider. This approach is about product development, testing and improvement, allowing technologies to be developed that work for staff and work well together by using the same standards. Before investing large sums of money, this approach ensures that the products created deliver on partnership objectives, while providing value for money and allowing partners to have responsibility for the project. Trust within the teams was a significant enabler to empower staff and partners to lead on different parts of the project.

National bodies could reduce fragmentation by applying a whole-system approach to standards, to ensure that technologies can connect across organisations and systems. The policy paper, *A plan for digital health and social care* (**Department of Health and Social Care 2022a**), outlines the intention to establish powers for the Secretary of State to mandate that suppliers need to use established standards. The draft interoperability and standards Strategy builds on this to provide a roadmap of standards and a life cycle (**Faculty of Clinical Informatics undated**). Together, these could help address the challenges we have identified here, but it will depend on how these are enforced and the timeframes for standards to be incorporated into supplier systems.

What can leaders do?

- Incentivise suppliers and providers to procure technologies that have consistent baseline features and capabilities.
- Incentivise providers through new service development opportunities that will improve patient care and outcomes.
- Ensure that digital strategies have a built-in approach to iteratively improve standards.
- Develop business cases across organisations to ensure that technology procurement is complementary and adaptable.

Reducing the complexity of national data-sharing solutions

Another form of fragmentation is the multiple ways the NHS currently enables an element of interoperability through data-sharing. Approaches include shared care records, summary care records, GP Connect, personal health records and personal demographic services (*see* box).

> *[There's a] multiplicity of national solutions… This seems to be a bit of a truism in the NHS, is to back multiple horses at the same time, and it just makes it really difficult for people, clinicians, to decide where to go and what to do.*
>
> ICS chief digital officer

These approaches have some overlap, which adds unnecessary complexity and is confusing for health and care staff trying to navigate the appropriate and assured mechanism to share information. We heard reports that this situation also creates a degree of reticence, as staff tend to stick with one solution – often the one that is most familiar to them. This gives some degree of interoperability but is not necessarily what was anticipated, and can even stop interoperability progressing.

National NHS bodies could review the number of nationally developed data-sharing approaches and how they can be reduced or simplified to make it easier to understand which approach to use and why.

What can leaders do?

- Communicate with staff to improve awareness of the national approaches to data-sharing and when each should be used.

How does the NHS currently share data?

Here are the ways that medical information and patient data can be shared and flow in the NHS and social care.

Shared care record – a digital record that holds patient information, combined from different sources in health and social care. Authorised staff can access this combined digital record information, which is typically displayed to staff in different tabs.

Summary care record – digital record of specific important patient information taken from a patient's GP medical records.

GP Connect – enables health care professionals to access a patient's GP records. If a consultation occurs outside of the patient's registered practice, a summary can be recorded back into the patient's GP record. Staff can also book follow-up appointments on behalf of a patient at their registered practice or another care setting.

Personal health records (PHR) – a health record held and managed by the person who the record is about. They can add information to their PHR; it stores information about that person's health, care and wellbeing; health and care staff can also add information to it. The information can include health and care interactions and personal wellbeing information.

Personal demographic services (PDS) – the national database of some NHS patient information, including name, address, date of birth, NHS number, and some demographic information.

5 Achieving interoperability: creating an enabling environment

Our research showed that technology and relationships alone are not enough to truly join up services, and that there are some wider enablers that need to be in place for interoperability projects to be successful. These include:

- information governance
- access to analyst and data science workforce
- appropriate staff training and skills
- sufficient capacity for transformation
- compatible workflows across organisations
- supportive national policies
- funding that is accessible and long term
- targets that support improvements in outcomes.

Information governance

Information governance is an important facilitator of cross-organisational working. Good governance creates an environment in which staff feel reassured that sharing information is the right thing to do because it is being done in a way that protects privacy, and because other organisations are using data appropriately. However, existing information governance is considered to encourage risk-averse behaviour in staff; they default to not sharing medical information because they are unsure if the security and privacy protections are sufficient (Baird and Maguire 2021).

Attitudes and perceived risks around data-sharing differ across organisations and professions. Good information governance can help stop protective behaviours that

prevent data-sharing. Governance is not a substitute for good relationships but it can enhance cross-organisational working.

> *Basically we've got to have information governance and sharing that everybody accepts, is happy, legal, and will sign up for.*
> ICS chief information officer

To create an enabling information governance structure requires a shared understanding of what governance is and how it keeps information secure, protects privacy and manages risks. This means bringing together staff across the ICS to review and renew information governance across the organisations involved. Using a structured conversation approach (*see* section 6) can help. It provides a forum to surface staff concerns around sharing data with other organisations and professions, it can help to establish shared understanding, and can build and reinforce good working relationships between all involved.

What can leaders do?

- Create time and space to engage with staff across professions and organisations so that they can share concerns and be reassured about how risks are managed when renewing information governance systems.

Sharing access to analyst and data science workforce

Digital tools such as electronic records can help collect, analyse and display health and care data so that it can then be used for direct care, service improvement and research. However, in order to understand what the data might suggest, and how it can best inform decisions, staff and leaders need data and analytical skills, as well as the support of specialist staff, including analysts and data scientists.

> *[It's] really hard work to look at those data packs and draw insights. We have a core insights team but we could probably double that and still not get maximum benefit from the multiple data sources.*
> ICS chair

However, the size of this workforce is insufficient (**Bardsley *et al* 2019**) for the level of ambition of the system and the pace of change set out in the national strategy (**Department of Health and Social Care 2022a**, **2022b**).

Participants told us that limited numbers of highly trained analyst professionals mean that organisations are competing to recruit and retain analysts, which can be a source of tension between those organisations. Smaller organisations are less likely to offer competitive salaries or career development, and so struggle to recruit and deliver improvements to data flows and data usage. The impact of this is that, even with the cross-organisational relationships and working technology, the full benefits of interoperability for the system, staff or the public remain unrealised.

Some ICSs are mitigating this workforce shortage and cross-organisation tensions by pooling and sharing staff. This helps to improve their organisations' access to these skills and expertise, enabling improvements in data usage, which in turn benefit the ICS as a whole, including patients and the public. This should then also improve the data insights that are fed into the ICB to inform decision-making and service planning.

> *We have been talking about how we could potentially share specialist resources between us, because not everybody is doing the same thing at the same time. So, could we move some of our more specialist skill sets around organisations to help plug some of the skill gaps that we have, or to help with some of the projects? And that also creates some good opportunities for career growth.*
>
> ICS chief information officer

There is a risk that the power dynamics across organisations and sectors (*see* p 19) can have an impact on how these roles are shared. This risk needs to be addressed and mitigated by having a peer group of leaders with good co-working relationships who lead collaboratively as equals (as outlined in section 3).

We also heard during our interviews and workshops that the analyst workforce is undervalued, with limited structure and support. This leads to a further risk whereby those in the profession begin to feel dissatisfied, which will worsen the retention problem, further impacting the availability and capabilities in the system and competition between organisations. ICB leaders need to recognise and address this problem. To retain staff, they need to invest in the analyst workforce and support staff so that they feel valued.

> *We need to make sure our digital teams feel loved and valued, and we invest in them in terms of training, and it is for their benefit but it's for our benefit to keep people. But they are literally stuck in basements and portacabins and… there isn't the love and care that people need when they turn up for their job, they're not respected as equitable people.*
>
> ICS head of digital transformation

What can leaders do?

- Be aware of their analyst resource, capabilities, and the future requirement within each organisation and across the ICS.
- Develop ICS-wide approaches to sharing staff across organisations that provide organisations with the resource they need while also supporting services at a system level to benefit patients and staff.

Training and skills

Improving existing staff skills to reduce variation in medical information

Medical information contained in care records and what gets captured during a consultation can be understood differently by different individuals, professions and organisations. This leads to variation in what certain information in medical records can mean, and how it is written and structured. This is referred to as 'semantic interoperability' (NHS England *et al* 2015).

> *One of the most enormous issues for the NHS is that nobody calls their data the same thing, we don't have a common data dictionary… But systems and platforms and vendors have not been… mandated to follow any kind of standards, which of course makes data really difficult to share.*
>
> ICS chief digital officer

If different staff use different meanings and codes for the same symptoms or diagnosis, then the medical information in digital systems will naturally vary. This gets more complex when social care is included, as social care activities and terminology can differ greatly from that used in the NHS. However, for technology to enable cross-organisational working, it needs the data used in different systems

to have a compatible structure and be interpretable by staff. Staff may benefit from support through education and training, but understanding how data is used will also help to improve the consistency in how information is recorded.

What can leaders do?

- Ensure that staff are confident in how patient information is captured and used for direct care and service improvements.
- By working with clinical informaticians, provide a package of support for staff using a combination of education, training and staff involvement in the use of medical information and data.

Expanding digital knowledge, skills and confidence

For digital change to take place and for digital technologies to become truly embedded within health and care, the staff involved need to have the knowledge, skills and confidence to use digital tools properly. These tools can vary considerably across staff and organisations so there is a need to ensure the basic level of skills among staff is consistent across the ICS.

> *There's definitely a spectrum out there of skills and capability, some of whom are in deficit – ie, their starting position is behind what they would do in their normal life.*
> GP clinical lead for digital

We heard that several ICSs are developing their own training programmes in digital education (*see* box below). These programmes aim to improve the baseline digital skills and knowledge of staff, which is important in order to make digitally enabled cross-organisational working a reality. Good skills and knowledge increase confidence in the use of digital technologies. ICS digital education programmes commonly include a broad range of digital topics such as information governance and processes that enable trusted, safe and effective sharing of data across organisations.

The digital academy and staff development at Humber and North Yorkshire Health and Care Partnership

The digital academy at Humber and North Yorkshire Health and Care Partnership provides courses to upskill staff who all have different levels of digital expertise. The partnership identified the different health and social care roles involved in service delivery that are affected by digital projects. It then worked with staff to identify skill gaps and ensure that courses provided by the digital academy meet staff needs.

The academy also offers courses focused on training health care professionals on digital standards and why they are important and relevant to their work. It has now broadened its activities to work with tech specialists to ensure that the systems and interfaces being developed help to achieve high-quality patient care. The academy enables peer learning, whereby people can learn from each other. It is now also working with Health Education England to provide courses online that will be available at any time and can be easily accessed by staff. This type of support can bring added benefits. For example, the academy offers courses for senior managers and digital leads, which have led to peer support and sharing of good practice and innovation.

Although digital and data skills are important, change management skills among project leaders are equally important, and we heard how these skills are in short supply in ICSs. Our previous work has shown that digital projects are more likely to be successful if they are treated as change projects rather than information technology (IT) projects (**Maguire *et al* 2018**), and this is important for interoperability projects too.

> *People who have got the skills around change management, design, and understanding people, is the first thing… People who are trained in the operational management of a service won't automatically have the skills to run a change programme. They might be really good ops [operations] managers but they can't change themselves into people who are used to running massive change programmes overnight.*
>
> Senior digital leader

Currently, being a change agent and having change management skills is part of the chief clinical informatics (or information) officer (CCIO) role (**Faculty of Clinical**

Informatics 2021). However, there could be benefits to having this skill set and expertise more widely available across the health and care system.

What can leaders do?

- Ensure that there are cross-ICS initiatives in place to improve the baseline digital skills and knowledge of all staff across health, social care, local authorities and charities.
- Ensure that change management skills are present in project groups and across the ICS.

Ensuring organisations have the capacity to transform

Organisational capacity for change requires not only a focus on the implementation phases but also ongoing support for the new practice to become embedded as normal working (Shea *et al* 2014). This means there must be sufficient funding, correct infrastructure, staff capacity and educational resources to support the introduction, embedding and sustainability of a new practice. Carrying out change means having a mix of skills, experience and knowledge, and leaders need to ensure that change projects have groups that blend technical and operational skills with clinical skills and knowledge (NHS Providers undated).

Insufficient workforce numbers, burnout and workload slow the pace of any transformation project (The King's Fund 2022), including efforts to implement the technology and improve the relationships that enable interoperability. When operational capacity is already under pressure and remains unchanged, then transformation programmes are less likely to succeed.

> *There's a tendency in the NHS to think that people can change the world whilst doing their day job.*
> ICS chief digital officer

It is vital to give staff time and space to think through the purpose of transformation. It is also vital for leaders to understand the struggles and worries that staff at all levels face. And it is vital that leaders and staff have time to prepare for and engage

with interoperability projects (Dougall and Ross 2018). National NHS bodies need to work with leaders in the system and also with the public to understand how to grow, fund and protect capacity for transformation, and the implications of these changes for service delivery.

What can leaders do?

- Create the time and capacity in project timelines and timeframes for staff to meaningfully engage with transformation projects without adding to already overburdened workloads.
- Work with staff to identify approaches to protecting staff capacity for transformation.
- Ensure that staff capacity for engagement with transformation projects does not get eroded or encroached by competing priorities.

Workflows optimise how technology is used

Transformation can be complex, encounter unexpected challenges, and occur under changing circumstances (King *et al* 2012). Organisations undergoing change often have incomplete or non-optimised solutions that can create dissatisfaction among staff and patients. This is to be expected, as many things are changing in parallel: technologies are implemented and then need to be optimised; staff are receiving training; and workflows are changing to use the technology. Staff dissatisfaction can slow or stop progress (King *et al* 2012), so maintaining momentum during an interoperability project can have unexpected challenges for leaders.

Developing workflows is an important step for the adoption of new technology, which is typically required during interoperability projects (McCrorie *et al* 2019). The disruption in workflows can be local to one organisation – for example, due to the introduction of a new technology such as an electronic health record which can improve interoperability. But in ICSs with joined-up services delivered by cross-organisational teams and aided by technology, workflow disruption can also occur between organisations. As one of our interviewees suggested (*see* p 11), interoperability has similarities with the changes that take place when organisations

merge: if the workflows are not complementary they can cause frustration, increase demands on staff, and ultimately prevent effective joint working. For example, in one of our workshops, with charity staff, we heard that an attempt to work with local services failed because the administrative demands overstretched the charity staff.

Leaders of organisations and change programmes should be aware when their staff are dissatisfied and try to constructively address the issues within the ongoing work to resolve dissatisfaction and continue progress (King *et al* 2012). Making workflows complementary across organisations will raise questions about who does what, and whether a certain process is good enough, which can create tension between staff. To ensure that this happens smoothly, local leaders and staff will need to work collaboratively in shared spaces to build a shared understanding of what they are trying to achieve, and from there, adapt the workflows to be complementary.

What can leaders do?

- Be aware of how technologies are disrupting workflows and work with staff to adapt workflows to mitigate disruption.
- Use structured conversations and shared spaces (*see* section 6) to help create workflows across organisations that are complementary and based on agreement about the best approach possible.

National policy – the context leaders work in

The role of national policy

The important role of the national NHS bodies came through strongly during our research. National bodies, the policies they publish and the targets they set are out of the control of local leaders but these create the environment leaders and their teams need to work within. National bodies influence workplace culture, behaviours, resourcing and technology, and this can have positive and negative effects on the development and progress of digitally enabled cross-organisational care. It was widely agreed in our workshops and interviews that the focus and drive

of national bodies on digital transformation and interoperability has had a very positive impact in moving forward the digitalisation of health and care. Yet the way that national bodies communicate does not help providers to transform.

> *The behaviours at national level engender a way of working. As a big, unwieldy organisation, you wind up mostly communicating through documents like the Tech Vision, plus the purpose they have is to talk about the 'what', not the 'how' and providers don't [always] have that function [of how to transform] either.*
> Anaesthetist

The merger of NHSX and NHS Digital in late 2021 has made staff and leaders feel uncertain about whether current digital priorities will remain the same. With NHSX merging into NHS England, there was a concern among participants that digital projects could become less important and the urgency to transform will fall away.

> *NHSX and D [Digital] being amalgamated… There are concerns about whether that starts to lose some of the traction that we've gained. We're not getting that message but there's nervousness that we start to see digital go to the back-burner.*
> ICS chief information officer

The recently published plan for digital health and social care (**Department of Health and Social Care 2022a**) should help to reassure leaders that digital transformation continues to be a national priority. However, there is ongoing uncertainty; changes of leadership (for example, a new Secretary of State for Health and Social Care), reprioritisation of budget lines (**McLellan and Kituno 2022**) and updates to the NHS Long Term Plan are likely to affect the system commitment to digital technology.

National NHS bodies should work to communicate and reaffirm that interoperability is foundational for cross-organisational teams delivering joined-up services within ICSs.

The influence of national policy initiatives

National technology and data initiatives have a significant impact on interoperability projects in ICSs. Participants in our research mentioned the GP Data for Planning and Research (GPDPR) programme (NHS Digital 2022b) as a specific example of this.

GPDPR is a national initiative to update how GP data is collected for secondary use (not direct care), mainly service planning and research. It was launched in 2021, after being delayed by the Covid-19 pandemic, but there was an attempt to deliver the changes rapidly. The public and NHS staff felt that timelines were rushed, there was insufficient communication and insufficient data privacy protections and, as a result, the initiative was paused (NHS Digital 2022b).

At the same time as GPDPR concerns featured in the media (Kamlana 2021), some ICSs were developing their shared care records. These ICSs were engaging with communities on public expectations around the use of health care data. The negative perceptions around GPDPR increased reticence, scrutiny and concern of the shared care record initiatives. The rushed introduction of GPDPR had a negative impact on trust among individuals and NHS staff alike, which needed additional time and effort to overcome.

> *GPDPR was not helpful at all and that was just at the point as we were flowing our data into a regional solution, so that wasn't helpful and required quite a lot of hand-holding with GPs.*
>
> ICS chief digital officer

GPDPR suddenly created new challenges for ICSs trying to progress interoperability. This experience highlighted the need for national bodies to improve communication and adjust initiatives to respond to the concerns of the public and staff. Learning from that experience appears to have been integrated into the data strategy, with the development of a data pact and transparency statements (Department of Health and Social Care 2022b). However, the need for clear and ongoing communication and engagement will continue.

While GPDPR was the example mentioned by participants, it is not a unique example of troubled national policy initiatives. In 2013, a national initiative called care.data was launched, but the failure to adequately address people's concerns

about privacy meant that it was halted in 2016 (Triggle 2014). It is important that the data pact and transparency approaches are open, and that this way of working is built on. If not, it will risk further eroding people's trust, which ultimately impacts the flow and use of data in health and social care.

Improving the funding structure and timetable

Current mechanisms for funding interoperability projects make it difficult for organisations and systems to take a long-term, multi-year approach. Research participants indicated that most funding sources have a short application timeframe, and any funding granted also covers a relatively short period of time:

> *First round of central funding was pretty chaotic, but they often are. We are holding out our hopes for the next financial year [22/23], that it starts to settle and there's a regularity and a framework for investment.*
>
> ICS chief information officer

Hurried funding timeframes mean that staff have to react rapidly to complete applications, often delaying other tasks. Staff need time to understand the requirements and the application processes.

> *It gets launched seven months into the year and the first money is supposed to be flowing this month [January] for using up by the end of March.*
>
> Ambulance services leader

The current piecemeal approach to funding results in multiple small short-term projects that are disjointed, which can create more challenges for the ICS and undermine its overall aims.

> *At the moment, there's a bit of money from project A, a bit of money from project B, a bit of money from project C, but project C and project A may require the same technology, but they're not formally aligned, and the money's coming through at different places to different people. So, it often feels as though we haven't got that alignment between the national policy and what's needed at an ICS level.*
>
> Chief clinical information officer

Short-term funding means that staff employed to work on these projects are often on fixed-term contracts, and so they often seek opportunities elsewhere. This creates additional demands on the remaining team to maintain progress while recruiting and training new staff. It takes time for new staff to develop working relationships, and the hard-won expertise that has been gained is then lost when those staff leave. The funding structure incentivises a short-term mindset and makes it harder to give staff the certainty they need about the direction of travel and the strategic vision.

The amount and type of support required for achieving a particular use of technology is likely to be different for different areas of care services. However, the same timeframes and funding structure apply for both the most and the least digitally capable staff, taking no account of local circumstances and capabilities.

> *The health service rarely has time because we put these arbitrary dates and deadlines that we're going to do something by a certain date. But it can't be one-size-fits-all. That date is going to have to be different depending on the size of the change, the scale of the change, the complexity of the change, the risk involved.*
> Senior digital leader

For example, to implement electronic patient records, NHS trusts will receive £2 billion in funding. Adult social care will receive investment of £150 million to support the implementation of digital care records (**Department of Health and Social Care 2022a**). However, to join up and transform services, all parts of a care journey need to have good digital maturity. In March 2023 the technical requirements for IT suppliers serving pharmacy, optometry, dentistry, ambulance and community health will be published (**Department of Health and Social Care 2022a**). It is likely that the digital maturity of these services will lag behind that of hospitals, GP practices and social care providers. This will have an impact on how services can be joined up and how effectively staff are able to work across organisations.

National NHS bodies should review and update funding approaches to incentivise longer-term interoperability improvements and enable recurrent funding. They should also encourage whole-system approaches to improving digital maturity.

Measuring progress and success with targets that matter to staff and patients

To measure the pace and success of transformation, organisations use a set of targets largely decided by national NHS bodies. Participants in our research said that this choice of metrics can affect the transformation of services. There can be unintended consequences when the metrics to track progress are not aligned with care needs. For example, the number of clicks in a shared care record could indicate high use or it could mean that the information people want is hard to find, but what does it mean for how care is delivered? Metrics can also prevent cross-organisational thinking and encourage the siloed behaviours that organisations have been trying hard to move away from.

> *We measure the things we used to measure and the things that are easy to measure but these aren't necessarily very valuable to measure.*
>
> Senior digital leader

Participants said that it is important to identify and capture metrics that measure the actual impact of change, not proxy metrics. For example, it is easier to measure whether there is a shared care record or how many times it is accessed, but harder to measure whether access to that shared care record impacts outcomes, the patient experience, ease of use or time savings. Nevertheless, metrics of successful transformation need to reflect how effectively services are meeting the needs of patients and staff:

> *There are people who are still driven by the metrics that NHS England want to see, which then hampers thinking about things across organisations as a system.*
>
> GP clinical lead for digital

One possibility for capturing the hard-to-measure metrics is through listening to patients and staff (**Thorstensen-Woll *et al* 2021**). National NHS bodies should work with ICBs and the public to listen and learn about their experiences, collect this kind of qualitative data, and interpret it as part of measuring success of interoperability projects.

6 How to build and strengthen relationships for interoperability

Preparing leaders, staff and organisations for change

Staff are already incredibly busy every day trying to deliver high-quality care efficiently. But they also have to overcome unexpected and unfamiliar interruptions that happen as new digital tools and workflows are implemented. Progressing interoperability means giving staff the time to improve working relationships, develop governance, input and improve data, and develop new processes:

> *You have to invest in your operational capacity, but not just for ongoing services. You have to over-compensate for it because you'll need to give people training time, and that's not their day job, that is taking them out of their day job to train them ready for the change both before, during and after. So it's not just the capacity you need to put in because the change process slows them down, it's the capacity you need to put in in order to prepare them for the change process as well.*
>
> Senior digital leader

Research and theory agree there are four stages to any transformation (McCrorie *et al* 2019). First, leaders need to create a common understanding for all involved, here a communications strategy is important. Second, cultivate buy-in so there's a willingness to be involved in the transformation project at individual, professional and organisational level. The third and fourth steps are focused on involving people to adopt technologies (*see* Section 3, Creating digital 'champions' subsection) and optimising and evaluating change (*see* Section 5, Measuring progress and success with targets that matter to staff and patients subsection). When leaders communicate a compelling vision of change the buy-in, and so the readiness, among staff improves (Copeland 2019). Through our research, we learnt that it is important for leaders to use communication as a leadership tool to prepare staff for the changes ahead and motivate them to be engaged.

As we have previously mentioned, many ICSs already have a digital strategy and ICB leadership needs to be able to use that digital strategy to communicate a compelling shared vision of what it will mean for staff, patients and the public, what benefits it will bring, and what is being asked of staff.

> *The messaging has to come from the top around why we're doing it, the benefits to both organisations for doing it and, most importantly, the benefits to the patients and staff.*
> ICS chief information officer

For example, a shared care record brings benefits for staff and patients: staff are reassured that they have up-to-date information about the patient, may not have to repeat tests or questions, can improve patient safety using accurate medication information, and ensure that patients have the right care and support; and patients do not have to repeat themselves or remember information, and so can receive better-quality care. Interoperability improvements involved in implementing the shared care record also help to reduce the number of different logins and portals staff have to navigate. However, in order to use the shared care record, staff need to be willing to share data, to trust other professions and organisations to keep patients and patient information safe, and to record information in a way that the entire team of caregivers involved in that patient's care can understand.

> *[The] biggest barrier [to digital transformation] is hearts and minds around believing that this is worth that initial hump of effort in order to make life better.*
> GP clinical lead for digital

How and when leaders engage with staff can determine whether any change is accepted or rejected. Several studies (**National Audit Office 2020**; **Cresswell *et al* 2012**) report that top-down change projects that do not engage with staff are ultimately rejected or ineffective because staff create workarounds, meaning that the strategy is unrealised. Engaging with staff from the beginning of a change initiative, through to the change being operationalised and optimised, is essential to maintain staff buy-in (**Shea *et al* 2014**). Our research participants also shared that good communication from leaders can help shift organisational culture and behaviours by encouraging staff to move away from siloed working towards more collaborative working, and to genuinely value sharing and collaboration.

Leaders at multiple levels – ICS, organisation, team and profession – should plan the communications strategy together and be involved in communicating the key information with their staff and peers. Within an ICS, staff may feel that there are more layers of system structure overlaying their own organisational layers, which means that communications can feel distant. Organisation, team and profession leaders can reinforce how the ICB leadership communicates, while tailoring specific details around what is being asked of staff and why. Tailoring communication to specific staff and specific levels within organisations and systems is important because change will affect different staff in different ways. Some staff may perceive that the change being put in place brings no immediate benefits for their work, so it is important to motivate them so that they know what to expect.

> *It's different for different staff groups. So, if you're a researcher, that all sounds wonderful because you get all the data. If you're in an outpatient clinic and your job becomes harder because you've got to enter more data, then that's a different story.*
> ICS chief information officer

What can leaders do?

- Communicate the vision for digital change.
- Be clear about the benefits change will bring, for whom, and when.
- Be honest about the implications for staff in terms of time and workload as these will be unequally distributed.
- Tailor these messages for specific groups of staff.

An approach to helping leaders and staff embrace interoperability

As both the literature review and our own research indicates, interoperability relies not just on technological improvements and an enabling environment, but on building and strengthening the relationships between all those involved, which can mean challenging existing power dynamics. In this section we describe in more detail how leaders and staff at all levels can structure conversations to do this.

The methodology described here is adapted from the approach we tested during this project. We wanted to put forward a model that would:

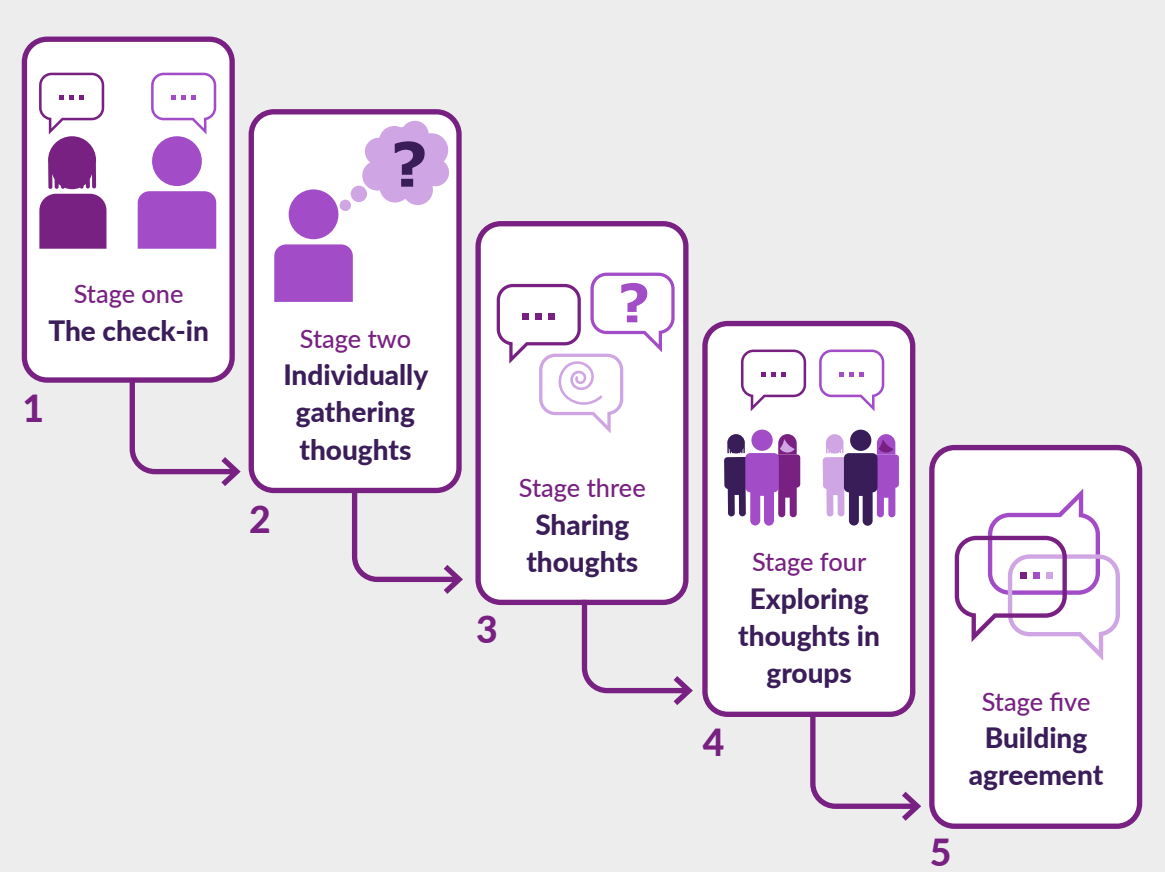
- provide time and space for learning
- create shared understanding, rapport and relationships
- reduce power dynamics
- be of value to participants
- advance people's understanding of interoperability.

Our workshops were designed to provide staff and leaders with the space to think about their relationships and how to make progress towards achieving interoperability across their ICS.

We found that to build and strengthen relationships, people need space and time, with a structure to remove power dynamics. In this structured space and with time away from their day-to-day responsibilities, people found real value, learnt together, and wanted to continue the dialogue. These were people who had never met before, who were working in stages to get to know and trust each other, to get to grips with interoperability, and to share their perspectives.

The five-stage structure described below can be used by leaders or staff in ICSs and provider collaboratives to create space to think about interoperability and connect with partners across the system to begin to put it into practice. The questions can be adapted by truncating, extending or using different questions or different tools to support local change-makers to facilitate changes in thinking and group dynamics. We used virtual workshops, but physical workshops can be equally effective. It is also helpful to have a facilitator, internal or external, to run the session. Figure 2 summarises the main steps we suggest that can be used to build and strengthen relationships, create empathy and improve shared understanding.

Figure 2 How to approach connecting with partners



The stages outlined below can be used to work through some of the barriers to transformation and challenges faced during interoperability projects, and can develop work in the areas we have covered in this report. Each stage has its own structure, which is designed to shift the power and energy 'in the room'. (For more detail on the theory of change for the techniques used in our workshops, *see* Appendix B.)

Stage one: The check-in – sharing information on who we are and how we are

Start the session with a 'check-in' round, inviting people to introduce themselves and speak about how they are feeling and what they are focused on and thinking about. This creates a way for people to be present in the room by giving pause and transition from whatever meeting or task they were engaged in prior to the workshop. This also helps people to recognise others as unique individuals with their own perspectives and realities.

Stage two: Individually gathering thoughts

Introduce people to the problem, question or challenge you want to explore and allow them time to think about this and respond individually. You might want to use some tools here, such as a virtual whiteboard with post-its grouped around three questions (eg, Interoperability works best when....?; The factors holding interoperability back are...?; What assumptions are we making that might be limiting our thinking?). You can also use any other relevant questions.

This process of gathering individual thoughts could be done by people making notes, using post-its in a physical space or simply taking some time to sit and reflect. This helps participants to enter into the problem space and gather their own thoughts without being immediately under pressure to speak among people they may have only just met.

Stage three: Sharing thoughts in turn

This stage uses 'time to think' rounds (Kline 1999). The facilitator provides a prompting statement or open question and participants are asked to respond in turn. The facilitator decides the order. Each participant can speak in response to the question or pass if they wish. If they pass, the facilitator comes back to them and they can always pass again. This turn-based approach creates an equality of voice in the workshop, ensuring that everyone has equal opportunity to speak and contribute. We used three questions, changing the question and sequence at each round. We suggest using three to five questions that are relevant and explorative. You may find that participants have lots to say and often find themselves saying things that illuminate and enrich their own awareness and understanding of the problem and its depth and breadth.

Stage four: Exploring thoughts in groups

Invite participants to work on a task together in unguided and free-flowing conversation, without the facilitator present. Spending time individually thinking about the issue and then speaking together about it in structured rounds focuses the conversation and allows it to go in whichever direction the participants want it to. Use a simple task, such as giving the groups 15 minutes to rank themes (we used themes from our research) in order of importance for resolving the problem. This stage leads to debate, challenge, and insight within groups, feeding into discussions in plenary with the facilitator.

Stage five: Final thoughts and building an agreement

Finally, give people more 'time to think'. Ask questions such as:

- What strikes you now?
- What has not been said?

Invite people to respond in the moment to whatever is uppermost in their mind in the context of the discussions so far. Make it clear that all opinions are welcome. In our project, this was the stage where participants voiced rich insights and desire to progress and deepen the work and working relationships. This can lead participants to agree actions and to close the thinking space, having developed working relationships and enhanced understanding with others from different organisations and professions.

This approach is useful for interoperability projects where staff across organisations and professions will need to work as a team to develop and strengthen relationships based on trust to provide joined-up services. In the following section is a summary of the recommendations for leaders and within these we suggest where this methodology can be applied.

7 Actions for leaders and national bodies

Actions for leaders

It may feel counter-intuitive and wasteful to spend time building co-working relationships and shared understanding when there are so many time pressures on staff working in health and social care. However, these behaviours and progress towards interoperability will, in the longer term, help change people's thinking and lead to more effective and impactful actions that will benefit staff, patients and the public.

To improve interoperability our research shows changes are needed to the technology and enabling environment, but often overlooked are relationships which are equally important. The methodology we have outlined in section 6 can be used to build and strengthen working relationships based on trust across groups of leaders and across groups of staff. We recommend leaders use the methodology we described above with their own teams.

Throughout the report we have provided recommendations for leaders based on our findings. These recommendations should help improve interoperability projects and are summarised below.

What can leaders do to prepare staff and organisations for change?

- Communicate the vision for digital change.
- Be clear about the benefits change will bring, for whom, and when.
- Be honest about the implications for staff in terms of time and workload as these will be unequally distributed.
- Tailor these messages for specific groups of staff.

What can leaders do to build trust, strengthen relationships and address power imbalances?

- Take time to understand the needs and motivations of each partner organisation.
- Be aware of power imbalances across the organisations involved and work collaboratively to minimise them (*see* section 6 on how to do this).
- Invest time and energy in relationships (*see* section 6 on how to do this).
- Work collaboratively with other leaders to minimise cross-profession power imbalances (*see* section 6 on how to do this).

What can leaders do to create digital champions to help interoperability projects to succeed?

- Cultivate and empower champions in different professions and across organisations.
- Ensure that champions have a voice and protected time to be involved in and lead transformation projects.
- Support champions to develop skills they will need to deliver successful transformation projects.

What can leaders do to improve supplier compliance with digital and data standards?

- Incentivise suppliers and providers to procure technologies that have consistent baseline features and capabilities.
- Incentivise providers through new service development opportunities that will improve patient care and outcomes.
- Ensure that digital strategies have a built-in approach to iteratively improve standards.
- Develop business cases across organisations to ensure technology procurement is complementary and adaptable.

What can leaders do to minimise the impact of multiple data-sharing solutions?

- Communicate with staff to improve awareness of the national approaches and when each should be used.

What can leaders do to create information governance that helps data to flow?

- Create time and space to engage with staff across professions and organisations so that they can share concerns and be reassured about how risks are managed when renewing information governance systems (*see* section 6 on how to do this).

What can leaders do to share access to the analyst and data science workforce?

- Be aware of their analyst resource, capabilities, and the future requirement within each organisation and across the ICS.
- Develop ICS-wide approaches to sharing staff across organisations that provide organisations with the resource they need, while also supporting services at a system level for both patients and staff.

What can leaders do to reduce variation in medical information captured?

- Ensure staff are confident in how patient information is captured and used for direct care and service improvements.
- By working with clinical informaticians, provide a package of support for staff using a combination of education, training and staff involvement in the use of medical information and data.

What can leaders to ensure the skills and knowledge exists for transformation projects?

- Ensure that there are cross-ICS initiatives in place to improve the baseline digital skills and knowledge of all staff across health, social care, local authorities and charities.
- Ensure that change management skills are present in project groups and across the ICS.

What can leaders do to improve organisational capacity for transformation?

- Create the time and capacity in project timelines and timeframes for staff to meaningfully engage with transformation projects without adding to already overburdened workloads.
- Work with staff to identify approaches to protecting staff capacity for transformation.
- Ensure that staff capacity for engagement with transformation projects does not get eroded or encroached by competing priorities.

What can leaders do to improve how workflows enable interoperability?

- Be aware of how technologies are disrupting workflows and work with staff to adapt workflows to mitigate disruption.
- Use structured conversations and shared spaces (*see* section 6) to help create workflows across organisations that are complementary and based on agreement about the best approach possible.

Actions for national bodies

Our research shows changes are needed to the technology and enabling environment, but often overlooked are relationships which are equally important. National bodies, the policies they publish and the targets they set are out of the control of local leaders. However, these influence workplace culture, behaviours, resourcing and technology, and so they can have positive and negative effects on the development and progress of digitally enabled cross-organisational care. While many positive actions have been taken, there remain areas where national bodies can make changes that facilitate interoperability. Our recommended actions are contained in the report and briefly summarised below.

- Communicate and reaffirm that interoperability is a foundation for cross-organisational teams delivering joined-up services within ICSs.
- Encourage whole-system approaches to improving ICS digital maturity, not only organisational digital maturity.

- Review the number of nationally developed data-sharing approaches and how they can be reduced or simplified to make it easier to understand which approach to use and why.
- Work with leaders in the system, and also with the public, to understand how to grow, fund and protect capacity for transformation, and the implications of these changes for service delivery.
- Review and update funding approaches to incentivise longer-term interoperability improvements and enable recurrent funding.
- Work with ICBs and the public to listen and learn about their experiences, collect qualitative data, and interpret it as part of measuring the success of interoperability projects.

Appendix A: Case study background information

Cambridgeshire and Peterborough Integrated Care System

Cambridgeshire and Peterborough ICS is composed of eight health and care service providers that serve 1 million people across the ICS footprint. The ICS includes local authorities (two local authorities and five district councils), all NHS trusts and organisations within the footprint, 85 GP practices (21 primary care networks), ambulance services, key voluntary sector partners, and the Cambridgeshire and Peterborough Health and Wellbeing Board. Over the past five years, before becoming an ICS in 2021, Cambridgeshire and Peterborough was already making strides in integrating care across the north and south regions. The local health and care records were part of this progress; these have enabled more joined-up working and delivery of some services in the north and south regions. This was made possible by an approach they termed the 'big conversation', which engages with communities to better understand their needs. The impact has been seen in improvements to population health inequalities.

The ICS's priorities, first developed as part of its sustainability and transformation plans (STPs) in 2016, highlighted the importance of collaborative and partnership working across different services. Its long-term plan, developed from the success and learning gained during the STPs, further emphasised integration of care as part of ICS development. In 2021, Cambridgeshire and Peterborough became an ICS. It has developed six key themes that it will focus on, including system and digital transformation. As an ICS, Cambridgeshire and Peterborough has been successful in creating interoperable systems and ways of working across different services, employing unique leadership models and partnership working across the system.

As part of its three-year digital transformation strategy, Cambridgeshire and Peterborough ICS has created a plan for developing a shared care record, building on the local health and care records. The strategy includes implementation plans with metrics for delivery and citizen health (not just patients' health) and standard structures for reporting. The shared care record is being facilitated by the project management team and overseen by the project board.

Humber and North Yorkshire Health and Care Partnership

Humber and North Yorkshire Health and Care Partnership (previously known as Humber, Coast and Vale Health and Care Partnership) covers three ICSs and comprises NHS organisations, local councils, health and care providers and VCS organisations. The ICS serves a diverse population of 1.7 million people. Yorkshire and Humber is known for its digital health innovation, including its care records developed in partnership with local communities, health and care providers and businesses. Its community engagement approaches have also helped it to engage with diverse communities, some of whom are digitally excluded.

Appendix B: What is generative dialogue and inquiry as a process for change?

Writing about leadership and organisational development, Ronald Heifetz (2003) differentiates two types of problem for leadership and change. He discusses 'technical problems' that even though very complicated have solutions that can be worked out by experts and that remain solved. However, he explains that for adaptive challenges, the real work of leadership is difficult to define; it requires cross-organisational work to solve, and the solutions have knock-on implications that are observed as new problems (Heifetz 2003). Any work to meet adaptive challenges needs to lead to action. Adaptive challenges are to be found throughout the health and social care system, especially where digital technologies are involved. Digital technologies are constantly evolving and changing, with new features and functions. Change in a complex, inter-related system like health and social care creates ripples of unintended impact to other parts of the system. Indeed, the move to digitally enabled care within an ICS framework, in and of itself, is an adaptive challenge. So how can leaders achieve change?

That question is one of many difficult challenges or 'wicked problems' (Grint 2010) currently facing the health and social care system and its leaders. Creating regular 'thinking environments' – where stakeholders from across the system can come together to find solutions to challenges – should be given more time and attention on a regular basis. At The King's Fund, our experience is that when this process happens it is both helpful and valued, and people say we should do more of it. However, it needs high-level sponsorship and support from leaders across an ICS – the NHS, social care, the VCS and local authorities. With the current unprecedented scale of pressures on the system, the very act of slowing down can feel counter-intuitive at best, and bordering neglectful at worst. Making time for thinking feels like an unaffordable use of a precious and limited resource.

However, time can be recouped when using behavioural practices effectively to create the thinking environment. Rather than becoming concerned by the lack of time, we gain it by applying behavioural theory principles in structured and organised ways (Kline 2005). Doing this improves how we think and work together, which in turn helps leaders and staff to meet challenges such as those involved in transformation initiatives.

The positive impacts observed when using the generative dialogue method described in section 6 of this report could be applied in settings across health and social care as a mechanism for achieving change that benefits the whole system, its staff and patients.

Behavioural practice and theory asserts that the quality of a person's thinking (Kline 2005, 1999) is linked to behaviour, and offers 10 key behavioural principles that can be applied to create a 'thinking environment':

- attention: listening with respect, interest and without interruption
- equality: treating each other as thinking peers; giving equal turns and attention
- ease: slowing down and working with freedom from pressures of pace
- appreciation
- encouragement
- feelings: allowing the expression of emotions
- information: supplying the facts
- difference: welcoming diverse group identities and diversity of thinking
- incisive questions: removing untrue assumptions that limit our ability to think for ourselves well
- place: creating an environment that says to people, 'You matter'.

We aimed to bring all these principles into our workshops and found that they created rich and meaningful experiences for most of those involved.

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Ideas that change health and care

Digital technologies can enable better collaboration and joined-up services between health and care partners in integrated care systems (ICSs) and provider collaboratives. But how can organisations overcome the siloed working that predominates in the health and care sector to achieve digital interoperability?

Interoperability is more than technology – the role of culture and leadership in joined-up care looks at the factors needed to create seamless data-sharing between organisations. The authors conclude that interoperability has three equally important aspects that are vital for success:

- good co-working relationships between staff
- technology that makes co-working as easy as possible
- an enabling environment (in which funding, capacity, skills, education and governance are aligned).

The report includes actions for national and local leaders looking to create the right environment and culture for interoperability projects to flourish and suggest a methodology to support leaders at all levels to create a shared space for working with staff that can be used to support progress.

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