2018-19
Annual Report and Accounts

NHS
Digital

Information and technology
for better health and care

Health and Social Care Information Centre (HSCIC) Annual Report and Accounts 2018-19.

The Health and Social Care Information Centre is an executive non-departmental public body created by statute, also known as NHS Digital.

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Chairman's foreword

At NHS Digital, we have continued the work we started with our 'Fit for 2020' capability review two years ago to transform ourselves into the trusted technology partner that the NHS needs to realise its technology vision and to deliver on the opportunities technology offers to clinicians and patients.

Our workforce transformation plan is equipping us with new skills, greater organisational agility and new ways of working to ensure the needs of clinicians, patients and the public remain at the heart of all we do.

We have delivered significant new digital innovations for the NHS over the past 12 months, starting with the citizen-facing tools that underpin a more patient-centred model of care: the NHS App, NHS 111 online, and the NHS login. Our nationwide services, including electronic referrals, electronic prescriptions and the Summary Care Record have all been enhanced and extended. More than 90% of first outpatient appointments in England are now made electronically, compared to about 66% in March last year.

We began to modernise clinicians' and social care professionals' access to patient information, improving safety, efficiency and outcomes. Initiatives such as GP Connect, Child Protection - Information Sharing and the National Record Locator are helping our digital services keep in step with the reconfiguration of care settings and care pathways. All these innovations signal a more fundamental shift towards an integrated and open IT and data environment across all of our health and care platforms.

NHS Digital is also the national custodian of critical health technology infrastructure. We design, build and run one of the most complex messaging networks in the country and deliver outstanding responsiveness, reliability and speed. In October 2018 alone, the NHS Spine handled a record one billion messages, about the same as all of the transactions on all gov.uk services over the whole year. Messaging reliability on the Spine has been constant at 100% for three years and system response times are about 15 times faster than they were in 2014.

We are the custodians of the nation's patient data and have a statutory duty to maintain and improve its quality, usefulness and safety. We now produce indicators on more than 1,000 different measures of NHS performance, helping leaders plan and manage the NHS's services more efficiently and effectively, and last year we launched eight new series of statistics on contemporary trends, ranging from appointments in general practice to the mental health of children and young people in England.

Over the past two years, we have doubled the number of data collections and begun delivery of our new Data Processing Services platform which allows us to systematically combine datasets within a single data architecture. These new information streams give medical researchers, small and medium-sized enterprises in healthtech and the life sciences, NHS commissioners and service managers the rich insight they need to continuously improve services and create new possibilities in health and care.

In the coming year, we will focus sharply on implementing the digital ambitions of the NHS Long Term Plan. This vision for health and care in England envisages better use of data and technology in hospitals, in social care, across integrated care settings, through online channels and as tools in the hands of the NHS workforce.

In delivering this agenda, we rely on continuously earning public trust and confidence in our services; we do this by demonstrating transparency, openness and integrity in all we do. We will also invest in nurturing new and stronger partnerships in the NHS family and across our wider ecosystem, including our new partnership with Health Data Research UK in support of the Life Sciences Industrial Strategy and with our new technology partner, NHSX.

My responsibility as Chairman, and the stewardship role of the Board, is to ensure NHS Digital delivers on its promises and commitments to all our stakeholders and to help build a digital workforce of the future that the NHS can be proud of.

Our track record of delivering significant innovations this year has marked a watershed in our performance and shown we can rise to the challenge of helping the NHS shape, at pace, a new operating model. Patients have begun to see the benefit that digital tools can bring to managing their conditions. Clinicians, social care providers and the people who run our vital services have begun to see more efficient and effective technology solutions. The people who lead and manage the NHS have begun to see the power of information to improve the planning and management of one of the most complex health and care organisations in the world.

I am immensely proud of the contribution our people have made to this profoundly important mission and I would like to thank them all for their extraordinary efforts during a year of significant change for our organisation and for the NHS.

Noel Gordon
Chairman
NHS Digital

Chief Executive's introduction

It is a privilege to serve the NHS at this unique moment in history, when advances in biology and technology are aligning to create phenomenal new opportunities to deliver transformational products and services. We are inspired and energised by the impact that we know these will have on patients, clinicians and medical research, as well as our many other stakeholder communities across the health and care system, in industry and in the third sector.

This has been an extremely rewarding and an extremely demanding year. Through the intense hard work and commitment of staff across our organisation, and the continuing delivery of world class products and services, we have strengthened our reputation and extended our impact across the system.

We run more than 80 core national systems, and we continue to operate these at extraordinarily high levels of availability and performance. Our most critical services ran at an average of 99.95% availability over the year. Given the scale of the NHS, it is no surprise that we manage more traffic than some of the major national credit card systems and we operate, as far as we can ascertain, one of the largest email systems in Europe.

We are also incredibly excited about the new products and services that we have delivered and the impact that they have had. More than 200,000 people have downloaded the NHS App since it went live on New Year's Eve, 45,000 of whom have proven their identity and obtained an NHS login that they will be able to use to access multiple services in future.

Our NHS 111 online service has now been used more than 1 million times and the NHS e-Referrals Service currently handles over 70,000 referrals every working day, up from 40,000 at the start of 2018. Our Electronic Prescription Service handled more than 690 million prescription items in 2018-19 and, from February, we included schedule 2 and 3 controlled drugs in the system.

We delivered new services for our colleagues working in medical research, in particular in support of large-scale clinical trials. We commenced a new partnership with Great Ormond Street Hospital focused on addressing long-standing digitisation gaps through smart use of data analytics and commodity technology. We worked with GPs and colleagues in NHS England to reshape the market in primary care IT services.

In addition to the publication of many large-scale open data sets, we disseminated data to over 450 customers in support of more than 1,100 projects across the NHS, academia, industry and the third sector, having reviewed each request in detail to ensure legality, appropriateness, and the compliance of planned handling and management approaches with information governance laws, policies and standards.

We have produced more, and more sophisticated, official statistical series. We have delivered new APIs, worked with international partners to extend open data standard definitions, and provided ever-stronger cyber security services, guidance and support, extending live monitoring to more than 840,000 devices.

These achievements are exciting because of the incredible impact that we know they have on the lives of patients and clinicians, but they also provide clear evidence of our increasing capabilities as an organisation and therefore our ability to have even greater impact in future.

We have also completed the first wave of our organisational transformation program this year. This has been challenging, particularly because it came on top of a very packed delivery agenda. It was clear that we needed to shift the expertise within our organisation towards the new digital, data and technology skills required to serve an NHS that is increasingly ambitious about the power of technology and increasingly dependent on it to generate critically-needed efficiencies.

Sadly, this has meant that we have said goodbye to many dedicated, committed and long-serving colleagues. Staff across our organisation have handled this challenge with remarkable fortitude and professionalism. We will continue this journey over the coming year.

As we look to the future, it's clear that much of our focus must be on leveraging the power of the extraordinary data within this system.

Each patient must have digital access to all aspects of their medical record. Clinicians must have immediate access to data from all care settings. Our world-leading medical research communities must have access to the internationally-unique richness of NHS data, which has the power to yield new insights into disease, support the development of new drugs, and, ultimately, transform and save lives.

Virtually every industrial sector is currently working to build new understanding and vision through increasingly sophisticated approaches to analysing and understanding data. The organisations who run the NHS nationally and regionally, the Life Sciences sector, our academic medical research communities and health-focused charities are increasingly dependent on the insights available from clinical data to support the development of new products and services. The NHS in England, with its 70-year history and responsibility for 55 million lives within a single system, is an internationally unique source of knowledge.

At the same time, we are acutely aware of the criticality of enabling patients to control who can access their data and for which purposes. Many citizens consent to their data being used to enrich knowledge and understanding on the basis of trust in our diligent and robust custodianship of that data.

This responsibility sits heavy on our shoulders. We understand the responsibilities of being asked to act as key data custodians for the system, and the criticality of not breaching that trust in any way.

Progress in this complex, multi-stakeholder system depends on partnership and collaboration. Throughout the course of the year, we have worked to strengthen our existing alliances and build new ones.

We entered into an ambitious bi-lateral partnership with Health Data Research UK (HDR UK) and joined their multi-party Health Data Research Alliance this year. We are working closely with them across a number of endeavours aimed at expanding the quality, richness, coverage and impact of health data.

We are strengthening our ties with Genomics England and working together to deepen the incredible insights available from genomic data, particularly when combined with other phenomic data, at individual and population level.

We are working to deliver more sophisticated standards, platforms and services to Chief Clinical Information Officers (CCIOs) and Chief Information Officers (CIOs) across the NHS. It is our goal to serve and support them and thus enable them to deliver world-class technology for their communities, locally and regionally.

We will continue to focus on delivering excellence in technical design, engineering and the operation of live services through skill, passion, commitment and hard work, inspired by the opportunity to improve the lives of patients and clinicians.

Sarah Wilkinson
Chief Executive
NHS Digital

What we do

NHS Digital is the national digital, data and technology delivery partner for the NHS and social care system, with expertise in the design, development and operation of complex IT and data systems. Our most critical responsibility is maintaining the reliability, performance and security of the core infrastructure, platforms and live services on which the NHS and social care system relies.

The core infrastructure and platforms, including the NHS Spine, allow information to be shared securely across thousands of local and national organisations and connect the digital services that patients and clinicians use. We run this infrastructure with exceptional reliability and efficiency and provide the central cyber security leadership, capability and support that keeps data safe and services running.

NHS Digital designs, builds and procures new digital products and services on behalf of commissioners across primary, secondary and social care. We keep a sharp focus on user needs and try to create products that improve the lives of members of the public and help professionals do their jobs better. We collaborate closely with Britain's thriving healthcare technology market, developing partnerships that are not only critical to effective healthcare delivery today but that will become the bedrock of transformation tomorrow.

We are also the data custodian for England's health and social care system, with responsibility for collecting, protecting, linking and disseminating some of the world's most valuable health and care data assets. As the primary provider of official statistics and analysis to the NHS and social care, we also provide the trusted and independent insight that underpins the management and improvement of our system.

We are guided by an absolute respect for individuals' privacy and by an unwavering commitment to the highest data processing standards, but also an understanding of the importance of the data we hold to the UK's medical research and life sciences sectors and to improving health and care outcomes in the UK and around the world.

Our work is about empowering the public, helping professionals and producing information that improves treatment and makes taxpayers' money go further.

How we are changing

1. We are creating technology platforms so that others can build on them. We use open-source software, shared standards, application programming interfaces (APIs), micro-services and reusable data services to support collaboration and innovation.

2. We are transforming our data architecture and services, improving performance so that more complex data sets can flow more quickly and building analytics capabilities using machine learning and natural language processing

3. All new services are cloud- and internet- first. We are helping system partners migrate to the cloud quickly and safely.

4. We will work with NHSX to coordinate and control local digital investment and help local and national partners get the best value for money from their IT suppliers.

5. We will continue to provide the system and our arm's length body partners with a centre of expertise for the planning, design and delivery of digital and data systems.

We will continue to develop the infrastructural, operational and governance standards that allow key IT systems, and the people who use them, to work effectively and securely together.

6. Our Org2 transformation programme is restructuring NHS Digital's workforce, and focusing our capability on critical technologies and specialist skills. It will continue through to 2020-21.

Some delivery highlights in 2018-19

Patients and the public

- the **NHS App** is allowing patients to manage GP appointments, order repeat prescriptions and view their records – page 22

- **NHS 111 online** is helping people get urgent healthcare online – page 26

- NHS login provides a unified way for individuals to sign on and access multiple digital services – page 22

- the **National Data Opt-out** service allows people to control how their confidential patient information is used – page 24

- 91% of local authorities and 92% of health sites are protecting vulnerable children using the **Child Protection - Information Sharing** system – page 38

Health and care professionals

- the **Digital Child Health Programme** is getting children's information off paper and into fully interoperable digital systems – page 37

- the **e-Referrals** service is allowing clinicians to make and review referrals without leaving their preferred systems – page 36

- schedule 2 and 3 controlled drugs can be prescribed on the **Electronic Prescription Service** – page 39

- the **National Record Locator** and **GP Connect** are improving our capacity to help clinicians find and access patients' records in other settings – pages 62 and 32

Research and life sciences

- the **Data Processing Services** (DPS) platform provides joined-up data more quickly and in richer and more flexible formats, while improving data security – page 54

- 265 official **statistics publications** – page 46

- helped establish the **UK Health Data Research Alliance** to improve access to data for large-scale and innovative research – page 50

- improved the speed and accuracy of recruitment of participants to **major clinical trials** – page 59

- new **Data Access Environment** gives authorised users a secure, online portal to work with data – page 54

System management

- 90% of NHS organisations have procured services on the **Health and Social Care Network** (HSCN) – page 66

- 27,000 health and care organisations signed up for the **Data Security and Protection Toolkit** – page 74

- 840,000 NHS devices are being monitored for cyber threats and vulnerabilities – page 73

- The **NHS Spine** handled one billion transactions in October with 100% reliability – page 63

How we are organised

During 2018-19, we continued to develop our operating models and structures to allow us to meet our commitments to the health and care system.

Our programmes, services and corporate functions are grouped together into seven directorates, which provide clear lines of accountability, integrated delivery and a strategic perspective on what our customers and the health and care system require.

Corporate Services

The centre of expertise and management for financial, commercial, people and workforce functions. In addition, for approximately the next 18 to 24 months, will deliver the Org 2 programme to reshape the way we organise ourselves to deliver work, the way we develop our capabilities and our internal operational tooling.

Product Development

Designs and delivers new applications and services commissioned by NHS England, NHS Improvement, Public Health England and other arm's-length bodies to help citizens, patients and clinicians across primary, secondary and social care. Leverages the external healthcare market and fosters digital knowledge, understanding and appetite across the system.

Platforms and Infrastructure

Provides the core infrastructure and platforms that connect the vast number of digital service providers across the health and care system. Delivers an increasing number of platforms to support NHS Digital's data management and product development activities (for example, facilitating cloud usage, identity and access management).

Corporate Services

Finance and Improvement

Commercial

HR and Organisation Transformation

'Org2'

Strategy, Pol

Strategy and Planning

Clinical Governance

Product Development

Citizen Health Tech

Primary Care Technology

Acutes, Ambulances, Mental Health and Regional Integration

Medication Interoperability, Digital Adult Social Care, Child Health, Maternity, Pharmacy and Referrals

Implementation and Business Change

Platforms a

Technical Architecture

Platforms

Live Services

Live Services

Cy

Strategy, Policy and Governance

Defines our strategic agenda based on the needs of our clients and evolving political, technical, government and market environments. Liaises with the Department of Health and Social Care, NHSX, third parties and internal teams to ensure policy and governance coherence and clarity. Provides clinical and information governance guidance and oversight.

Assurance and Risk Management

A strategic and collaborative partner that maximises specialist expertise to provide independent assurance that strategic and delivery risks are appropriately managed across live services, change programmes and corporate functions, within our risk appetite. Provides accurate and timely information, intelligence, analysis, insight, agreed standards and oversight to enable robust decision-making and compliance.

...icy and Governance

| Information Governance | Communications |

Data, Insights and Statistics

| National Data Architecture | Data Transformation and Operations | Statistics, Insight and Research Enablement (inc. life sciences support) |

Assurance and Risk Management

Information Assurance

Corporate Portfolio Office

Data, Insights and Statistics

As the data custodian for the health and care system, we have primary responsibility for driving data quality, linking data across the system, and providing reliable statistics and insights. The Data, Insights and Statistics directorate is guided by an absolute respect for data privacy and a commitment to empowering healthcare research and the UK life sciences sector.

...and Infrastructure

| Infrastructure | Digital Delivery Centre |

...and Cyber Security

| ...ber Security | Solution Assurance |

Live Services and Cyber Security

Responsible for the reliable, performant and secure operation of all live systems and services that we operate for the health and care system. Includes the Information Technology Operations Centre (ITOC) and the Cyber Security Operations Centre (CSOC).

Case study

Academy at NHS Digital

NHS Digital graduate scheme recruit David Indrawes is working in our Digital Delivery Centre on the systems that allow members of the public to set preferences about the use of their data for research and planning.

"This is one of the most interesting projects at NHS Digital because it is built on the cloud. It's incredibly exciting," he says.

The project is the sixth David has worked on since joining our graduate scheme in January 2017. He embarked on a career at NHS Digital after coming to the UK from his native Egypt to complete a master's degree. He has also worked on the Patient Objection Service (which filters out the data from opted-out patients, preventing it from being shared), the National Cancer Waiting Times system and the Secondary Uses Service.

He says the variety has provided him with a breadth of experience and helped him be more adaptable.

"It challenges you in the best way because once you get into your comfort zone you move on and need to start from scratch on a different project. It has given me five years' worth of experience in just two years. It never gets boring."

The 26-year-old says the role he can play in improving healthcare technology to benefit patients is one of his main motivations.

"I am helping patients to have better experiences. Knowing that my work is having an impact is very important to me."

Working at NHS Digital not only enables the computer and systems engineering graduate to use the latest technology, but also to develop his career in a creative environment.

"People of all levels learn from each other to bring fresh ideas and share skills and knowledge.

"When I joined as a graduate, I was afraid that I might be given mainly admin jobs, but it was totally the opposite. I received support to be able to choose my own pieces of work right from the start. I've also been able to build products from scratch – giving me the satisfaction of owning something I built. As someone with an entrepreneurial mindset, working here fulfils my ambitions as it gives graduates the support and freedom to shine."

David completed the graduate scheme in January 2019 and now has a permanent position at NHS Digital.

Our delivery directorates

1 **Product Development** Page 20

2 **Data, Insights and Statistics** Page 44

1.
Product
Development

Citizen Health Technology

Giving people greater control of their health and care is not only a good thing in itself, it is critical to the sustainability of the NHS and our social care system.

Mobile computing and internet-facing services have transformed the way we work, shop, manage our finances and keep in touch with our friends. We demand more from the organisations that serve us. We expect them to be transparent, accessible and responsive – and we expect them to offer full digital control of our interactions. In healthcare, this revolution has been slower than in many other areas of our lives. The NHS Long Term Plan, the 10-year strategy for the health and care system published in January, acknowledged that in many areas we are still locked in a provider-centred service model created when the NHS was founded in 1948.

However, this much is clear: if we are going to respond to the needs of a growing, ageing and more demanding population and make the most of the extraordinary potential of modern medical and genomic science, we must make full use of the power of modern communications to put the individual in charge of their own health and care.

Our teams in Citizen Health Technology are building the platforms and interfaces that allow individuals to play this central role.

According to the NHS Long Term Plan, the **NHS App** will "create a standard online way for people to access the NHS."

The first version of the app was released as a public beta in December 2018 and is now available to the public on the Google Play and Apple app stores.

At launch, its most basic functions allowed people to check symptoms using a health A to Z and use the NHS 111 online service. Other functions are being activated on an area-by-area basis. As GP practices across the country get connected, patients will see new services: the ability to book and manage GP appointments through the app, order repeat prescriptions, view their records, register as organ donors and change their data-sharing preferences.

We will continue to develop the NHS App to create a secure, easy and consistent way for people to access the NHS digitally.

The NHS App was the first major platform to use the **NHS login** service, which provides a simple, unified method for individuals to sign on and access multiple digital health and social care services. It removes burdens on people accessing online tools and reduces the costs incurred by organisations in delivering identity verification and authentication.

We've engaged with more than 100 health and social care organisations and published a self-service process to help partners who wish to integrate with the service. Five partner services were being piloted by the end of 2018-19, including an online triage and consultation tool for NHS GPs and a project in Leeds to allow patients to update their own medical records.

In 2019-20, we will be developing automated identity verification checks to increase the capacity of the service, introducing proxy access to allow patients to nominate their carers to manage their care online, and exploring new ways of verifying identity including fingerprint and face recognition.

In June 2018, we published a set of standards for identity verification and authentication across health and social care. These standards provide a consistent approach to identity and describe why and how a person should prove their identity to access digital health and care services. They will support interoperability between services and ensure safety and reliability.

The **NHS website** (NHS.UK) exists to improve health outcomes, improve people's health, care and well-being, reduce pressures on the frontline and make the system more efficient. It is the UK's biggest health website, with an average of 46 million UK visits per month through 2018-19. It achieved a satisfaction rate of about 80% over the same period.

We removed the 'NHS Choices' name and logo in 2018, so it's now simply 'the NHS website'. We created a refreshed mobile-first homepage design with much easier navigation, introduced a new content management system and published a digital service manual setting out user-centred standards for service and visual design. We now have a modern platform capable of reaching more people with better information, advice and tools to help them manage their health and care. We have also lowered the reading age needed to understand our articles.

Did you know?

Our NHS.UK team used social media to reach **8.7 million** women as part of the first ever national cervical screening campaign. Better content on the NHS website led to **32%** more readers seeking information about booking a screening appointment.

CERVICAL SCREENING SAVES LIVES

We have also improved the 'findability' of NHS content and have connected to more young people through our social media campaigns. Our partnerships ensure that we reach more people. We have 1,300 partners signed up to our syndication offer, with audiences conservatively estimated at about five million a month. We will lead on more campaigns throughout 2019-20 and make it even easier for people to find the information they need to look after themselves and those they care for.

There are now more than 70 approved apps on the **NHS Apps Library**. We are working with more than 105 developers and have over 119 apps in review, providing information and support on topics from diabetes management to helping teenagers cope with mental health issues.

In June 2018, we published updated guidance to developers explaining their responsibilities under the General Data Protection Regulation (GDPR). All apps on the NHS Apps Library were assessed for compliance with the new regulations and 56 of the 70 were approved.

Fourteen apps have been required to take immediate action to address GDPR issues. Ten apps have been removed because they were unable to satisfy the assessors.

To increase the number of trusted apps available to the public and our health and care partners, we developed a framework to allow the recruitment of third-party organisations as approved assessors of apps and invited six to join the process in May 2019.

Much of the work of Citizen Health Technology is about enabling clinicians and members of the public to work together. This changes the balance of the relationship between clinician and patient and creates opportunities for completely redesigning services.

Our **Personal Health Records** programme is at the heart of that work and is working closely with local areas to ensure innovation at the grass roots is joined up and supporting overall NHS improvement. In May 2018, we published NHS-wide standards and guidance for personal health record access.

We distributed a toolkit to help local organisations align with national process and worked directly with key areas to ensure they were connected seamlessly with services like the NHS login, NHS App, and the NHS Apps Library.

The **National Data Opt-out Service** also puts individuals in control. It was successfully launched on 25 May 2018, giving people a clear choice about how their confidential patient information is used for research and planning by the health and care system.

They can simply state their choice once on-line or through our contact centre and are then able to change their minds whenever they wish. By giving people more information and more control, we expect to increase trust in the use of data to improve treatment and the effectiveness of services.

The NHS Long Term Plan relies heavily on the use of digital technologies to empower patients and change traditional models of care, but it also stresses the importance of ensuring everybody is able to access this in the future "from the most digitally literate to the most technologically averse."

Since March 2017, our **Widening Digital Participation** programme has supported over 167,000 people from excluded communities to access and use digital health tools and services. This year we delivered six digital inclusion pathfinder projects to develop and test new ways to support homeless people in Hastings, older people in care homes in Portsmouth and people with sensory impairments in West Yorkshire.

In May 2018, we also published the Digital Inclusion Guide for Health and Care to help commissioners and digital teams across the NHS ensure their digital services and products are inclusive and accessible to everyone.

Next year, we will deliver a further six pathfinder projects to help people with dementia in Leeds, those living with cancer in Nottingham and to improve the digital skills of nurses in Cumbria. By March 2020, we hope to have supported 280,000 people from deprived communities to access and benefit from digital health technology.

The digital "front door" to the NHS

Testing of the NHS App started in September 2018 and it is now available for download across the country

95% of GP practices are now connected, giving users access to the full range of functionality

The NHS App has been downloaded 209,000 times in 2019

How are you feeling right now?

Check my symptoms

Sign in

We are reaching new people with digital services. 62% of NHS App users have never been registered for a GP Online service before

Patient records have been viewed 70,500 times through the app
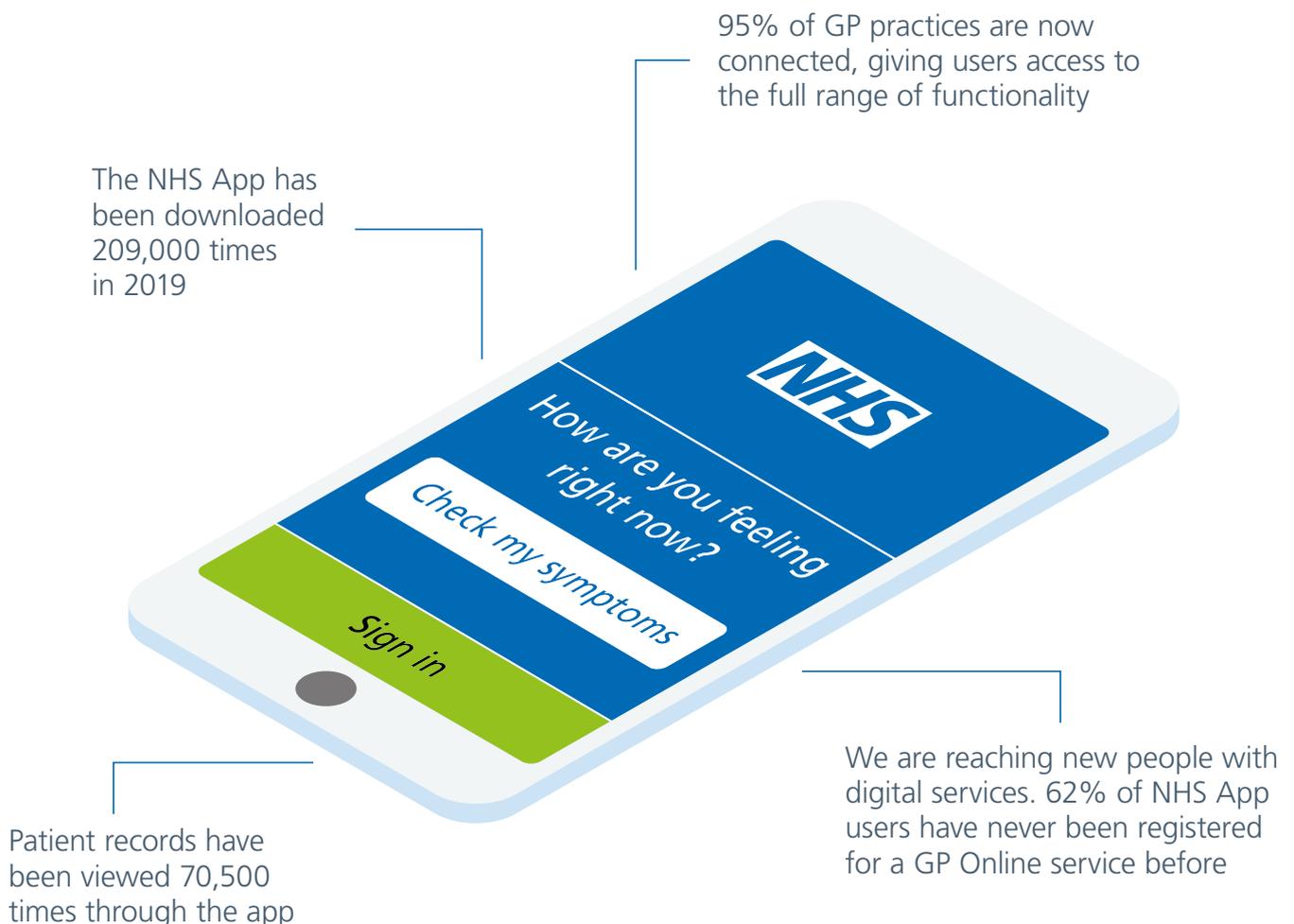
Acutes, Ambulances, Mental Health and Regional integration

We are working with local organisations across the acute, emergency and mental health sectors to use digital technology to support new models of care.

A handful of core electronic systems are transforming how patients access health services, allowing us to get people the right care quickly and relieve pressure on frontline services.

NHS 111 online is now available across all of England. Anyone with an urgent medical concern can visit 111.nhs.uk, answer questions about their symptoms, and find out what to do and where to go. The process usually takes about two minutes and in most places users can have a clinician or out-of-hours GP ring them, if needed. The service is also available through the NHS App.

NHS 111 online was used nearly 800,000 times in 2018-19. By November 2018, the service had met its 6% uptake target, five months ahead of schedule. A national publicity campaign at the start of 2019 prominently featured the online option. During this time, 111.nhs.uk accounted for 10.5% of NHS 111 triages.

The **NHS Pathways** and the **Access to Service Information (A2SI)** teams are both working to improve the tools used by clinicians and NHS 111 and 999 call handlers to assess, triage and direct patients to the right urgent and emergency care services.

NHS Pathways is our core triage product. It was used to support more than 16.2 million calls in 2018-19 to NHS 111 and 999 services.

We are constantly updating the service's algorithms to ensure individuals get the right care in the shortest possible time. This is a continuous process of questioning, re-evaluating and improving the way we handle a wide range of symptoms and situations, from how to help emergency callers conduct CPR to providing advice on emergency contraception.

By January 2019, all Pathways providers had deployed a major update including a new triage pathway to help ambulance services manage major incidents such as road traffic accidents or terrorism attacks. Among a range of other improvements, we are providing a safer and faster response for children complaining of chest pain and introduced new options for mental health crisis teams and next-working-day pharmacy referrals within Pathways.

Our Access to Service Information (A2SI) is improving the Directory of Services (DoS), the core application that holds information about the availability of local health and care services in England. It is used by call handlers and clinicians to find the right care services for patients.

In October 2018, we started a private beta of new functionality providing users with live information about current wait times for emergency departments and urgent treatment centres.

We are also testing a mobile search capability for paramedics and pharmacists, allowing them to use the directory while on the move.

By March 2020, we expect all healthcare professionals to be able to directly book appointments for their patients through the directory.

Supporting 999 and NHS 111 services

Our NHS Pathways product helps 999 and NHS 111 call handlers and clinicians get patients the right urgent and emergency care and advice quickly. In 2018-19, we improved functionality and made hundreds of content updates.

New senior clinician module allows integrated urgent care clinicians to dispatch ambulances and search the Directory of Services to make direct referrals

9 out of 10 NHS 111 calls result in no emergency department attendance

Functionality for 999 services helps major incident response, improving triage for patients, coordination between emergency services and support for crews

NHS 111 calls per quarter

A&E

Other

Summer   Winter

111

05:30

Improved CPR content cuts the time to 'hands on chest' and increases use of defibrillators

Specialised modules support call handlers responding to people needing repeat prescriptions or with dental problems, both areas of high demand

Access to the Electronic Prescription Service allows NHS 111 clinicians to send out-of-hours emergency prescriptions to the most convenient pharmacy for the patient
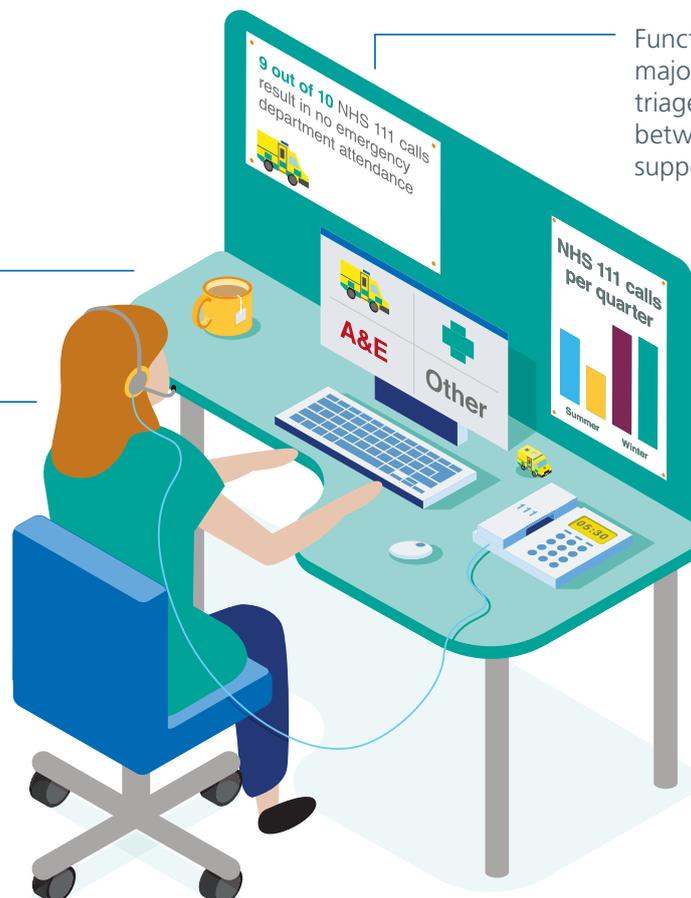
The **Urgent and Emergency Care Digital Integration** team is working with suppliers to improve the flow of patient information so that patients do not have to repeat information and tests as they move between care settings—and to ensure that professionals have the information they need to make prompt and safe decisions.

We are supporting interoperability between patient information systems and clinical decision support systems through adoption of our FHIR-based standard across urgent and emergency care settings.

Our **Trust System Support Model** provides direct, practical help to trusts taking on major technology projects. We work with NHS England and NHS Improvement to offer trusts access to specialist expertise and national best practice on subjects including technical infrastructure, testing, business change, service management and clinical engagement.

We provide business case and strategy reviews, support before deployments to ensure trusts are well prepared, and, if necessary, get involved after deployments if challenges are being experienced.

Over the past year, we helped 10 trusts stabilise following challenging digital projects and helped 14 trusts prepare for safe deployments with minimal operational disruption.

We worked with NHS Improvement and trusts to review eight major digital business cases.

We have also supported trusts using the Lorenzo electronic patient record system under the Department of Health and Social Care's contract with DXC Technology, with four trusts selected as Lorenzo Digital Exemplars responsible for demonstrating how the system can support integrated care.

We worked with the Chief Information Officer for Health and Social Care to establish a strategic relationship-management function for key suppliers into secondary care and have put service improvement plans in place with suppliers where performance has been an area of concern.

The **Global Digital Exemplar** (GDE) programme, which we run in partnership with NHS England, is supporting 26 acute, ambulance and mental health trusts in pioneering the use of digital technology and data to deliver exceptional care against international benchmarks. These exemplars are working with 24 'fast follower' trusts to develop best practice evidenced by improved outcomes that can be shared.

In 2019-20, we expect to accredit the first cohort of full GDEs, meaning they will have met the standard of world-leading use of digital technology. We have produced 34 GDE blueprints, clearly describing what was learned in specific projects and setting out systematic approaches to implementation elsewhere in the system.

Cambridge University Hospitals' work to develop a Global Trade Item Number (GTIN) database to tighten up medicines supply and administration is just one of the new approaches developed by the GDEs that look set to have a major impact.

The database will allow much better tracking of medicines, helping to ensure compliance with the Falsified Medicines Directive and, ultimately, safer treatment for patients.

The programme is working with the Local Health and Care Record Exemplar programme, the Academic Health Science Networks and the Building a Digital Ready Workforce programme to use the learning networks developed by the GDEs to support improved sharing of best practice across the system as a whole.

We have introduced a portfolio and programme management tool, called 'Project Vision', for all GDEs, which is being used by more than 50 trusts to help with GDE reporting. It has been so well received that some have elected to use it to manage other project portfolios.

It has allowed the central programme to efficiently showcase and report on trusts' progress across a wide range of themes – saving time and money and also improving quality.

The programme continues to expand, with £200 million funding announced by the Secretary of State in September 2018 to create the next wave of GDEs, including the first community trust exemplars.

Did you know?

Our Trust System Support Model supports trusts handling major digital deployments. **95%** of users rate the service as good or excellent.

Case study

NHS 111 online

User researcher Jeanette Attan works with members of the public to shape the new NHS 111 online service.

"It is about talking to people and observing how they actually use your product and then changing things to suit what they need – not what you thought they needed," says Jeanette.

NHS 111 online (see page 26) allows patients to enter symptoms and answer a structured set of questions to identify what healthcare, information or guidance they require. Answering questions online is different to speaking to a call handler. There's no opportunity to ask for clarification if you don't understand.

"It is really important that we get these questions right. Every word has to count. People need to know instantly what they need to do next," says Jeanette.

"When I first started working on 111 online, the system asked: 'Do you feel severely ill with a new rash like bleeding or bruising under the skin?' This two-part question was difficult to answer. One woman said, 'I didn't have a rash, but I did feel severely ill, so I am going to answer 'yes'.'"

That answer would have resulted in the woman being told to call the ambulance service, because the question was checking for severe sepsis symptoms linked with meningitis. Answering incorrectly can result in unnecessary load on stretched services.

Jeanette's research provided evidence for splitting the question into two simpler parts and has fed into a wider review about how such questions are asked across the whole NHS Pathways product.

"The work to improve the site is continual. The whole 111 online team regularly gets to observe users navigating the site and testing new pages. Doing this helps everyone understand users and how to make sure the site works for them.

"People are unpredictable and have a whole range of experiences, so there are always ways in which we can improve."

Primary Care Technology

Primary care is under unprecedented strain and yet is critical to the future of the NHS. A growing and ageing population with complex multiple health conditions must have access to responsive and integrated primary and community care.

The NHS Long Term Plan pledged to finally dissolve the historic divide between primary and community health services in England. Investment in these sectors will grow faster than the overall NHS budget over the next five years, the equivalent of at least an extra £4.5 billion in real terms for local services by 2023-24.

The focus is on creating integrated and flexible primary care networks involving GPs, pharmacists, district nurses, community geriatricians, dementia workers, physiotherapists, social care providers and the voluntary sector, which will give patients more choice and better targeted care.

Our Primary Care Technology teams are linking up the fragmented IT systems in primary care and providing the secure and flexible access to records, care management tools, and data that the Long Term Plan's new model of care requires.

We run the contracts for the provision of clinical IT systems to every general practice in England. These are essential to safe and effective primary care and support more than 300 million patient consultations every year.

We are replacing the old GP Systems of Choice (GPSoC) framework, which limited GPs to four principal system suppliers, to a much more flexible arrangement offering more choice, more innovation and greater interoperability. Over the past year, we consulted with GPs, practice managers, IT suppliers, clinical commissioning groups (CCGs) and commissioning support units (CSUs) and we will transition to the new framework by the end of 2019.

Like the old framework, **GP IT Futures** removes the burdens of procurement from practices, but a new digital marketplace, called the 'Digital Buying Catalogue', allows buyers to compare products and services from different suppliers, assemble the right mix of technology for their needs and add new capabilities. It will make it easier for small suppliers to enter the market, increase competition and drive innovation in important areas such as clinical decision support systems and online consultations.

Meanwhile, the **GP Connect** programme has been breaking down the barriers between existing suppliers' systems and connecting care.

We have been working with suppliers and the NHS to test view-only access to patient records across all GP systems. Our pilots are demonstrating the benefits of such access for clinicians.

Dr Geoff Hall, Chief Clinical Information Officer at Leeds Teaching Hospitals NHS, who is involved with the Leeds Care Record, quoted one example from his own clinical practice.

He had been able to see a GP diagnosis of advanced pancreatic cancer for a patient he saw on call and get full details of what the patient had told the GP and what their family knew.

Dr Hall said: "Having access to that information resulted in better patient care and helped avoid repeating a potentially emotional and stressful conversation".

We expect to make view-only access to the GP clinical record available across the country in 2019 and we are already well advanced on the next phase of improvements. Enabling GPs or NHS 111 staff to book and change appointments in partner organisations' systems will help get patients the right appointments more quickly and at the times that are convenient to them.
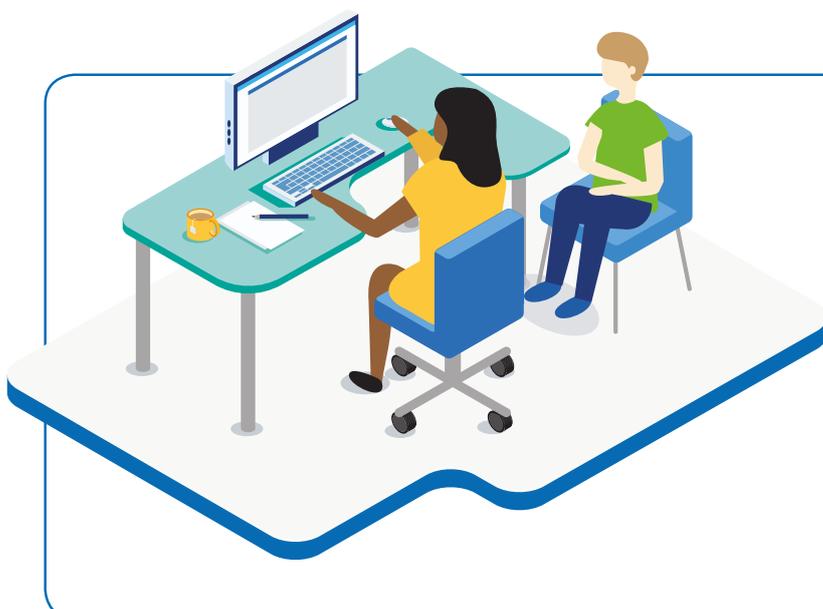
Did you know?

Our IT supports about **5.8 million** GP patient consultations a week, giving doctors a suite of tools including secure messaging electronic prescriptions, e-referrals, and access to shared records.

We also want to allow the secure sharing of medications and allergies information from the GP record into partner systems, cutting the number of times patients have to repeat information about their medications and allergies to staff, reducing the risk of error, and supporting efficient collaborative working across primary care networks. We will be piloting both improvements and expect to make them available across the country by the end of 2019-20.

The GP Connect team has also been working on a 'writeback' function that will allow clinicians in one GP practice to send a consultation update back to the patient's registered GP, helping close the loop when a patient has been seen in a federated practice or at a weekend or in an evening.

We are leading the implementation of **SNOMED CT** as the single, standardised terminology for use in all electronic health records in general practice. This is another critical step in integrating IT and data flows across the sector. Having one terminology will allow digital systems to share information more effectively and will allow us to unlock the power of the data produced to support clinical decisions and improve planning and research.

Complete adoption of SNOMED CT across the sector was not achieved by our target date of October 2018 as not all suppliers were able to achieve this date. However, all four principal suppliers of GP systems do now have systems in place to receive and send items using SNOMED CT through the GP2GP patient transfer system and the Quality and Outcomes Framework (QOF) extract reports.

One of the suppliers, TPP, has achieved full SNOMED CT compliance and the remaining three principal suppliers are on course for full compliance in 2019.

We are improving the capability of the General Practice Extraction Service (GPES), which collects information about practice activity that underpins vital services such as GP payments but also helps us respond to growing demand for data for planning and research. This data is feeding directly into better care.

For example, the diabetic retinopathy screening extract was used to improve the screening process by ensuring patient information is correct and up-to-date, allowing faster and easier creation of patient registers for new screening programmes. These early interventions can be critical to protecting sight.

The next phase of improvements will provide a Standard GP Dataset to reduce burden on GP practices, improve data security and radically improve the information and insight about GP activity across the NHS.

We also implemented the first national collection of appointments data from practices in England, providing comprehensive data about the availability and use of appointments across England. This provides valuable new management information for the NHS and we also provided a dashboard to all practices, giving them easy access to their own information.

In May 2018, the Secretary of State for Health and Social Care announced a serious failure in **NHS breast screening programmes.** We provided support to Public Health England and other partners to resolve the issue.

We continue to provide technical expertise to support the NHS's screening programmes and provide systems to support breast cancer screening, cervical cancer screening, bowel cancer screening and abdominal aortic aneurysm screening.

We are supporting the introduction of the Faecal Immunochemical Test (FIT) for bowel cancer screening. FIT will give more sensitive and specific results and replace subjective human judgements with numerical results that will reduce error.

Did you know?

Every patient in England will have the right to online GP consultations by **2024.**
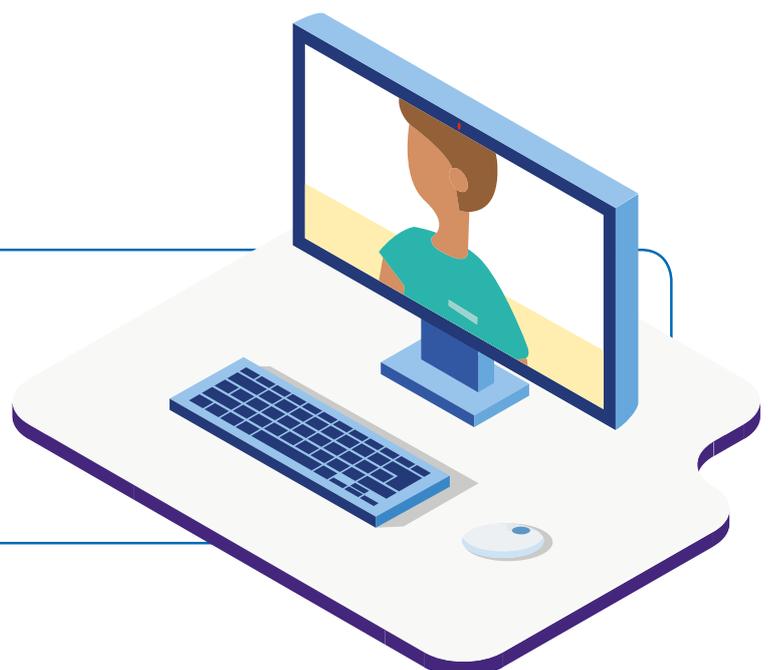
Medication Interoperability, Digital Adult Social Care, Child Health, Maternity, Pharmacy and Referrals

Organisational and professional barriers within our healthcare system – between social workers, care providers, pharmacists, GPs and hospital clinicians – not only make it harder for professionals to do their jobs, but waste hundreds of millions of pounds a year. Such barriers make it more difficult for the public to get the seamless and personalised care and treatment they have a right to expect.

We are providing products and services that break down these barriers. The objective is to allow information to flow securely with the individual as they move through health and care and to give professionals the tools they need to work effectively.

The **NHS e-Referrals Service** is one of the most important digital systems in our health service. It handles about 400,000 referrals every week and saves the NHS about £50 million a year.

We have been steadily improving its useability for both patients and clinicians, while increasing use across the system. In March 2018, about two thirds of GP-to-first-outpatient appointments in England were electronic. By October, we had increased that to more than 90%. Our 'paper switch-off' campaign trained over 1,000 users and supported 150 trusts and hundreds of GP practices in making the transition.

We made a series of improvements to the service through the year. Patients can now save appointment information from our 'Manage Your Referral' website to calendars such as Outlook or Google Calendar.

We have also improved the accessibility of 'Manage Your Referral' for visually impaired people by better supporting screen-reading technology. In January, we improved the letters sent to patients from the system, replacing two separate messages with a single letter that more clearly sets out all the key referral information. This makes it easier for patients to log in and manage their referrals and reduces printing costs for GPs.

We also released a range of application programming interfaces to allow third-party IT suppliers to integrate with the e-Referral Service, allowing clinicians to make and review referrals without leaving their preferred systems.

More than a third of England's 11 million children are considered at risk of avoidable disease and harm. The health and care system is spending about £39 million nationally on child health information services but failing to adequately integrate children's healthcare. Much of the information about children's health is still held on paper in the 20-year-old 'red book'.

Our **Digital Child Health Programme** is getting children's information off paper and into fully interoperable digital systems.

Families receive a red book from the NHS before babies are born. These are used to record and share information about their children and the care they receive. We are making the red book digital.

Babies' birth details are automatically transferred to the digital red book by the new National Events Management Service (page 38)

Allows targeted information and reminders to be pushed to parents, based on the age of their child

Always available

Expectant parents access the red book using their NHS login, which allows access to other NHS services (page 22)

My personal child health record

My personal child health record

National rollout expected by 2022

Printed red books cost between £2.40 and £3.30 each

Younger, disadvantaged and lone parents use it less. It is not always available when families visit care

650,000 to 700,000 babies get a red book each year

In December 2018, we published an information standards notice requiring all care providers and IT suppliers to standardise the information they collect and record about children's health so it can be shared between systems effectively.

We have also completed the first phase of the development of the National Events Management Service. This system will track all children's contacts within the Healthy Child Programme.

Phase one is already live in the North East London Foundation Trust, allowing basic demographic and birth data to be shared among the trust's more than 400 staff. It covers more than 600 births a month. By March 2020, we expect to have introduced a 'digital red book' in London, Lancashire, Bristol and North Somerset and South Gloucestershire.

Our **Digital Maternity** programme is linking up digital maternity records so they are more accessible to parents and their healthcare teams.

We published a maternity record standard in December 2018 describing the professional clinical record to be adopted by maternity system suppliers.

This provides the basis for standardising and connecting records and transforming models of care in line with the National Maternity Review's 'Better Births' report. By March next year, we expect to have offered over 100,000 people access to their own digital maternity care records.

We also assessed and reported on the digital maturity of all 135 trusts in the 44 Local Maternity System areas and provided a toolkit, advice and workshops to help local areas prepare to support a fully integrated pathway.

We have updated the maternity guidance available through the NHS website and the other apps and websites syndicating its information.

The **Child Protection - Information Sharing (CP-IS)** service (see page 43) provides a vital link between the IT systems of social care teams and those of emergency departments, minor injury units, maternity units and other unscheduled care settings. It flags young people with child protection plans or with looked-after child status when they attend health settings. This alerts health workers that they may be dealing with a protected child and ensures that social care teams know that the child has required unplanned medical attention.

About 176,000 of the most vulnerable children in society are now covered by CP-IS.

During 2018-19, the number of health sites live with CP-IS increased from 52% (593) to 92% (1,035).

The number of local authorities on the system has risen from 68% (104) to 91% (138). All local authority IT system suppliers and the top seven unscheduled healthcare system suppliers are now accredited. We expect to have 99% uptake in both sectors by March 2020 and we are preparing to extend the types of health settings covered by CP-IS from 2019-20, in line with the March 2023 target in the Long Term Plan.

The **Electronic Prescription Service (EPS)** is another crucial link in the health and care system. By making all prescriptions digital, we are not only saving time for prescribers and pharmacists and making life easier for members of the public, we are also transforming our ability to monitor and control the medicines supply chain and assess the effectiveness of prescribing.

We took a major step toward an entirely electronic prescribing system in February, with the start of the roll out of schedule 2 and 3 controlled drugs on EPS. These are drugs, like morphine (schedule 2) or flunitrazepam (schedule 3), that have legal controls on their storage, production and supply to prevent misuse.

The inconvenience of split electronic and paper prescriptions for patients receiving scheduled and non-scheduled drugs is now a thing of the past.

We also began to remove the need for patients to nominate the pharmacy that prescribers need to send electronic prescriptions to. Instead, the prescription is still sent electronically and held on the NHS's IT systems. Rather than its destination being predefined, the patient presents a token that includes a barcode that is then scanned by the pharmacy. That scan sends a message to the NHS IT systems and the electronic prescription is retrieved.

These two major changes are expected to increase the proportion of prescriptions sent by GPs that are electronic from about 67% to more than 90% by 2020.

During the financial year, we continued to introduce EPS into integrated urgent care settings such as NHS 111 call centres. This allows patients to have emergency acute prescriptions sent directly to an available pharmacy of their choice after phone consultations with out-of-hours clinicians.

Our implementation teams are working with service providers to introduce this functionality. At the end of March 2019, 24 urgent care providers were using EPS, with many more to follow during 2019.

In collaboration with the Professional Records Standards Body, we created standards to allow clinical services offered to patients at a pharmacy to be digitally captured and securely transferred to their GP. In practice, that means, for example, that a patient's GP can be informed electronically that they have had a flu vaccination without the need for letters, phone calls or emails.

The Falsified Medicines Directive (FMD) says that all medicines packs must have a barcode that can be scanned when received by pharmacists, GPs, hospitals and other prescribing environments. This scan sends a message to a national database managed by an external body that contains all details of legitimate medicines packs. The scan is checked and sends a message back to the user to confirm the medicine is genuine and safe to prescribe. We have worked with NHS organisations to define guidance to support FMD implementation and tested it in pilot areas to ensure it is fit for purpose.

In adult social care, we are helping to build the digital maturity and connections that will underpin the integrated teams of medical, community health and social care professionals at the heart of the NHS Long Term Plan.

A complex commissioning and delivery environment has contributed to lower levels of digital maturity in some parts of the adult social care system than in healthcare. We are increasing the availability of NHS Digital products, implementing new digital systems to make transfers of care between health and social care safer and more efficient, and working with providers across the sector to improve information governance, data security and digital maturity.

In July 2018, we launched first-of-type sites for acute discharge to social care. This allows people to be discharged more efficiently and gives them access to the care they need more quickly, often avoiding unnecessary returns to hospital.

In early 2019, the suppliers of LiquidLogic and Mosaic, two of the main case management systems used by local authorities, developed functionality to exchange assessment, discharge and withdrawal notices with hospitals using the NHS's secure messaging systems. These functions are in line with NHS Digital's Target Operating Model standard and are now being user tested in local authorities across the country. Plans for wider adoption are being developed for delivery over the next two years.

We have also committed to support more than 60 local authority and care provider projects to explore how digital technologies can improve services. The Social Care Digital Innovation Programme, run in collaboration with the Local Government Association, funded 12 projects in 2018-19. Projects ranged from investigating public reactions to the use of exoskeletal devices to help carers in the Isle of Wight to developing the use of wearable biometric devices to improve support for people with autism on the Wirral.

The Electronic Prescription Service saves the NHS £129 million a year

NHS 111 clinicians saved an average of

six minutes per patient

by using electronic prescriptions to issue urgent prescriptions

93% of GP practices

and **99% of community pharmacies** are live on the system

In 2018, about

690 million

items were dispensed to patients using the service

More than

31 million patients

have a nominated pharmacy on the Electronic Prescription Service

Case study

Child Protection - Information Sharing

Named Nurse for Safeguarding Children at Surrey and Sussex Healthcare NHS Trust, Sally Stimpson, says the introduction of the Child Protection - Information Sharing service (CP-IS) has been invaluable in sharing child protection data automatically between children's social care and the NHS.

"Recently, a teenager attended the emergency department with a complication of early pregnancy," says Sally.

"Her social worker was alerted via CP-IS, immediately after she had booked in for unscheduled care.

"They were then able to make contact immediately to inform us she was a looked after child (LAC) who had been missing and had been identified as at high risk of child exploitation.

"It transpired she had been missing for a number of months and had been moved across regional boundaries. This allowed intervention to prevent further harm, abuse and neglect."

The Trust was one of the first in the country to use the integrated CP-IS service, which links IT systems across health and social care to ensure children's services will be made aware of every young person under the age of 18 who attends for unscheduled care and is either subject to a child protection plan or is a looked after child. This has been particularly valuable in ensuring the most vulnerable 16 and 17-year-olds who are routinely seen in the adult emergency department are automatically identified.

"Effective sharing of information across agencies nationwide is vital in protecting children who are at risk of neglect or abuse," says Sally. "Early intervention makes it possible to prevent further harm by working with children and families.

"We were getting an increasing number of calls from social workers to the point where we have a dedicated email address to deal with enquiries about children on their caseload who have attended.

"CP-IS provides an additional level of protection for the most vulnerable children and young people in England and supports cross-agency working to achieve the best outcomes."

2.
Data, Insights and Statistics

Data, Insights and Statistics

In 1948, the written information held in an average patient's records amounted to a few kilobytes of data.

Today, the convergence of genomics, biosensors, smartphone apps, electronic patient records and a modern digital infrastructure is creating an explosion in the data available to inform individual treatment and care. By 2024, the NHS expects to have sequenced the genomes of half a million people. That alone will amount to about 1.5 petabytes of data.

Wearable and mobile technologies have the potential to allow millions of members of the public to continuously provide personal health data. At the same time, artificial intelligence, modern data science and clinical decision support systems will transform our ability to process and put this information to work.

Our Data, Insights and Statistics directorate's purpose is to help the NHS, social care and the research and life sciences communities to learn from every patient who is treated. By linking our collections, we can chart a patient's journey through the health system. When the journeys of many patients are aggregated, we can gain valuable insights into what works well and what doesn't. We can make better decisions, predict future events, learn from high-performing teams and understand the spread of disease.

Accurate, accessible and timely information allows individual members of the public to manage their health and conditions. It underpins democratic accountability and is essential to some of our country's most innovative companies. It helps commissioners target limited resources so they have maximum impact and helps clinicians, social workers and researchers improve people's lives.

For our data to achieve this impact, it must be both trusted and useable. We are accountable to the Office for Statistics Regulation for the independence, quality and value of the statistics we publish. They often intervene publicly on topics of importance and recently commended our approach to drawing together A&E data from the four nations of the United Kingdom. We put users' needs at the heart of all our work and communicate in a wide variety of formats including in-depth annual reports, interactive monthly dashboards, easy-read summaries, press notices and social media graphics.

Our analytical hubs for primary care, mental health and social care provide users with dedicated information portals that bring together all our information about these vital topics and allow them to produce additional reports and analyses relevant to their particular needs.

We have significantly improved the 'searchability' of our publication website, providing much better access to a 20-year history of open data and statistical publications. We are one of the world's largest producers of open health data.

And we are continuously improving the interactivity and accessibility of publications. Our analyses of medication safety, emergency care throughput and flu incidence after hospital stays, for example, all used modern business intelligence tools to bring complex data to life and allow customers to flexibly interrogate and visualise the information.

Natural language processing gives us an exciting opportunity to further democratise access to data. It allows users to pose questions in standard English and have a computer application take them through sometimes complex choices.

We have developed a chatbot with natural language processing capabilities to engage customers in a conversation to pinpoint the data and information they need and serve it to them.

A second tool will help customers interrogate structured data sources without requiring specialist analytical skills. Both applications were successfully trialled over the past year. They will be implemented across relevant products in 2019.

We published 265 official statistics publications in 2018-19 and are continuously improving the information they provide.

For example, the new survey of children's mental health highlighted the prevalence of mental health conditions among young people and, specifically, among older teenage girls, heavy social media users and those identifying as LGBT.

Our new monthly statistics on GP practice appointments are not only reporting the overall load on the system but also shedding light on waiting times to see a doctor and wasted appointments when patients don't attend.

We published new data from the Breast and Cosmetic Implant Registry, which has been set up to allow swift tracing of individuals if products are recalled. And our National Data Opt-out data reports are giving the system a clear picture of the take up of the opt-out in different parts of the country. The world-renowned Health Survey for England included analysis of the relationship between parent and child obesity for the first time this year.

Linking datasets together to show interactions through the care pathway and patient outcomes is an increasingly important part of what we do. For example, we have joined up secondary care data with community prescribing data to look at admissions of patients after receiving specific medications, offering a vital new insight into patient safety.

Last year, customers told us that they used our data to improve health and care, support research, inform policy and planning, drive efficiencies and improve their own data capabilities.

Academic experts and users are helping us improve the Summary Hospital-level Mortality Index (SHMI), which reports on mortality at site level across the NHS in England. The index is the ratio between the actual number of patients who die following hospitalisation at a trust and the number that would be expected to die given the characteristics of the patients treated there. We have delivered presentational improvements to the SHMI homepage and are now producing quarterly statistics about a month faster than at the start of 2018. During 2019, we expect to move from quarterly to monthly publication, increase the detail and accessibility of our reporting and make a series of methodological changes, including adding seasonal factors and better models relating to specific conditions.

Our strategy for improving the quality of data is focused on improving clarity about the standards required, providing immediate feedback to providers when there are quality issues, and supporting system-wide action to improve practice.

Data quality is in the NHS Standard Contract for 2019-20. A proportion of healthcare providers' income is now conditional on improving quality standards (through the commissioning for quality and innovation, or CQUIN, framework) and there are new indicators supporting improvement.

Our new Data Processing Services (see page 54), to which we are moving all of our data collections, will automatically produce data quality reports for providers at the time of submission.

We are also working with the Professional Records Standards Body to encourage good and timely professional record keeping by clinicians and other front-line professionals.

The Virtual Data Science Centre, established by NHS Digital in 2017, brings together data science leaders from 15 public sector organisations. It supports the development and sharing of best practice across government and, during 2018-19, worked to standardise data science job profiles between partners and develop approaches and capability in natural language processing, text mining, and machine learning.

Closer to home, we continued our sponsorship of the Open Data Institute in Leeds, which is at the heart of a growing community of data producers and users with a shared commitment to using open data in the North of England.

Did you know?

Our statistical publications were downloaded **837,000** times in 2018-19.
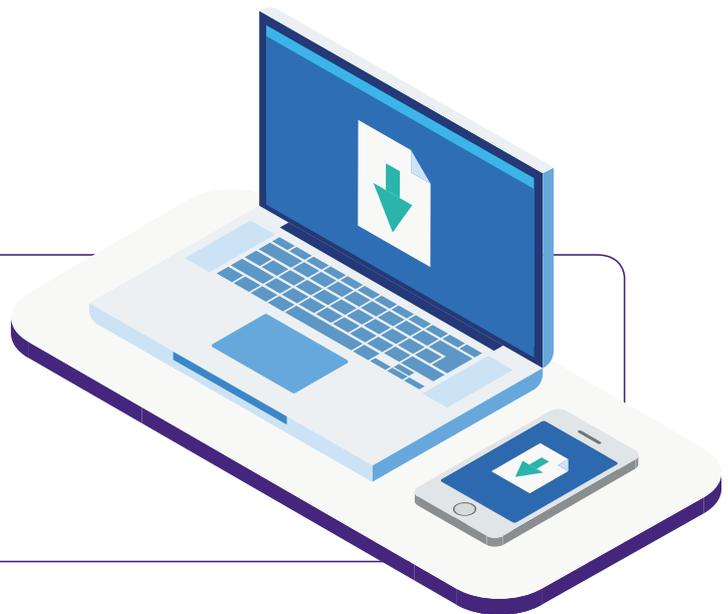
Life sciences and research support

The NHS Long Term Plan puts support for medical research and the life sciences in the UK at the heart of the 10-year strategy for health and care in England.

Medical and life sciences innovation is not only one of the most dynamic sectors of the UK's economy, vital to the economic growth that pays for our health and care system; it also directly supports better treatments and outcomes for individuals.

The Long Term Plan underlines the UK's outstanding capabilities in these areas: "Our universities and science base, leading NHS providers, genomics programme and the UK Biobank … combined with better data infrastructure have the potential to lock in the UK as a global force in data-driven scientific advances in healthcare"

NHS Digital is playing its full part, as the data custodian for the health and care system, in supporting this success story. The Life Sciences Sector Deal 2, published in December, underlined our role in improving data infrastructure and the Data, Insights and Statistics directorate is reshaping its teams, architecture, and partnerships to meet the challenge.

In February 2019, we joined with NHS partners, Genomics England, Health Data Research UK (HDR UK), Public Health England and the Clinical Practice Research Datalink to establish the UK Health Data Research Alliance. Its purpose is to enable faster and more efficient access to data for large-scale and innovative research projects, while ensuring individuals' privacy and data sharing preferences are always respected.

We are also working directly with HDR UK, which represents 22 of the UK's leading health research institutes, to create new opportunities and resources for their members.

Top of the agenda is rationalising access across UK data controllers. NHS Digital is now the controller for all mortality data. This simplifies access to this information through our Data Access Request Service (see page 52) and allows longer access agreements to be signed.

How are we supporting the UK's life sciences sector?

Setting core technology and data standards for NHS IT

Provision of data for algorithm testing and AI tools

Investing £43m to improve core data services

Secure, online Data Access Environment allows external customers to access data remotely

Better support for research through planned trials and faster ethical approvals

The public wil be able to register their interest in trials through the NHS App

We are working with the Office for Life Sciences to agree a Life Sciences Direction that will make the assets NHS Digital holds for direct care available for research on an anonymised basis, including pathology messaging, prescribing and other data.

In December, we co-hosted the 'Health and Care data: Improving lives through research' conference with HDR UK and the National Institute for Healthcare Research in Leeds. We are collaborating with HDR UK on developing new resources, such as a standard GP dataset and community dispensing data.

Data access operates in a complex regulatory environment, including the Health and Social Care Act 2012, Care Act 2014, Statistics and Registration Act, Data Protection Act, the General Data Protection Regulation (GDPR), and the National Data Opt-out.

We are working through our external Research Advisory Group and the Office of Strategic Coordination for Health Research with partners including Medical Research Council (MRC), the Health Research Agency, HDR UK , and the Life Sciences Industrial Strategy Implementation Board to streamline legal and ethical approvals across the system, cut bureaucracy and duplication, and support a consistent understanding by researchers of the rules governing the use of health data in research.

Our **Data Access Request Service** (DARS) processed more than 1,145 agreements for person-level data over the past year, an increase of 65% from 2017-18 and 120% compared with 2016-17.

We increased our informatics support for Genomics England's 100,000 Genomes project, which announced in December that it had reached its 100,000 goal, and we are helping the UK Biobank securely link GP data to their 500,000-strong cohort.

The ORION-4 phase 3 clinical trial at the University of Oxford (see page 59) is aiming to find out if a new cholesterol-lowering injection safely reduces the risk of heart attacks and strokes.

Our data has underpinned the selection of the cohort for this major clinical trial and we are working with Oxford and NorthWest EHealth, backed by Medical Research Council and Digital Innovation Hub Sprint exemplar funding, to develop proofs of concept of a national service to help researchers plan trials and identify participants more quickly and reliably.

Despite the increase in workload and the introduction of GDPR, DARS achieved an average wait time from data application to data delivery of 80 days for new applicants between April and December 2018, compared to more than 140 days in May 2016. Our fastest application was approved in 21 days.

Did you know?

The use of data direct from NHS Digital has made the recruitment process for the ORION-4 trial at the University of Oxford up to four times faster than in previous similar studies, the trial's leaders say.

Key area
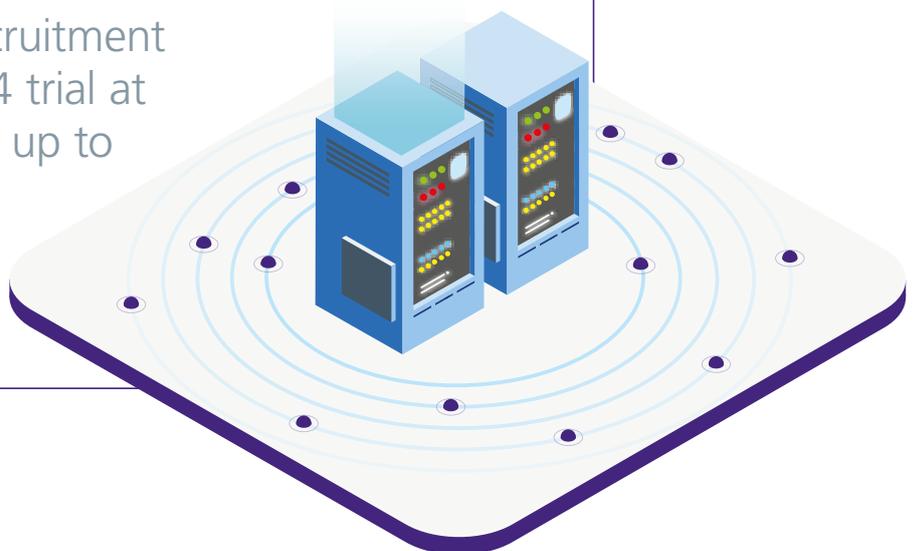
Data transformation and architecture

We are investing £43m in new Data Processing Services (DPS) to improve the ways we collect, process and use data.

The platform was introduced in May 2019 and all our data collections will be moved onto it in the next two years. At its heart, the project is about merging datasets under a single data architecture. Rather than operating large, independent data sets with distinct submission procedures, dissemination methods and standards, DPS takes flows of data from submitting institutions and combines them in a flexible and modular way so that one collection can support a variety of different uses.

By using automated processing and modern cloud technology, we get information faster and in more flexible formats, improve privacy and data security, but also, crucially, reduce the burden of submissions on the NHS and social care. Institutions no longer have to submit the same information multiple times for different uses.

Cutting-edge privacy technology ensures that the platform is also highly effective at protecting individuals' sensitive data.

Identifiable information is systematically and automatically removed from data sets without compromising the quality of the data for users.

Our encryption method, developed with London-based software company Privitar, allows strict control over how personal data can be linked. For example, if a user needs data to be linked using individuals' NHS numbers, the DPS automatically replaces that number with a random value that cannot be tracked back.

To further protect privacy, a different random value is created each time data is made available, so there is no possibility of cross-referencing data provided for different purposes.

This 'double lock' encryption method means that nobody with access to the data set can use it to find personal details.

Another major improvement is our new **Data Access Environment**, which provides a secure, online portal for specifically authorised users to access data without the original data ever having to be disseminated outside of NHS Digital.

The environment allows us to ensure that only users who have proved a legal basis for using data can access it. It also allows those users to get better linked data more quickly, to use powerful tools for analysis and visualisation that are built in and to harness the power of cloud-based technology to easily increase the computing power they can apply to large data sets.

In the future, we expect to add functionality including the ability for researchers and local organisations to 'bring their own data' for linkage and analysis.

We have also launched, with NHS England, a new integrated data architecture approach that is supporting system-wide collaboration on data definitions and standards. This provides a common forum for standards to be proposed, consulted on and publicised. With NHS England colleagues, we have developed integrated information flows and architecture patterns across the Data Processing Services, Local Health and Care Record Exemplars (LHCREs), GP IT Futures, and the Summary Care Record (SCR). These are in line with the first draft of the Longitudinal Care Record elements and will serve as the foundation for fully integrated information sharing across the NHS.

We worked with the Government Digital Service to launch a single location for data registers, the live lists setting out the approved versions of different types of data across the NHS (for example, organisation codes, diagnosis codes, and postcodes). The list is dynamically maintained in a machine-readable format and was launched in public beta in January 2019.

An application programming interface (API) allows users to tap the registers for use in their own databases. Data registers on organisational data services, health resource groups and English indices of deprivation were added during 2018-19. We expect to develop this resource further and take it out of beta in 2019-20.

We are also leading the collective effort to improve the collection of data across the health and care system. A major part of this work is rationalising health and care collections.

In 2018-19, we prepared for the migration of data assets currently held by Public Health England to NHS Digital in line with the recommendations of the McNeil Review.

The new **Strategic Data Collection System** has now completely replaced UNIFY, the legacy system previously used by NHS England and hosted by the Department of Health and Social Care. This has presented us with the opportunity to retire 13 data sets and further work to remove duplicate data sets is underway. This not only improves the quality and integration of the information available to the health and care system but reduces burdens on providers of data.

We also continue to improve the content and coverage of key data assets. We worked with NHS England and the Royal College of Emergency Medicine to produce the new Emergency Care Data Set. We also worked with NHS Improvement on Patient Level Information and Costing Systems, and with NHS England on the Mental Health Services and the Community data sets.

In collaboration with our partners in the Private Healthcare Information Network (PHIN), we will shortly start consultation on bringing data collection and measurement of private healthcare within the scope of NHS systems and standard. This will address concerns regarding the lack of knowledge about quality in private care and improve the completeness of patient records where some or all care has been received privately, an issue highlighted by the ongoing inquiry into breast surgeon Ian Paterson.

Building a flexible, cloud-based data architecture

Our datasets record billions of patient interactions with the health and care system a year. We are moving this data to a cloud-based infrastructure that makes it easier for users to get joined-up information.

National data collections managed by NHS Digital

Years
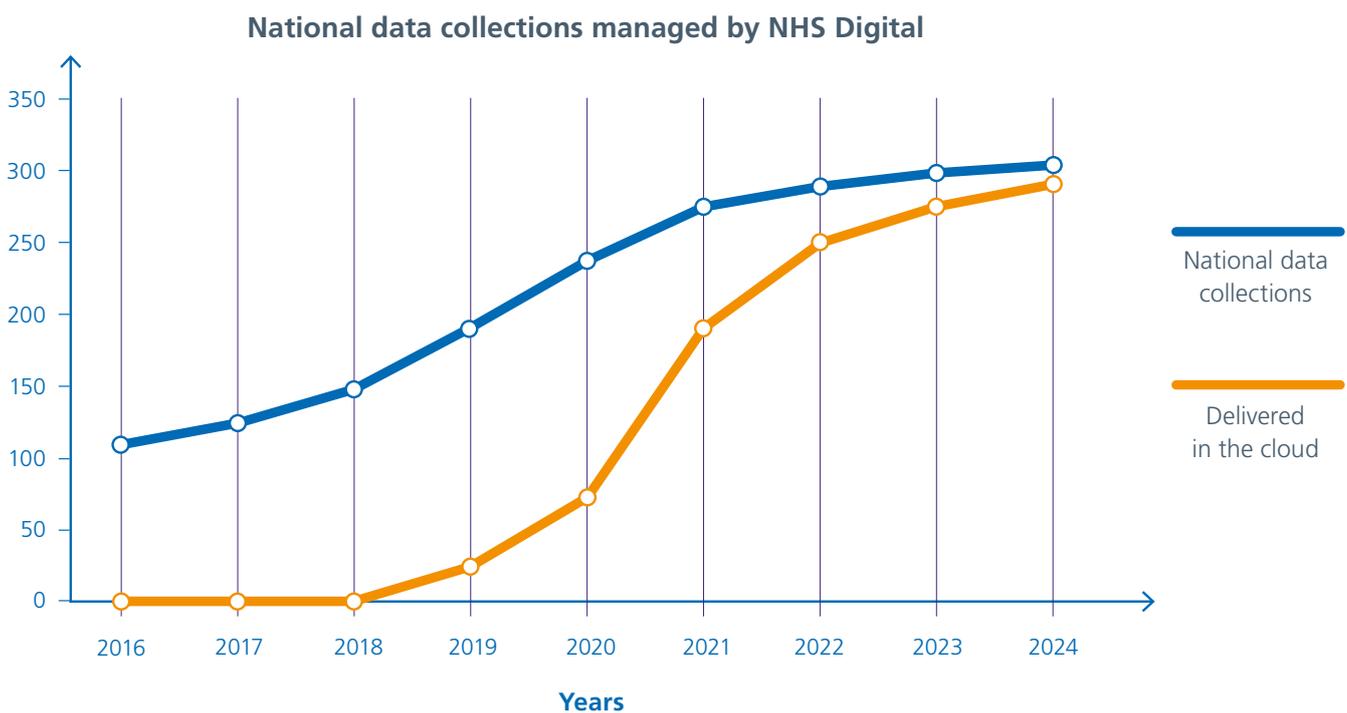
We are producing more bespoke data products, linking datasets to meet customers' specific needs.

Number of unique linked data outputs supporting UK-based academic cohort studies

57
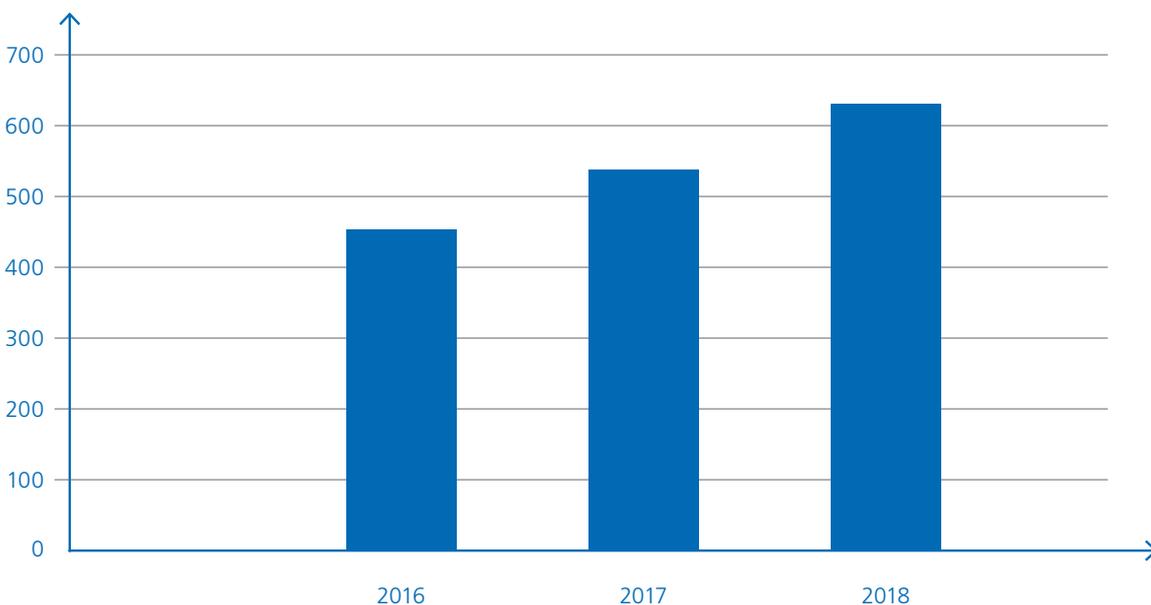
Case study

ORION-4 trial, University of Oxford

An innovative use of NHS Digital data is helping Professor Louise Bowman to provide clinical trial evidence for a potentially lifesaving new treatment for cardiovascular disease.

Louise is leading the first major international research study to use hospital admissions data directly from NHS Digital to identify potential participants.

That means the ORION-4 study at the University of Oxford is much more efficient – and it paves the way for other studies to use the same streamlined process.

"By being able to start the study quickly, we can finish it quickly and we can get the answers much faster, while preserving the high quality that all studies must have," she says.

"We hope that the end result will be proof that a new treatment for cardiovascular disease has the potential to save the lives of many people in the future."

ORION-4 is testing whether inclisiran – which, while not yet approved for use in any market, has already been shown in phase 2 trials to significantly reduce 'bad' cholesterol in the blood – cuts the chances of patients having heart attacks and stroke. The study will recruit 15,000 people who have previously had cardiovascular events, including 12,000 from the UK – which means inviting at least half a million people.

In the past, researchers would ask up to 100 hospital trusts to identify suitable patients from their records. But this was very time-consuming for trusts and for the study team receiving the data.

"Now, we are getting those data direct from NHS Digital," says Louise.

"We can access one single dataset, which means we can then rapidly turn that around into invitations to potential participants to enrol in the study.

"That's a huge improvement on the previous system."

Not only does this accelerate research, it saves valuable NHS resources and significantly cuts the cost of clinical trials.

"If we can make trials more efficient and less costly – which this is a major contributing factor to – then we could potentially test many more agents and develop more new therapies, which could have huge benefits to the health of the nation."

This study fits in with a national drive to find ways to better use data to improve the speed, efficiency and quality of clinical trials.

3.
Platforms and Infrastructure
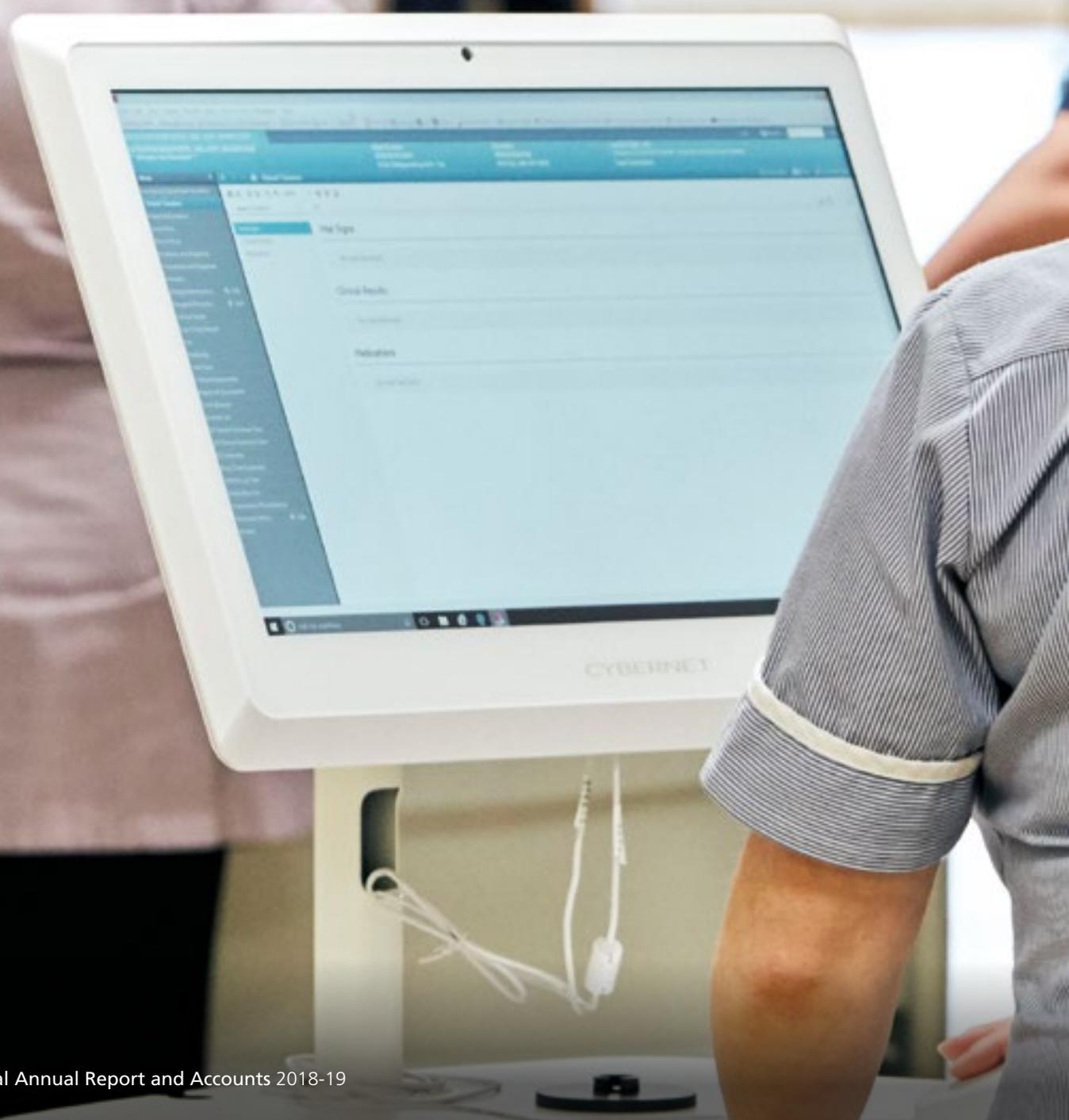
Platforms and Infrastructure

We plan, build, co-ordinate and run the national IT infrastructure on which the NHS and social care system relies. Hundreds of thousands of frontline professionals use our systems every day to quickly and securely share vital information and to organise the care received by patients.

Increasingly, members of the public themselves are accessing our infrastructure – when they use electronic prescriptions, for example, or decide where and when to make a hospital appointment – and we are continuously improving the performance and flexibility of these services. Our objective is to allow information to flow reliably and securely to the people who need it, when they need it.

Our **Digital Delivery Centre** is at the heart of this work. It is a world-class product design and development hub with a proud record, over the past five years, of improving the reliability, security and performance of the NHS's major national IT systems, while also delivering tens of millions of pounds a year in savings.

In 2018-19, the Digital Delivery Centre team in Leeds developed the IT behind the NHS login, which will provide a single, easy-to-use system for verifying the identity of people requesting access to digital health records and services.

It is a key enabler of the effort to give individuals more control of their own health and care through digital systems, because it provides an easy to use key for accessing information across digital platforms, while ensuring only the appropriate people can see that information. In September, we began testing the login with 3,400 patients across England as part of the private beta of the NHS App (see page 22).

In November 2018, we began piloting a new national capability, the National Record Locator, which allows authorised clinicians, care workers and administrators to find and access patient information held in other care settings to support direct care.

The system is initially being tested in the North West, North East, Yorkshire and London with mental health nurses and paramedics.

It allows them to find out whether individuals they are treating have a mental health crisis plan, which can influence key decisions such as whether an ambulance crew will take a patient to A&E or to appropriate community-based care.

At launch, we had 19,041 pointers to crisis plans on the system and 40% of ambulance trusts had access.

The initial service only allows users to find out whether an individual has a plan in place and where to find it, but an upgrade later this year will allow them to retrieve plans through the system and be integrated with Local Health and Care Records (LHCRs).

In the future, the National Record Locator will allow clinicians to quickly locate and access a much wider range of records across the system.

Better, cheaper infrastructure

In 2014, we insourced the NHS Spine, the core systems that securely carry information across health and care. Over the four years since, we have saved £150 million for the NHS*.

£150 million saved over four years

Savings in millions

£45m	
£35m	
£25m	
£15m	

2015 2016 2017 2018
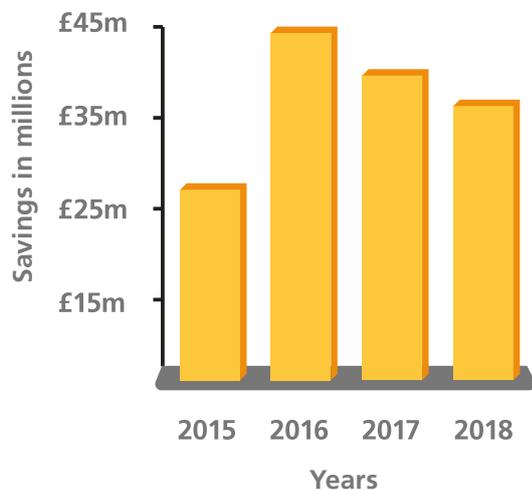
Years

Handling more messages than ever

Messages per month (in June)

1000m	
750m	
500m	
250m	

2014 2015 2016 2017 2018
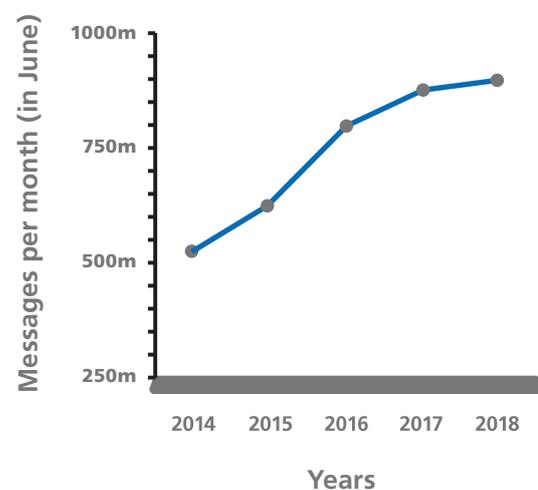
Years

The NHS Spine handled over **one billion** transactions in October 2018

Exceptional reliability

Messaging reliability has been 100% for three years

x15 Faster load time

2014-15	2018-19
327 milliseconds	21 milliseconds

Information about children's contacts with the health and care system is currently divided between systems provided by four GP suppliers, five child health system suppliers as well as other specialist screening systems and paper-based recording. Children can slip through the cracks.

For example, it could be used to rapidly locate 'end of life' care plans in a crisis situation or vital information about children arriving in an emergency department.

In March 2019, we launched the National Events Management Service (NEMS), which supports the Digital Child Health programme (see page 36).

It adds a highly flexible information-sharing capability to our core NHS Spine infrastructure – and is vital to integrating a fragmented information infrastructure for children's health and care. The National Events Management Service links this diverse infrastructure.

Details about a child's interaction with a health and care setting (an 'event') can be recorded in that setting's system but then automatically published to other authorised systems that have 'subscribed' to hear about it. This provides a simple but powerful tool for tailored information sharing (for example, providing A&E information relating to vulnerable children to relevant professionals).

In the first two days of operation, the North East London Foundation Trust achieved a 20% increase in the timeliness of new birth notifications from out of area maternity units, which helped health visitors to see new families three to four days sooner.

The new National Data Opt-out service was launched in May 2018 using an IT system developed by the Digital Delivery Centre. It gives people a secure and easily accessible way to opt out of their confidential patient information being used for reasons other than their direct care and treatment. Once an individual has registered a national data opt-out (either online or offline), the system tells organisations handling their confidential patient information that it should not be used for research and planning purposes. The system allows individuals to change their choice at any time.

We also went live in May 2018 with new ways for health and care staff to access national IT systems without relying on the established method: a smartcard and smartcard reader. The smartcard method can be cumbersome and tends to tie frontline professionals to desk-based computers.

The new staff access service, called **NHS Identity**, initially allowed staff to use a one-time-only passcode to submit statistical data.

In 2019, we expect to enable secure mobile and internet access to clinical information.

Our DDC team in Exeter worked with Public Health England and NHS England to provide data and rapid analysis to support the response to a serious IT-related failure in NHS breast screening programmes announced by the Secretary of State for Health and Social Care in May 2018.

An issue with a computer algorithm had resulted in large numbers of women aged between 68 and 71 not being invited for final breast screening appointments.

Our team developed and implemented solutions to safeguard the women who had missed appointments and prevent a recurrence of the problem in future.

Our Texas cloud platform is designed to help fast-moving development teams, providing integrated processes for building and deploying new services, end-to-end control of functionality and more information about application performance and user experiences. It will reduce running costs, increase reliability and performance, accelerate development times and improve focus on providing quality services that users need.

We have also completely reorganised our teams supporting data services, merging separate specialised project teams and implementing an agile approach. Informed by our own experience of developing our Digital Delivery Centre from the teams that worked on the insourcing of the Spine infrastructure (as well as industry leading practice such as Spotify's approach to agile working) we have now established three 'tribes' in our main product areas designed to work quickly and flexibly like small start-ups.

At the individual project level, we put together nimble multidisciplinary teams that work across project boundaries and focus relentlessly on delivering real benefits for users.

We are already seeing major improvements in the systems that underpin our data processing. One team reduced 100,000 lines of SQL operations to 30,000 and has identified opportunities for further simplification. We have accelerated responses to some data queries significantly. For example, analysis in response to a parliamentary question, which would have previously taken several hours, took less than 20 minutes.

The Secondary Uses Service, the single, comprehensive repository for healthcare data in England is continuously being improved. In 2018, it processed 1,120 million records, an increase of 23% over 2017.

We have a cloud-first policy for all new NHS Digital services. In 2018-19, our eContract service, which helps commissioners to create contracts tailored to their local requirements and is available through the NHS England website, became the first existing service to be moved to our Texas cloud platform.

At the same time, the Secondary Uses Service continues to provide data to our Data Services for Commissioners Regional Offices (DSCRO) colleagues the day after (and to NHS England two days after) the monthly deadline for providers to submit their commissioning data. We have also increased the number of national derivations applied by the Secondary Uses Service system to data and increased the frequency with which records related to emergency care are shared with arm's length bodies and commissioners.

The **Health and Social Care Network** (HSCN) programme is replacing the old centrally managed NHS broadband network with modern connectivity that helps organisations to access internet and cloud-based services safely while providing access to secure digital services that are only available over the NHS private network.

More than 90% of NHS organisations have now procured services, achieving average savings on like-for-like services of 74%, and are in the process of migrating to HSCN, with 27% of the old network having now been switched off. We expect the migration to HSCN to be completed in 2020-21.

92% of users of **NHSmail** are satisfied with its service, according to a survey in November, compared to 73% in 2015. The number of accounts on NHSmail has grown by 12% since March 2018 and we are testing the service with GP locums, junior doctors and independent midwives to ensure they have the access to secure email they need to share information effectively with their colleagues. Our main targets for expansion in 2019-20 are care providers, dentists and optometrists.

In April 2018, NHSmail accounts were synchronised with the Azure Active Directory, Microsoft's cloud-based identity management system. This allowed NHSmail users to access the new NHSmail Office 365 Hybrid service that went live in September 2018, offering integration with Skype for Business, Microsoft Exchange, and the NHSmail contacts directory. It was the largest synchronisation ever implemented on the Azure Active Directory, involving the transfer of more than two million directory entries in five days.

We also further strengthened NHSmail's anti-spoofing capability, ensuring the service continues to maintain the highest levels of security, in line with National Cyber Security Centre guidance.

The **NHS WiFi** programme now covers 95% of clinical commissioning groups, including 7,300 GP practices, and more than 95% of secondary care trusts. That means 55 million people across England have access to free NHS WiFi connectivity when they are visiting GP surgeries, clinics and hospitals. In practice, it can significantly improve access to digital services, help and advice.

For example, a patient can download an app to help them manage a health condition while they are talking to their doctor or make choices about referrals while they are in a care setting.

For many people, particularly the younger generation, reliable and free WiFi access is now expected of any public service and NHS WiFi has made this a seamless experience. It is also helping staff easily access digital services across settings, improving collaboration and information sharing (see page 69).

Did you know?

An internet connection on the new Health and Social Care Network is, on average, **8%** cheaper than alternative internet services and more than **60%** cheaper than a similar connection on the NHS's old broadband network.

Case study

NHS WiFi

The introduction of free WiFi in local GP practices is helping community midwife Julie Haigh provide a better service for people in remote parts of Cumbria.

"Submitting information on the spot made a real difference," says Julie. "Before, I would have had to drive back to my practice to enter it on the system or even do it during the evening, once I was at home. It saves me time and it saves the NHS money, because it cuts down on travel costs and paper costs.

"During one consultation, my client was unwell, so I arranged for throat swabs to be taken. She collapsed later in the day and was taken to hospital. They could see the details I had submitted earlier and were able to act quickly. It turned out she had sepsis."

By the end of March 2019, free NHS WiFi had been introduced in more than 95% of GP surgeries and 98% of trusts.

Julie says it is a boon for the people she works with.

"Having free WiFi in GP practices is a great leveller, alleviating socio-economic disadvantage, especially in farming communities. Not everyone has a car or can afford internet access, which adds to the isolation they feel once they've had a baby.

"Support is crucial for the wellbeing of both my patients and their babies. I can now sit side-by-side with my clients and input their data onto our maternity systems in real time. I can show them how they can access reputable and clinically-approved support on a wide range of issues on their smartphones."

4.
Live Services and Cyber Security

Live Services and Cyber Security

We achieved 99.95% average availability across all of our services in 2018-19. These include some of the largest secure IT services in the world – and it is critically important for our health and care system that they are safe, fast and reliable.

In October 2018, total monthly transactions on the NHS Spine, the NHS's core information sharing infrastructure, reached one billion. The system was often handling upwards of 250,000 users simultaneously, but achieved 99.99% reliability throughout the year.

The Care Identity Service is used by staff to log on to the Spine. It handled an average of 8.5 million unique logins a month in 2018-19, with 99.98% reliability.

NHSmail added 200,000 new accounts to take its total user base to 1.5 million and operated with 99.99% reliability.

We also saw a steady growth in the use of important services on the Spine. The NHS e-Referral Service saw a steady increase in volumes. Bookings peaked at just under 1.4 million in October 2018, a 40% increase on the previous year.

About 1.5 million more Summary Care Records (SCR) were accessed in 2018 than in 2017, up 24%, and the number of patients with additional information on their SCR grew 14% to 2.2 million in the three months to December 2018 alone. This extra information – such as medical history, immunisations and background on medications – can give clinicians vital context when making decisions about patients they don't know.

We introduced important new services. NHS 111 online processed over one million searches a month. The Data Security and Protection Toolkit was launched in April 2018, providing organisations with an online resource to measure their performance against the National Data Guardian's 10 data security standards. Over the course of the year, more than 27,000 organisations including all trusts in England completed their baseline assessments and the service maintained a 99.9% availability rate.

The NHS App went live in December 2018 and is expected to significantly increase the public's use of services including appointment booking, electronic prescriptions and 111 online.

Since 2017, we have been transferring the operation of established services out of development programmes and consolidating them in the Live Services and Cyber Security directorate. Removing services from project silos allows us to realise economies of scale and develop better supplier management, product governance, clinical overview, change assessment and day-to-day delivery across our services.

The services and products that have moved into Live Services are NHSmail, the Health and Justice Information System, Summary Care Record and Summary Care Record application, the Spine Mini-Services Provider, Interface Mechanism 1, Digital Learning Solutions and the Lorenzo (DXC) contract.

In 2019-20, we also plan to move the Child Protection - Information Sharing system, the e-Referral Service, the Electronic Prescription Service, Advanced Threat Protection, Apps and Wearables and the National Data Opt-out systems.

We are also working to establish new services in the coming year, particularly systems connected to Data Processing Services and the replacement for the GP Systems of Choice (GPSoC) contract being developed by the GP IT Futures programme.

NHS Digital's Data Security Centre is the lead partner on data security for the health and social care system.

Our Cyber Security Operations Centre (CSOC) is the central source of cyber-security intelligence and incident support and we worked with NHS England, the Department of Health and Social Care, the National Cyber Security Centre and other partners to strengthen the system's overall resilience in 2018-19.

System-wide monitoring capabilities have significantly improved since the WannaCry ransomware incident in May 2017. The introduction of Windows Advanced Threat Protection (ATP) has allowed us to monitor threats and vulnerabilities on individual machines across thousands of local organisations. We now have 840,000 NHS devices (about 70%) under this level of scrutiny.

In December alone, we blocked more than five million suspicious transactions on NHS and social care computers and provided more than 80 threat intelligence articles, identifying potential threats and providing advice on combatting them.

We create custom alerts for local partners so they have the information and guidance they need to act effectively – and we are applying lean manufacturing principles to streamlining and accelerating the production of these alerts. We also play an important part in the wider cyber security ecosystem. During the year, we identified two new and unidentified threats and passed the information to the National Cyber Security Centre (NCSC) and the wider cyber community so that anti-virus measures could be updated.

We appointed IBM as the Cyber Security Operations Centre's strategic partner in June 2018. This partnership will help us deliver a wide range of improvements to our service. For example, we are receiving engineer and analyst support to help move critical national applications onto our security information and event management (SIEM) system, which provides real-time analysis of security alerts in key applications and network hardware.

We can now also provide threat scanning tools for internet-facing services run by local organisations and online training licenses for 500 IT and security staff across the system. We are using the relationship with IBM to help us develop our automated threat-hunting and machine-learning capabilities.

The updated Data Security and Protection Toolkit was introduced at the start of 2018-19. It helps organisations across health and care measure their cyber preparedness and support improvement, and we have improved and honed its content through the year.

To date, more than 27,000 health and care organisations have signed up and we have seen significantly more engagement from small care organisations over the past year.

We have now conducted security assessments in all NHS trusts. We use a tailored version of the NCSC Cyber Essentials Plus standard and have seen a seven percentage point improvement in the average overall scores of organisations assessed in 2018-19, compared with the previous year.

Building on the success of the on-site assessments, we are now offering a more extensive package of services. The Cyber Security Support Model includes an on-site assessment and is underpinned by GCHQ-accredited training for board members to ensure buy-in from leadership. It also includes technical support to address vulnerabilities and help in implementing processes and policies that will make good practice stick.

In September 2018, NHS Digital's Cyber Security Operations Centre detected a large amount of suspicious traffic on the national NHS network.

We identified the 'Ramnit' trojan as the source of the activity and immediately issued advice on handling the malware to affected local health and care sites.

Testing of samples of the trojan in a secure 'sandbox' environment revealed a complex command and control structure communicating with 112 NHS organisations. This allowed us to get the extra information needed to develop a new preventative rule, which stopped Ramnit communicating or spreading further.

This response was completed within two days of the detection of the traffic. After neutralising the threat, we helped affected organisations remediate the threat and strengthen their security. The rules developed as part of the response were shared with the wider cyber security community and an automated process was put in place to identify future Ramnit activity.

Case study

Advanced Threat Protection

Stephen Ion, Desktop and Server Infrastructure Manager at the University Hospitals of Morecambe Bay NHS Foundation Trust, says improved cyber security tools have transformed his ability to protect his organisation's systems.

Morecambe Bay was the first trust in the country to implement Windows Defender Advanced Threat Protection (ATP), in May last year.

Continuous monitoring of abnormal activity means Stephen and his team are instantly alerted if systems are at risk.

"ATP is invaluable to us," Stephen says. "We used to get warnings and malware alerts, but, since we've implemented ATP, we are learning things that would never previously have been picked up.

"For example, you can see when a user opened a suspicious email attachment and you can work back through a timeline to see what the user was doing prior to that. The ATP alert tells you what else the malware has done and where else it's tried to talk to, so we can then carry out remediation."

ATP also gives NHS Digital's Data Security Centre a national overview of evolving threats.

"It is not just monitoring our organisation, it is monitoring the whole NHS," Stephen says.

"Each trust feeds into the same repository of alerts and malware detections. If we had an alert on a number of PCs, instead of us working independently, NHS Digital gets the bigger picture.

"They can coordinate a response and alert the whole NHS that this issue is happening nationwide," he says. "Ultimately this benefits our patients – our clinical systems need to be available so we can treat patients and the confidential data they provide us with needs to be kept safe."

Performance analysis

These accounts have been prepared under a direction issued by the Secretary of State for Health in accordance with the Health and Social Care Act 2012 and the 2018-19 Government Financial Reporting Manual issued by HM Treasury, as interpreted for the health sector by the Department of Health and Social Care Group Accounting Manual.

The accounting policies contained in the Financial Reporting Manual apply the International Financial Reporting Standards (IFRS) as adopted and interpreted for the public sector context. The accounts comprise a statement of financial position, a statement of comprehensive net expenditure, a statement of cash flows and a statement of changes in taxpayers' equity, all with related notes.

There has been an ongoing increase in our role in recent years as the delivery partner for a significant investment in IT systems for the NHS. Additional revenue and capital funding has been received for the development and maintenance of frontline informatics systems and services. Many of these programmes are now well advanced and are at various stages of implementation.

This level of funding is expected to decline from 2020-21 and the organisation has started an internal restructure to meet the changing requirements. Some 198 redundancies have been agreed in 2018-19 while plans are being made to make approximately 400 further redundancies in the next few years but also recruit new staff with other specialist skills and retrain existing staff.

Going concern
The planned reduction in funding from 2020-21 is known and management is making strategic adjustments to meet the changing requirements of the organisation. The funding provided to us has been largely agreed based on our three-year business plan submission and, while it will be challenging, we believe it will be financially manageable. We have therefore prepared the accounts on a going concern basis.

Financial analysis

The table below provides a summary of our results from an internal funding perspective:

	2018–19 £000	2017–18 £000
Grant-in-aid allocation from the Department of Health and Social Care*	406,895	354,702
Other income	33,583	35,245
Total funding and income	440,478	389,947
Operating expenditure**	(438,312)	(377,557)
Underspend	2,166	12,390

*The grant-in-aid allocation is the agreed revenue allocation provided by the Department of Health and Social Care for 2018-19. The amount shown in the statement of changes to taxpayers' equity on page 135 is the cash drawn down in the year which also includes that used for capital expenditure and other working capital requirements.

**excludes movement in provisions, which is accounted for separately.

Our core grant in aid supports, amongst others, the:

- development of new and existing informatics systems used by front line services

- collection, analysis and dissemination of a range of data-related services, including the publication of 265 reports of official or national statistics

- development and maintenance of clinical and information standards and terminologies

- support for frontline services in a range of informatics-related services and systems

- IT infrastructure, estates and support functions for the organisation

Overall, we have remained within our financial targets in the year. Operating expenditure excluding the movement in provisions was £438.3 million, resulting in a revenue underspend of £2.2 million.

The provision of data-related services and our corporate support activities are classified as 'administration', with all other activities treated as 'programme'. We underspent against our administration budget by £9.7 million but overspent on programme activities by £7.5 million.

Income analysis

Income, in addition to the grant-in-aid funding, includes the:

- development of informatics-related systems

- design and management of clinical audits

- hosting, management and development of a range of key IT systems on behalf of the NHS

- provision of contact centre services

- extraction of data and information and dissemination to customers, both inside and outside of the NHS

- training services

The breakdown of income by customer type is as follows:
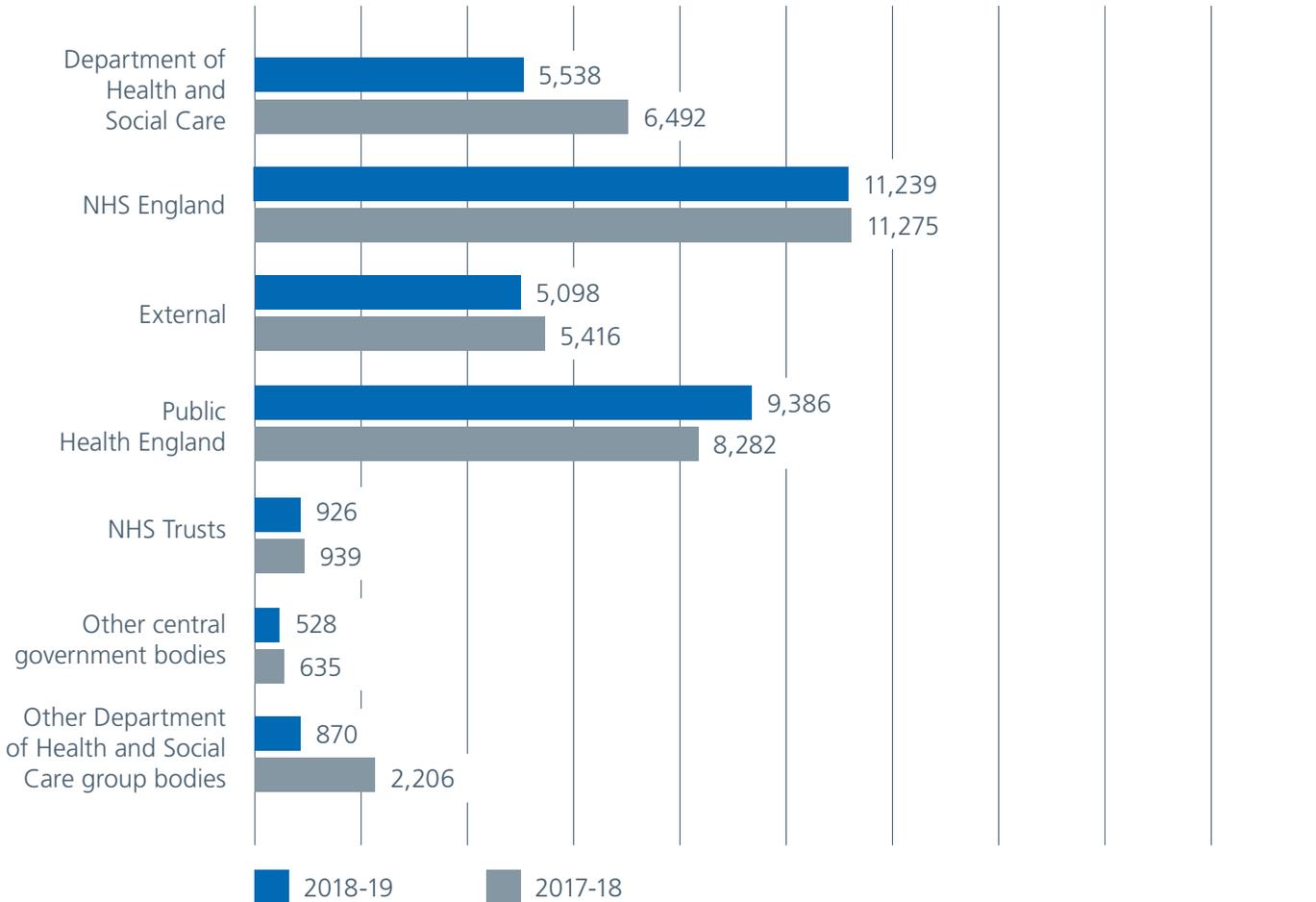
Income in 2018-19 was £33.6 million, slightly less than the £35.2 million generated in 2017-18.

Most of our significant invoiced income is supported by agreed workpackages and is on a time and materials basis. In accordance with IFRS 15, some £3.4 million of income was not recognised in 2018-19 but will be recognised in 2019-20 when signed agreements are in place.

We have developed a charging policy and a rate card for staff time, with the aim of charging all customers based on full cost recovery.

Fees and charges in 2018-19 relates to 'data-related services'. This is the provision of health-related data to customer requirements, data-linkage services and data extracts for research purposes. No charges are made for the actual data, only for the cost of providing the data to the customer in the format and to the specification required, including a fee for ensuring information governance requirements are complied with.

The fees and charges note below is subject to audit:

	2018–19 £000	2017–18 £000
Income	2,229	2,235
Expenditure	(2,218)	(2,121)
Surplus	**11**	**114**

Operating expenditure

The following chart summarises the main categories of operating expenditure:

Legend: 2018-19, 2017-18

Permanent staff: 39% (2018-19), 41% (2017-18)
IT maintenance and support: 29% (2018-19), 30% (2017-18)
Depreciation and amortisation: 8% (2018-19), 9% (2017-18)
Workpackages, legal and professional fees: 14% (2018-19), 10% (2017-18)
Premises and establishment: 3% (2018-19), 3% (2017-18)
Temporary staff: 3% (2018-19), 3% (2017-18)
Other: 4% (2018-19), 4% (2017-18)
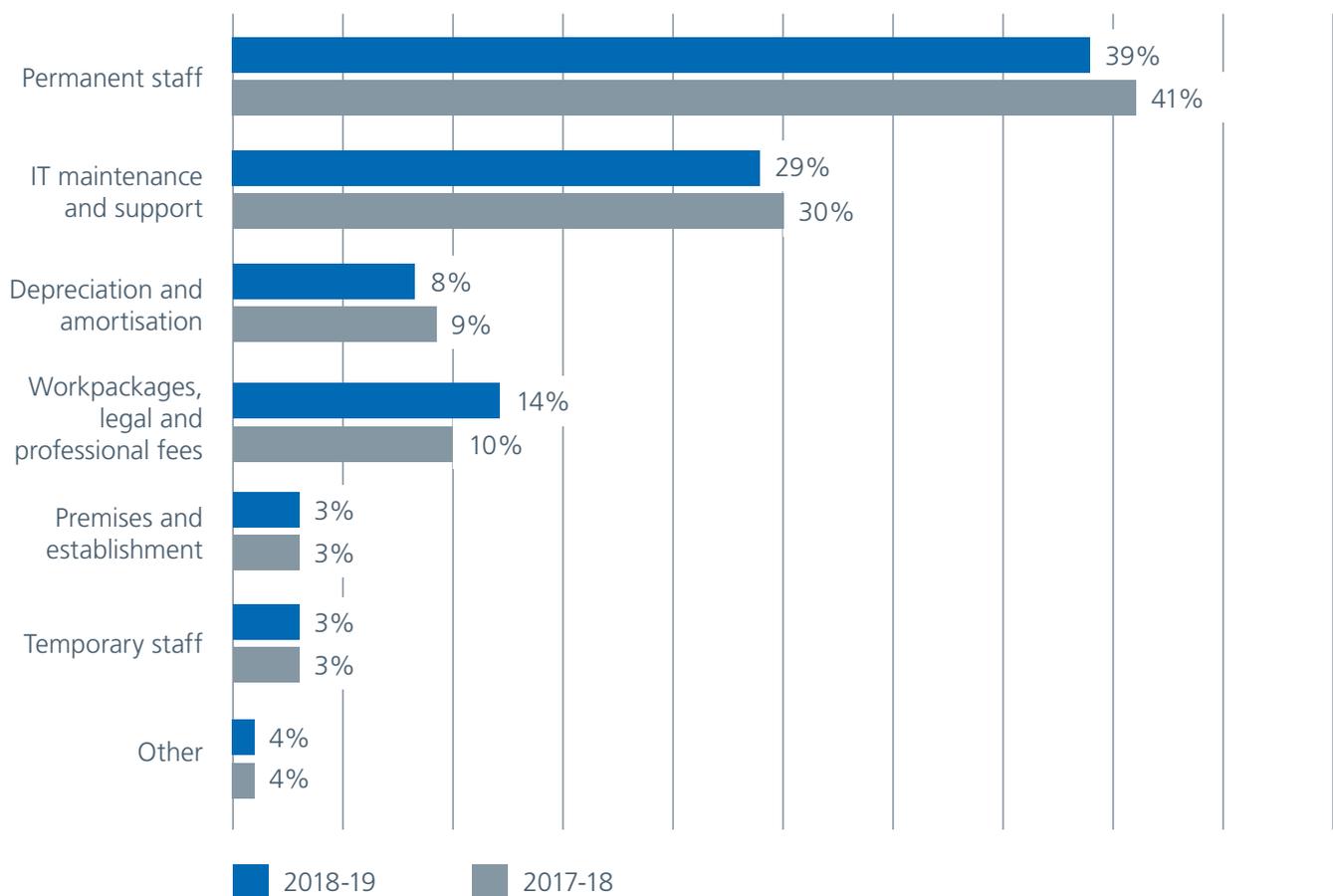
Work packages provide short term specialist input, outsourced services and software development skills and have increased to supplement internal teams.

However, the ratio of temporary staff has remained largely consistent at 3%.

Non-current assets

The capital expenditure limit for 2018-19 was £106.9 million.
The actual capital expenditure was as follows:

	2018-19 £000	2017-18 £000
Internally and externally developed software	47,701	24,819
Development expenditure	23,684	19,514
IT hardware, including desktop and corporate infrastructure	2,442	13,792
Software licences, including desktop and corporate infrastructure licences	120	4,831
Refurbishments, fitting out new office space and furniture	2,519	1,139
Net book value of disposals	(217)	(624)
Total	**76,249**	**63,471**

Our informatics transformation programmes have resulted in a near doubling of expenditure on developed software. This is part of the natural lifecycle of these large infrastructure projects.

A significant proportion of the new software and development expenditure has been created internally, with the value of internal time capitalised amounting to £17.6 million (2017-18: £18.0 million). This data is captured by either a time recording system or by information technology management tools, with the average hourly charge rate determined by the employee's grade. The rate includes the total direct cost of employment together with an incremental direct overhead cost, comprising of estate and IT costs. General overhead is not capitalised. Project management time is only capitalised where time is directly attributable to the development of the asset.

In 2017-18, we upgraded internal technologies, including laptops, tablets and mobiles, to improve staff efficiency and working practices. Expenditure in these categories in 2018-19 was considerably lower.

Other non-current receivables refer to those transactions where the prepayment is in excess of 12 months in the future and include software licences that cannot be capitalised together with support and extended hardware warranties.

Current assets and liabilities

Contract receivable balances amounted to £6.4 million (31 March 2018: £11.6 million). This is a significant reduction and is largely due to finalising workpackages with our key customers earlier in the year and therefore being able to invoice more promptly.

Prepayments under one year were £11.6 million (31 March 2018: £13.6 million). Contract receivables not yet invoiced (which represents work completed but not yet invoiced) were £0.5 million (31 March 2018: £0.8 million).

The amount more than 60 days overdue was £0.3 million (31 March 2018: £0.2 million). Debts of £15 were written off and £6,312 was provided for as irrecoverable. Debts previously provided of £1,158 were released following recoveries of the amounts due.

We had very limited exposure to financial instruments with balances only consisting of cash, trade receivables and payables.

Cash flow was managed to meet operational requirements throughout the year by drawing down sufficient cash from the grant-in-aid allocation.

We seek to comply with the Better Payments Practice Code by paying suppliers within 30 days of receipt of an invoice. The percentage of non-NHS invoices paid within this target was 99.1% (31 March 2018: 99.5%). The days outstanding at 31 March 2019 increased to 13.3 days from 11.5 days at 31 March 2018, reflecting a higher than normal volume of invoices processed in March 2019.

Better Payments Practice Code	Number	£000
Total non-NHS bills paid 2018-19	10,388	307,789
Total non-NHS bills paid within target	10,186	305,104
Percentage of non-NHS bills paid within target	**98.1%**	**99.1%**
Total NHS bills paid 2018-19	228	6,787
Total NHS bills paid within target	193	5,926
Percentage of NHS bills paid within target	**84.6%**	**87.3%**
Total value of invoices processed in 2018-19		354,221
Total value of invoices outstanding at 31 March 2019		12,907
Number of days outstanding		13.3

The calculations of the Better Payment Practice Code use the formula agreed by users of NHS Shared Business Services (SBS). SBS stipulates that the number of days outstanding is calculated from the date a validly presented invoice is processed on the SBS system to the date a payment is initiated. We are conscious that this calculation can understate the time taken because it takes considerable time from the invoice date to processing the invoice on the system. SBS offers a free solution to all suppliers called Tradeshift, which allows suppliers to electronically upload invoices to the SBS system in real time, which reduces this delay.

Government guidance is to pay 80% of all suppliers' invoices that are not disputed within five working days. This target is particularly challenging for NHS Digital given the complexity of many of our transactions. In 2018-19, we paid 33.7% (2017-18: 40.4%) based on volume, and 41.6% based on value (2017-18: 50.0%) within the five-day target.

Sustainable development
Information about our environmental impact and sustainability is included in Appendix A on page 164.

Auditors
These accounts have been audited by the Comptroller and Auditor General, who has been appointed under statute and is responsible to Parliament. The audit fee for 2018-19 was £115,000, which was unchanged from 2017-18. The audit fee only includes audit work. No additional payments were made.

The Accounting Officer has taken all steps to ensure she is aware of any relevant audit information and to ensure that NHS Digital's auditors are aware of that information. To the best of the Accounting Officer's knowledge, there is no relevant audit information of which NHS Digital's auditors are unaware.

The internal audit service during the financial year was provided by the Government Internal Audit Agency.

Managing performance and risk

Managing Performance

Effective performance management across our organisation ensures we meet our statutory obligations and our commitments to stakeholders. It facilitates the delivery of our strategic and operational goals and minimises risk for NHS Digital and stakeholders. We use financial and non-financial Key Performance Indicators (KPIs) and other management information to continuously monitor performance.

Each KPI is assessed on a Red Amber Green threshold model, with detailed analysis when performance issues occur. These indicators are integral to the routine business of the Board and our Executive Management Team and are published regularly on our website as part of the Board papers.

For most of 2018-19, KPIs were organised into the following areas:

Group	Description	Responsible director
Programme delivery	Provides a consolidated view of the delivery status of our portfolio of programmes, focussing on the overall delivery confidence, and including aggregated findings from gateway reviews	Executive Director, Product Development
IT service performance	Reports on the performance of information technology services for health and care providers, looking at service availability, incident response times, and high severity service incidents	Deputy Chief Executive and Senior Information Risk Owner
Workforce	Includes workforce planning and recruitment, staff turnover, staff engagement, training and development, personal development reviews, and sickness absence rates	Chief People Officer
Data security	Provides a composite view of internal and external information security incidents and related cyber issues	Deputy Chief Executive and Senior Information Risk Owner
Financial management	Covers the management of NHS Digital finances and the other significant funding streams we manage. The performance reports also include the organisation's management accounts	Chief Finance Officer

Toward the end of 2018-19, additional KPIs were developed to measure data services and information governance.

Rolling 12-month performance tracker (as of the end of March 2019)

Performance indicator	Apr 18	May 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	Jan 19	Feb 19	Mar 19
Programme delivery	A/G	A/G	A/G	A/G	A/G	A	A	A	A	A	A	A
Data services									A	A	A	A
Live IT service performance	A	A	R	G	A	A	G	A	R	G	A	R
Data security	A/G	A/G	A/G	A/G	A/G	A/G	A/G	A/G	A/G	A/G	A/G	G
Information governance									G	G	G	G
Workforce	A	A	A	A	A	A	A	A	A	A	A	A
Financial management	G	G	G	G	G	G	R	R	R	A	A/G	A/G

Narrative in support of some of the above KPI's at 31 March 2019 included:

Programme delivery

Overall, programme delivery confidence remained at a stable level of 'amber' throughout 2018-19, reflecting the complexity of the Digital Transformation Portfolio. Some programmes have demonstrated improved delivery confidence as they have moved to the delivery stage and have met a number of ministerial commitments and key programme outcomes.

The programme delivery KPI has evolved significantly. It now provides an enriched narrative focusing on key achievements and outcomes, and supports better understanding and scrutiny of issues and challenges. Programmes reporting by exception ('red' and 'amber/red') have been categorised as:

- programmes that require additional funding and/or business case approval

- programmes with delivery delays

- highly complex and adaptive programmes.

Live IT service performance

Live IT service performance is reported as an average of 'amber' for 2018-19 as a whole.

The average availability achieved across all live services was 99.95%, with 84% of the 260 high severity service incidents logged in 2018-19 achieving their fix-time target.

A specific service highlight was that the NHS Spine's core messaging service performance remained excellent in 2018-19, with an average availability of 100%.

Workforce

Workforce is reported as 'amber'. 2018-19 saw 124 external recruits join and 428 employees leave, resulting in a net decrease of 304 employees. Some of the leavers were managed exits, which were part of the restructuring of the organisation that began in 2018. We have seen an increase in turnover, which was 14.2% for the financial year. Turnover due to voluntary leavers increased during this period from 5.8% to 9.0%. Short-term staff sickness remained within target levels and was lower than 2017-18 overall. Long-term sickness increased from 1.4% to 2.1% (FTE), with most of this increase occurring after October 2018. This has stabilised since February 2019.

Financial management

Financial management reported as 'green' for the year as net revenue costs are less than 0.5% below budget. Revenue expenditure at month 12 is expected to be £0.7 million under budget (excluding depreciation). This is in line with our forecast outturn position of within 1% of budget all year.

Capital expenditure at month 12 is anticipated to be £30.5 million under budget. Our forecast outturn position has been reporting an underspend since early in the year and this has enabled the Department of Health and Social Care to use this, along with emerging underspend, during the final quarter. Capital underspends are due to programme scope changes, changes in our procurement approach and slower than anticipated increases in programme activity.

Programme milestones
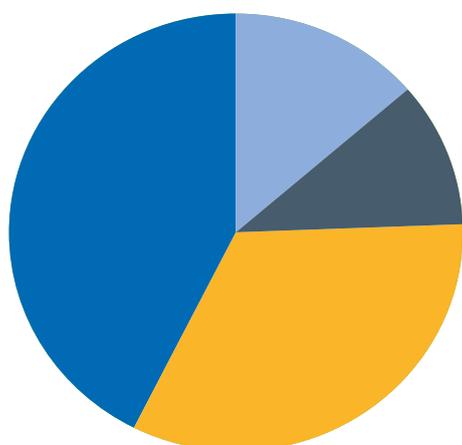
Key

■ Complete
■ On schedule
■ Behind schedule
■ At risk

At the start of 2018-19, there were 552 deliverables dated before the end of 2020-21 in programme plans across the Digital Transformation Portfolio.

These deliverables include a combination of ministerial commitments, key target outcomes (expected for both patients and health care practitioners) and their supporting key delivery milestones. 231 of these milestones had been delivered by the end of this year and a further 186 are on track to be completed on time.

Milestones behind schedule or at risk are inevitable in such a complex portfolio with multiple dependencies. We ensure that the most appropriate interventions are taken to manage and minimise impacts on costs and the overall delivery of the portfolio.

NHS Digital, in collaboration with NHSX, is undertaking a prioritisation exercise to ensure strategic alignment with the Secretary of State for Health and Social Care's technology vision and the NHS Long Term Plan. This is likely to result in a change of the scope and delivery plans for some Digital Transformation Portfolio programmes and outcomes, and associated deliverables will need to be updated.

Managing risk

We have completed a major refresh of our strategic and other significant risks during the financial year. The use of risk management performance metrics is starting to drive an overall improvement in data quality and risk-management behaviours, whilst further refinements are continuing. A fuller explanation of our risk management process is on page 116 of this report.

The significant strategic risks facing the organisation, together with the key mitigating activities in place during 2018-19, which have been reviewed by the Board, are set out below:

Risk description	How we are managing the risk
Delivering commissioned levels of patient and citizen quality, safety and experience	Ensuring clinical governance is embedded within programmes and live services
Maintaining critical systems and services that we operate to minimise risks of patient harm	Maintaining agreed service levels, undertaking business continuity, and disaster recovery plans which are tested and regularly updated
Effective delivery and user adoption of the elements of the Digital Transformation Portfolio for which we are responsible	Adopting portfolio governance and programme management including ongoing re-prioritisation
Safe, secure and appropriate collection, analysis and dissemination of high quality and timely data, including data disseminated to third parties	Continuation of robust data governance processes including compliance with GDPR. We also undertake audit activity over the data usage by third parties
Guarding against information security threats to our internal systems and those national systems for which we are responsible	Ensuring all relevant staff are subject to personnel vetting and continuing supporting, promoting and operating a security operations centre to continually assess, detect and manage cyber security threats
The commencement of NHS Digital internal organisational restructuring (referred to as Org2) which is addressing gaps in our capacity and capability	A strategy, project plan and regular reporting to TRaMCo. The work includes incorporating lessons learnt from the completion of wave one
Monitoring the capacity and capability of critical suppliers	The commercial and supplier engagement team undertake supplier performance management assessments
Meeting our financial obligations to ensure financial stability and sustainability	Regular reviews of affordability and ensuring adherence to the spend authorisation framework
The risk exposures arising from the exit of the UK from the European Union, originally scheduled for March 2019	We have constructed a response plan in conjunction with the wider NHS and other government parties

Sarah Wilkinson
Chief Executive
26 June 2019

Accountability report

Remuneration and staff report
This report for the year ended 31 March 2019 deals with the pay of the Chair, Chief Executive and other senior management.

Remuneration Committee
The pay of the executive board directors is set by the Talent, Remuneration and Management Committee based on the recommendations of the Senior Salaries Review Board and is reviewed on an annual basis. NHS Digital operates the NHS Executive and Senior Manager (ESM) pay framework with the approval, where necessary, of the Department of Health and Social Care Remuneration Committee. This includes a job evaluation scheme, administered by the NHS Business Services Authority, and provision for a maximum 5% bonus for not more than the top 25% of performers within the ESM group. Three bonus payments were made in 2018-19 through this mechanism, reflecting performance during 2017-18, details of which are contained in the remuneration report. The scheme also provides for an annual pay award as a flat-rate payment based on 1% of the average ESM salary.

The Chief Executive and other executive directors are not present for discussions about their own remuneration and terms of service but are able to attend meetings of the committee, at the Chair's invitation, to discuss other employees' pay and terms of service.

Remuneration policy
The standard remuneration arrangements for NHS Digital are those provided under the national NHS Agenda for Change (AfC) terms and conditions of employment. This includes a job-evaluation scheme that has been tested and demonstrated to be equality proofed.

The AfC pay award for 2018-19, as recommended by the NHS Pay Review Body, comprised a 1% increase to all pay points. Comparable arrangements were implemented for staff that had transferred into NHS Digital, with terms and conditions protected under the 'Transfer of Undertakings (Protection of Employment)' regulations, except where there was a legal entitlement to a protected pay award.

Service contracts
During 2018-19, all executive directors were employed on permanent employment contracts with a six-month notice period and worked for NHS Digital full-time, except Martin Severs who worked on a part-time basis. If contracts are terminated for reasons other than misconduct, they come under the terms of the NHS compensation schemes.

Non-executive directors' contracts are as follows:

	Actual start date	Current contract start date	End date
Noel Gordon	1 June 2016	1 June 2016	31 May 2020
Dr Marko Balabanovic	1 January 2017	1 January 2017	31 December 2019
Daniel Benton	1 January 2017	1 January 2017	31 December 2020
Professor Soraya Dhillon	1 January 2017	1 January 2017	31 December 2020
Professor Sudhesh Kumar	1 January 2017	1 January 2017	31 December 2019
Rob Tinlin	1 January 2017	1 January 2017	31 December 2019
John Noble	1 July 2018	1 July 2018	30 June 2021
Deborah Oakley	1 July 2018	1 July 2018	30 June 2021
Balram Veliath	1 July 2018	1 July 2018	30 June 2021

Non-executive directors are not entitled to compensation for loss of office or early termination of appointment.

Salaries and pensions of senior management

The remuneration and pension disclosures relating to senior staff in post during 2018-19 and 2017-18 are detailed in the tables below and are subject to audit. The figures provided consist of basic pay, performance pay, pension benefits and benefits in kind. They do not include employer pension contributions nor the cash equivalent transfer value of pensions.

		Appointment date	Resignation date	Salary (bands of £5,000)	Performance pay (bands of £5,000)
Board directors					
Sarah Wilkinson	Chief Executive	14-Aug-17		190-195	5-10
Robert Shaw	Deputy Chief Executive and Senior Information Risk Owner			170-175	5-10
Carl Vincent	Chief Finance Officer			130-135	-
Martin Severs[4]	Chief Medical Officer and Caldicott Guardian		28-Feb-19	95-100	-
Senior managers					
Thomas Denwood	Executive Director, Data, Insights and Statistics			130-135	5-10
Sean Walsh[5]	Head of Regions, Professions and Org2	01-Apr-17	05-Nov-18	70-75	-
Ken Baker	Chief People Officer	09-Oct-17	31-Dec-18	75-80	-
Michael Kay[1]	Chief Commercial Officer	18-Apr-18		210-215	-
Wendy Clark	Executive Director, Product Development	10-Sep-18		80-85	-
Jackie Gray	Executive Director, Information Governance	14-Jan-19		30-35	-
Mark Stock[2]	Executive Director, Assurance and Risk Management	05-Mar-19		5-10	-
David Hughes	Director of Information and Analytics		20-Jul-17	-	-
Nic Fox	Director of Provider Digitisation and Programmes	26-Jun-17	31-Dec-17	-	-
James Hawkins	Director of Programmes		31-Oct-17	-	-
Eve Roodhouse	Director of Implementation and Programmes	26-Jun-17	31-Dec-17	-	-
Rachael Allsop[3]	Director of Workforce		31-Oct-17	-	-
Beverley Bryant	Director of Digital Transformation		31-Jul-17	-	-
Roberta Barker	Interim Director of People and Organisational Development	12-Jun-17	06-Oct-17	-	-

Senior staff are those who are NHS Digital Board members and those who attend the core Executive Management Team.

* All benefits in the year from participating in pension schemes but excluding employee contributions. These are the aggregate amounts, calculated using the method set out in Section 229 of the Finance Act 2004 (i) and using the indices directed by the Department of Health and Social Care. (see https://www.nhsbsa.nhs.uk/employer-hub/technical-guidance)

2018-19				2017-18						
Benefits in kind (to nearest £100)	*Pension benefits (bands of £2,500)	Total (bands of £5,000)	Full year equivalent salary (bands of £5,000)	Salary (bands of £5,000)	Performance pay (bands of £5,000)	Benefits in kind (to nearest £100)	Exit package (bands of £5,000)	*Pension benefits (bands of £2,500)	Total (bands of £5,000)	Full year equivalent salary (bands of £5,000)
-	40-42.5	240-245	190-195	120-125	-	-	-	25-27.5	145-150	190-195
-	0	180-185	170-175	165-170	5-10	-	-	110-112.5	280-285	165-170
-	30-32.5	165-170	130-135	130-135	-	-	-	30-32.5	160-165	130-135
-	-	95-100	140-145	150-155	5-10	-	-	-	155-160	140-145
-	30-32.5	170-175	130-135	125-130	-	-	-	45-47.5	170-175	125-130
4,400	7.5-10	85-90	120-125	120-125	-	4,800	-	115-117.5	240-245	120-125
-	77.5-80	155-160	100-105	50-55	-	-	-	45-47.5	95-100	105-110
-	-	210-215	220-225	-	-	-	-	-	-	-
-	17.5-20	95-100	140-145	-	-	-	-	-	-	-
-	5-7.5	35-40	145-150	-	-	-	-	-	-	-
-	-	5-10	105-110	-	-	-	-	-	-	-
-	-	-	-	45-50	-	-	-	10-12.5	55-60	145-150
-	-	-	-	50-55	-	-	-	32.5-35	85-90	100-105
-	-	-	-	90-95	-	-	-	10-12.5	100-105	120-125
-	-	-	-	50-55	-	-	-	85-87.5	140-145	100-105
-	-	-	-	45-50	-	-	-	35-37.5	85-90	75-80
-	-	-	-	45-50	-	-	-	2.5-5	50-55	145-150
-	-	-	-	40-45	-	-	30-35	-	75-80	135-140

[1] Michael Kay is a contractor and the salary is calculated based on the day rate he receives from the recruitment agency

[2] Mark Stock is seconded from PwC with the rate being his deemed salary charged by PwC

[3] Rachael Allsop worked on a part time basis from May 2017 until she resigned on 31 October 2017

[4] Martin Severs worked on a part time basis from September 2018

[5] Sean Walsh's prior-year disclosures have been restated to reflect the benefits in kind paid

The resignation date refers to the resignation from the Board, not necessarily the organisation.

Non-executive director remuneration

		Appointment date	Resignation date	2018-19		2017-18	
				Total salary (bands of £5,000)	Full year equivalent salary (bands of £5,000)	Total salary (bands of £5,000)	Full year equivalent salary (bands of £5,000)
Non executive directors							
Noel Gordon	Chair			60-65	60-65	60-65	60-65
Sir Ian Andrews	Non-Executive Director		31 Dec 18	5-10	10-15	10-15	10-15
Sarah Blackburn	Non-Executive Director		31 Aug 18	5-10	10-15	10-15	10-15
Dr Marko Balabanovic	Non-Executive Director			5-10	5-10	5-10	5-10
Daniel Benton	Non-Executive Director			5-10	5-10	5-10	5-10
Professor Soraya Dhillon	Non-Executive Director			5-10	5-10	5-10	5-10
Professor Sudhesh Kumar[1]	Non-Executive Director			5-10	5-10	5-10	5-10
Rob Tinlin	Non-Executive Director			5-10	5-10	5-10	5-10
John Noble	Non-Executive Director	01 Jul 18		5-10	10-15	-	-
Deborah Oakley	Non-Executive Director	01 Jul 18		5-10	10-15	-	-
Balram Veliath	Non-Executive Director	01 Jul 18		5-10	5-10	-	-

[1] During 2017-18, Sudhesh Kumar was seconded from the University of Warwick and costs relate to the total value of charges net of irrecoverable VAT

No performance pay, benefits in kind or pension-related benefits were paid.

The emoluments of the Chair and the non-executive directors do not include employer national insurance contributions. The total included in note 5 of the accounts does include such contributions.

Pension benefits

Pension benefits were provided through the NHS Pension Scheme.

	Accrued benefits				Cash equivalent transfer values		
	Real increase in pension (bands of £2,500)	Real increase in pension lump sum (bands of £2,500)	Total accrued pension at 31 March 2019 (bands of £5,000)	Lump sum related to accrued pension at 31 March 2019 (bands of £5,000)	CETV at 31 March 2019 (£000)	CETV at 31 March 2018 (£000)	Real increase in CETV (£000)
Sarah Wilkinson	2.5-5	0[2]	5-10	0[2]	70	24	17
Robert Shaw	0	0	70-75	185-190	1,470	1,302	121
Carl Vincent	2.5-5	0[2]	5-10	0[2]	122	76	24
Thomas Denwood	2.5-5	0	25-30	45-50	374	292	54
Sean Walsh	0-2.5	0-2.5	35-40	110-115	851	729	49
Wendy Clark	0-2.5	0[2]	0-5	0[2]	18	-	6
Jackie Gray	0-2.5	0[2]	0-5	0[2]	7	-	2
Ken Baker[1]	2.5-5	10-12.5	25-30	75-80	-	-	-

[1] Ken Baker has no CETV at 31 March 2019 as he reached pensionable age

[2] No lump sum is disclosed as there is no set minimum lump sum within the 2008 section of the NHS Pension Scheme.

In 2017-18 there was a calculation error such that the CETV factors used for individuals with benefits in the 2015 scheme were incorrect. NHS Pensions have confirmed that the start of year CETVs have been amended to reflect the transfer value at 31 March 2018 using the correct CETV factors.

A Cash Equivalent Transfer Value (CETV) is the actuarially assessed capitalised value of the pension scheme benefits accrued by a member at a particular point in time. The benefits valued are the member's accrued benefits and any contingent spouse's pension payable from the scheme. A CETV is a payment made by a pension scheme or arrangement to secure pension benefits in another pension scheme or arrangement when the member leaves a scheme and chooses to transfer the benefits accrued in their former pension scheme.

The pension figures shown relate to the benefits that the individual has accrued as a consequence of their total membership of the pension scheme, not just their service in a senior capacity to which disclosure applies.

The CETV figure and other pension details include the value of any pension benefit in another scheme or arrangement that the individual transferred to the NHS Pension scheme. They also include any additional pension benefit accrued to the member as a result of them purchasing additional years of pension service in the scheme at their own cost. CETVs are calculated within the guidelines and framework prescribed by the Institute and Faculty of Actuaries.

The real increase in CETV reflects the increase effectively funded by the employer. It excludes the increase in accrued pension due to inflation and contributions made by the employee (including the value of any benefits transferred from another pension scheme or arrangements) and uses common market valuation factors for the start and end of the period.

Staff numbers and related costs

The staff costs, average number of whole-time equivalent persons employed and the relationship between the highest paid director and the median of the workforce are subject to audit:

	2018-19 £000	Represented 2017-18 £000
Permanent staff		
Salaries and wages	142,608	134,803
Social security costs	16,417	14,788
Apprenticeship levy	681	657
Employer superannuation contributions - NHS Pension Scheme	17,778	17,192
Employer superannuation contributions - other	439	447
Staff seconded to other organisations	1,159	1,331
Capitalised employed staff costs	(16,669)	(16,180)
	162,413	**153,038**
Other staff		
Temporary staff	5,049	2,388
Contractors	10,551	9,573
Staff seconded from other organisations	693	1,147
Capitalised other staff costs	(908)	(1,815)
	15,385	**11,293**
Staff costs	**177,798**	**164,331**
Termination benefits	**11,165**	**659**
Staff costs including termination benefits	**188,963**	**164,990**

The average number of whole term equivalent persons employed during the year was:	2018-19	2017-18
Permanent staff and secondees	2,891	2,913
Temporary staff and contractors	192	131
Total	**3,083**	**3,044**
The average number of whole term equivalent persons employed during the year whose time was capitalised	284	291

There were no amounts spent on staff benefits during the year and there were two early retirements on the grounds of ill health.

The relationship between the remuneration of the highest paid director and the median remuneration of the workforce is as follows:

	Highest paid director £000	Range of staff remuneration £	Median pay of the workforce £	Ratio to the median of the workforce
2018-19 excluding pension benefit	190-195	15,404 to 197,396	43,469	4.4
2017-18 excluding pension benefit	190-195	13,758 to 218,453	41,787	4.6

Non-permanent staff remuneration is calculated using the day rate net of irrecoverable VAT, less a deemed employer pension contribution and annualised based on 230 working days.

The increases to the lower range of staff remuneration and the median pay reflects the 2018-19 NHS Agenda for Change pay award.

Five members of staff who are mainly medical professionals received full-time equivalent remuneration in excess of the highest-paid director. There are 11 posts, as of 31 March 2019, that meet the criteria of Board members or senior officials with significant financial responsibility.

Pension information

Most NHS Digital staff are covered by the NHS Pension Scheme (the 1995/2008 scheme and the 2015 scheme).

NHS Pension Scheme
Past and present employees are covered by the provisions of the two NHS pension schemes. Details of the benefits payable and rules of the schemes can be found on the NHS pension scheme website at www.nhsbsa.nhs.uk/pensions. Both are unfunded, defined-benefit schemes that cover NHS employers, GP practices and other bodies in England and Wales allowed under the direction of the Secretary of State. They are not designed to be run in a way that would enable NHS bodies to identify their share of the underlying scheme assets and liabilities. Therefore, each scheme is accounted for as if it were a defined contribution scheme, whereby the cost to NHS Digital of participating in the scheme is taken as equal to the contributions payable to that scheme for the accounting period.

In order that the defined benefit obligations recognised in the financial statements do not differ materially from those that would be determined at the reporting date by a formal actuarial valuation, the Financial Reporting Manual (FReM) requires that "the period between formal valuations shall be four years, with approximate assessments in intervening years". An outline of these follows:

a) Accounting valuation
A valuation of scheme liability is carried out annually by the scheme actuary (currently the Government Actuary's Department) as at the end of the reporting period. This utilises an actuarial assessment for the previous accounting period, in conjunction with updated membership and financial data for the current reporting period, and is accepted as providing suitably robust figures for financial reporting purposes. The valuation of the scheme liability as at 31 March 2019 is based on valuation data for 31 March 2018, updated to 31 March 2019, with summary global member and accounting data.

In undertaking this actuarial assessment, the methodology prescribed in IAS 19, relevant FReM interpretations, and the discount rate prescribed by HM Treasury have also been used.

The latest assessment of the liabilities of the scheme is contained in the scheme actuary report, which forms part of the annual NHS Pension Scheme (England and Wales) Pension Accounts. These accounts can be viewed on the NHS Pensions website and are published annually. Copies can also be obtained from The Stationery Office.

b) Full actuarial (funding) valuation
The purpose of this valuation is to assess the level of liability in respect of the benefits due under the schemes (taking into account recent demographic experience) and to recommend contribution rates payable by employees and employers.

The latest actuarial valuation undertaken for the NHS Pension Scheme was completed as at 31 March 2016. The results of this valuation set the employer contribution rate payable from April 2019. The Department of Health and Social Care have recently laid scheme regulations confirming that the employer contribution rate will increase from 14.5% to 20.6% of pensionable pay from this date.

The 2016 funding valuation was also expected to test the cost of the scheme relative to the employer cost cap set following the 2012 valuation. Following a judgment from the Court of Appeal in December 2018, the government announced a pause to that part of the valuation process pending conclusion of the continuing legal process.

Members can purchase additional service in the NHS Pension Scheme and contribute to Money Purchase Additional Voluntary Contributions run by the scheme's approved providers or by other free standing additional voluntary contributions providers.

Employees who do not wish to join the NHS Pension Scheme can opt to join the National Employment Savings Trust (NEST) scheme. This is a stakeholder pension scheme based on defined contributions. The minimum combined contribution is currently 5% of qualifying earnings, of which the employer must pay 2%. This rises to 8% in 2019-20, of which the employer must pay 3%. Employees can choose to pay more into the fund, subject to a current cap of £4,700 per annum. 17 NHS Digital employees were members of the NEST Scheme during 2018-19.

The Principal Civil Service Pension Scheme

The Principal Civil Service Pension Scheme (PCSPS) and the Civil Servant and other Pension Scheme, known as 'alpha', are unfunded multi-employer defined benefit schemes. NHS Digital is unable to identify its share of the underlying assets and liabilities. The scheme actuary valued the scheme as at 31 March 2012.

Details can be found in the resource accounts of the Cabinet Office at www.civilservicepensionscheme.org

For 2018-19, employer's contributions of £431,697 were payable to the PCSPS (2017-18: £444,610) at one of four rates in the range 20.0% to 24.5% of pensionable earnings, based on salary bands. The scheme actuary reviews employer contributions, usually every four years following a full scheme valuation. The contribution rates are set to meet the cost of the benefits accruing during 2018-19 to be paid when the member retires and not the benefits paid during this period to existing pensioners.

The employers contribution rate for 2019-20 ranges from 26.6% to 30.3%.

Employees can opt to open a Partnership Pension Account, which is a stakeholder pension with an employer contribution. Employer contributions are age-related and range from 8% to 14.75% of pensionable earnings. Employers also match employee contributions up to 3% of pensionable earnings. No employees have opted for the Partnership Pension Account.

Sickness absence data

During 2018, 15,240 (2017: 12,940) working days were lost due to sickness absence. This represented 5.2 (2017: 4.5) working days per employee. These figures are based on calendar years, not financial years, and were centrally produced from the Electronic Staff Record. Average sickness absence for 2018 was 2.4%.

Consultancy

The total spend on consultancy, as defined by HM Treasury guidance, was £1,799,000.

Health and safety

We have legal responsibilities for the health, safety and welfare of our employees and for all people using our premises. We comply with the Health and Safety at Work Act (1974) and operate a Health and Safety Committee under the Safety Representatives and Safety Committee regulations (1977). Training on fire-related health and safety is mandatory and there are online learning packages available for other health and safety topics, including manual handling and working with visual-display equipment.

Exit packages

Total staff termination packages are as follows and are subject to audit:

							2018-19
Cost band	**Number of compulsory redundancies**	**Number of other departures agreed**	**Total number of exit packages**	**Cost of compulsory redundancies £**	**Cost of other departures agreed £**	**Total cost of exit packages £**	
£0-£10,000	10	-	**10**	58,857	-	**58,857**	
£10,001-£25,000	44	-	**44**	742,080	-	**742,080**	
£25,001- £50,000	36	-	**36**	1,305,738	-	**1,305,738**	
£50,001- £100,000	66	-	**66**	4,841,434	-	**4,841,434**	
£100,001- £150,000	22	-	**22**	2,613,090	-	**2,613,090**	
£150,001- £200,000	2	-	**2**	313,333	-	**313,333**	
Total	**180**	**-**	**180**	**9,874,532**	**-**	**9,874,532**	

Exit packages above relate primarily to 'Wave 1' of the organisation's internal restructure and include payments actually made and accrued. In addition, a provision has been made for £1,290,000 covering a further 17 staff but these are not included above as the individual calculations have not been confirmed.

							2017-18
Cost band	**Number of compulsory redundancies**	**Number of other departures agreed**	**Total number of exit packages**	**Cost of compulsory redundancies £**	**Cost of other departures agreed £**	**Total cost of exit packages £**	
£0-£10,000	3	-	**3**	20,413	-	**20,413**	
£25,001- £50,000	1	8	**9**	34,021	300,000	**334,021**	
£50,001- £100,000	-	4	**4**	-	304,380	**304,380**	
Total	**4**	**12**	**16**	**54,434**	**604,380**	**658,814**	

Other departures relate to contractual costs under a mutually agreed resignation scheme.

Review of tax arrangements of public sector appointees – off-payroll engagements

As part of the Review of Tax Arrangements of Public Sector Appointees, published by the Chief Secretary to the Treasury on 23 May 2012, we are required to publish (via the Department of Health and Social Care) information about the number of off-payroll engagements that are in place and where individual costs exceed £245 per day.

	Number
Number of existing engagements as of 31 March 2019	83
Of which, the number that have existed:	
for less than one year at the time of reporting	53
for between one and two years at the time of reporting	23
for between two and three years at the time of reporting	6
for between three and four years at the time of reporting	1
for four or more years at the time of reporting	-

	Number
Number of new engagements, or those that reached six months in duration, between 1 April 2018 and 31 March 2019 that were for more than £245 per day	66
Of which, the number:	
assessed as caught by IR35	19
assessed as not caught by IR35	47
engaged directly (via a Personal Service Company contracted to NHS Digital) who are on the payroll	-
of engagements reassessed for consistency / assurance purposes during the year	144
of engagements that saw a change to IR35 status following the consistency review	104

We are committed to maintaining in-house capacity but it is recognised that, with a significant element of our activity being project based with peaks and troughs in requirements, making the best use of the temporary labour market is necessary. Many of our programmes require specialist input on a temporary basis and it is not always cost-effective to permanently recruit such skills.

The total cost of temporary labour increased in the year to £16.3 million, compared to £13.1 million in 2017-18, as we brought in specialist resources to assist in the development of our major programmes.

We continue to improve our assurance processes to ensure we categorise all engagements in line with best practice. Up to December 2018, we assessed all contractors using the toolkit supplied by HMRC. From January 2019, we are now making an initial assessment internally. Any contractors considered to be outside of scope are then being reassessed by an external provider.

Following the implementation of the new rules for IR35 introduced for the public sector in April 2017, we undertook a considered assessment of the status for each individual contractor which we believed met the HMRC requirements. However, HMRC have challenged our assessment. We have been in extensive discussions but now consider it appropriate to acknowledge their position and create an accrual covering the period from 1 April 2017 to 31 December 2018. This accrual is £4.3 million including interest and penalties.

Diversity, equality and inclusion
Our three key strategic priorities for equality, diversity and inclusion guide our action plans and day-to-day interactions with our employees, and have executive director level accountability across the business.

Priority 1 – A diverse workforce
We aim to create and maintain a diverse, representative workforce within NHS Digital and increase the pool of diverse employees across the health and care technology and data sectors.

During 2018-19, we:

• volunteered to participate in the national Workforce Race Equality Standard (WRES) programme by publishing our WRES report with commitments to close the gap in workforce race equality. Compared to the overall demographic of our workforce, people from Black, Asian and Minority Ethnic backgrounds are over-represented in middle bandings (AfC bands 4-7) and under-represented across all senior pay bands

• promoted the development of diverse talent via executive recruitment agencies and through our NHS Digital Academy, building relationship with inner city schools and universities

• improved our employee lifecycle data with the launch of an exit survey and recruitment survey

• introduced a reasonable adjustment passport to improve communication for staff, allowing employees to provide information about their conditions, impairments or disabilities and to capture all agreed physical or non-physical workplace adjustment requirements. This helps to minimise the need to reiterate or renegotiate workplace adjustments on moving assignments or locations

• worked to remove bias from our organisational change programme

• continued with our membership of the NHS Equality and Diversity Council

• established a steering group chaired by a non-executive director, to provide oversight and promote collaborative work on improving equality, diversity and inclusion

Priority 2 – Inclusive behaviours and leadership
We are creating a working environment that values differences and fosters an inclusive culture in which our employees from all backgrounds can give their best, are treated fairly, are valued for their contributions and can progress their careers. Leaders and managers will demonstrate inclusive behaviours.

During 2018-19, we:

• supported various initiatives such as the National Inclusion Week and the Race at Work Charter

• created an animated 'call to action' on inclusive leadership which supported the launch of a Reverse Mentoring programme. This is a programme of culture change and an opportunity for senior leaders to hear the voices at all levels of the organisation and to access a rich diversity of thinking, to make positive changes. The benefits of Reverse Mentoring include recognition that diversity is taken seriously and having a workforce that feels more engaged and listened to

• undertook a range of internal support activities including creating a new senior leadership community for engagement. We provided unconscious bias training to the leading in NHS Digital cohort, rolled out mandatory 'equality essentials' e-learning and nominated a Board level "speak up" champion

• built a visible network of over 100 LGBT allies. Many LGBT people still have negative experiences in the workplace and rainbow lanyards are a visible sign to show support

- rolled out LGBT awareness workshops to staff with pastoral responsibilities, increasing knowledge of LGBT issues and confidence to talk about them

- established a 'Culture, Values and Behaviour' task and finish group to oversee a pivotal part of the transformation agenda

- became a Stonewall Diversity Champion and agreed our commitment to the Workplace Equality Index

- supported our staff-led diversity networks and provided access to short, group coaching sessions with over 80 attendees in total at the monthly Leeds and London sessions

Priority 3 – User equality
We will develop and provide digital and data services that are accessible and useable by the widest possible range of users, particularly for patient and public-facing services. We will appropriately reflect our public-sector duty in our communications, policies, programmes, processes and training.

During 2018-19, we:

- supported the development of NHS.UK which has accessibility at its core, allowing teams to build new web services with code that works well with assistive technology

- developed the NHS Digital corporate website to become ranked second overall and first in England in the NHS Website Accessibility Index

- ensured that all of our digital health services and products are inclusive and accessible to everyone, particularly the hardest to reach, through the Widening Digital Participation programme

- ensured that our existing properties, and the planning for the Leeds Hub, have appropriate facilities including prayer rooms and contemplation rooms

Over the next three years we will continue to progress these priorities in particular:

- continue to improve our provision for accessible workplaces, in terms of ICT and estates provision

- introduce enhanced leadership and line management training and review our mandatory equality, diversity and inclusion training

- continue to develop our diversity staff networks to ensure their sustainability

- embed accessibility standards across all our services, particularly those with a significant public or patient dimension

- engage diverse communities in product development through user research and testing

Staff-led Diversity Networks
Our staff-led diversity networks continue to grow and become more embedded in how we work. We now have seven staff-led diversity networks including:

- LGBT and allies

- Ethnic Minorities Broadening Racial Awareness and Cultural Exchange

- Age Aware

- Ability (Disabilities, long term conditions and carers)

- Deaf Awareness

- Women's

- Multifaith

Staff-led activities are based upon the life experience of staff and network members and raise awareness of difference and diversity within the organisation. All staff-led networks have an executive sponsor and a workforce ally. They are critical to nurturing the culture and structures of mutual support that help NHS Digital drive continuous improvement.

Our staff-led diversity networks have celebrated a range of events and festivals, including the International Day of Persons with Disabilities, Deaf Awareness Week, International Womens Day, Ramadan, Eid etc

The gender distribution in NHS Digital for each Agenda for Change equivalent grade is provided below:

		2018-19		2017-18	
Agenda for Change equivalent grades		**Male**	**Female**	**Male**	**Female**
Directors		7.6	2.1	7.6	2.3
Senior managers	9	45.2	15.7	52.6	17.7
	8d	86.6	41.2	90.6	42.5
Managers	8c	205.4	111.6	205.6	110.6
	8b	330.8	162.9	340.7	163.4
	8a	410.7	274.2	423.5	269.4
Other staff	7	312.2	229.5	298.2	220.3
	6	150.9	200.9	144.4	198.8
	5	152.1	183.2	103.6	151.6
	4	63.6	91.9	56.0	95.6
	3	4.1	2.4	19.0	22.2
	2	5.3	1.3	7.1	2.4
	Net secondees	1.6	(9.5)	0.1	(1.8)
Total (full-time equivalent)		**1,776.1**	**1,307.4**	**1,749.0**	**1,295.0**

There has been no significant change in the gender or grade split of our workforce. 58% of employees are male (2017-18: 57%).

We are acting to promote digital careers for women, including working with Women in Digital to get more women into digital apprenticeships.

Our gender pay gap for the reporting period to March 2019 was:

Mean gender pay (hourly rate)	2019	2018
Women	£22.78	£21.69
Men	£26.19	£25.41
Gap between the mean salaries of women and men	13.0%	14.6%

Median gender pay (hourly rate)	2019	2018
Women	£21.69	£20.68
Men	£24.79	£23.98
Gap between the median salaries of women and men	12.5%	13.8%

The gap between the median salaries of women and men is gradually reducing and this contrasts with the trend across the public sector as a whole where there is still a median gap of 14.1%. However, on average, men continue to occupy more of the senior pay bands than women at NHS Digital. Men also attract more recruitment and retention premiums (applied to certain types of specialist and technical roles for which recruitment is a challenge) and 'on call' premiums. Two men applied for every management role at NHS Digital for every woman who applied, and there was a similar ratio in the numbers shortlisted and appointed, with some slight differences between grades.

NHS Digital uses the national Agenda for Change Job Evaluation Scheme, which provides a clear framework for defining roles within pay bands. We publish an annual Diversity and Inclusion Workforce Report.
The 2017-18 report is available at: https://digital.nhs.uk/our-workforcedemographics and includes details of our gender pay gap for this period. Our 2018-19 report is scheduled for publication in autumn 2019.

Community and social responsibility

We have a special leave policy that allows staff to take paid leave for public duties (for example, magistrate, school governor and reserve forces roles). We have also developed work experience and placement programmes for schools, colleges and universities near our office locations. We also support the government's objective of eradicating modern slavery and human trafficking.

Anti-fraud, bribery and corruption

We have an anti-fraud, bribery and corruption policy in place and will always seek the appropriate disciplinary, regulatory, civil and criminal sanctions against those who commit fraud and, where possible, recover losses.

Public sector facility time publication requirements

We work in partnership with trades union representatives on all matters affecting our employees, to ensure an effective and successful organisation. Regular Joint Negotiation and Consultation Committee meetings are held to allow discussion, consultation and negotiation on employment-related matters.

Staff members are permitted time to engage in appropriate trades union activities. Details are below:

Relevant union oficials

Number of employees who were relevant union officials during the relevant period	20
FTE employee number	2,891

Percentage of time spent on facility time:	Number of employees
0%	-
1-50%	19
51%-99%	1
100%	-

Percentage of pay bill spent on facility time:

Total cost of facility time	184,000
Total pay bill	179,082,000
Percentage of the total pay bill spent on facility time	0.1%

Paid trade union activities

Time spent on paid trades union activities as a percentage of total paid facility time hours	5%

Parliamentary accountability and audit report

All elements of this report are subject to audit.

Losses and special payments

Losses and special payments are items that Parliament would not have contemplated when it agreed funds for the health service or passed legislation. By their nature, they are items that ideally should not arise. They are, therefore, subject to special control procedures.

During 2018-19 there were 207 losses and special payments (2017-18: 94), amounting to £4,292,450 (2017-18: £20,452). Losses include £4,266,597 in relation to IR35 liabilities.

Other losses and special payments include bad debts written off, losses of minor IT equipment and mobile phones and payment of tax penalties and interest. Interest paid under the Late Payment of Commercial Debt (Interest) Act 1998 amounted to £39 (2017-18: £nil).

Political and charitable donations

No political or charitable donations were made in the year.

Remote contingent liabilities

We have not identified any significant remote contingent liabilities. These are liabilities for which the likelihood of a transfer of economic benefit in settlement is too remote to meet the definition of contingent liability within the meaning of IAS 37.

Corporate governance report

Our constitution is set out in Schedule 18 of the Health and Social Care Act 2012. The formal arrangements are detailed in the Accounting Officer Memorandum sent to our Chief Executive by the Department of Health and Social Care Accounting Officer.

Our relationship with the Department of Health and Social Care is set out in a framework agreement, with annual objectives conveyed through an annual remit letter. A specific Department of Health and Social Care sponsor team engages with and oversees our activities, provides support and undertakes regular reviews via quarterly meetings.

The Board

We are led by a Board consisting, at 31 March 2019, of three executive and nine non-executive members (including the Chair) and one 'ex-officio' member. The Board is the senior decision-making body. Other senior executives attend the Board as required. The Board supports the Chief Executive, who is the Accounting Officer and is therefore accountable to both the Secretary of State for Health and Social Care and to Parliament for the performance of the organisation.

The Board has a responsibility to ensure that NHS Digital complies with all statutory and administrative requirements and for its use of public funds. Details of the conduct of the Board and the roles and responsibilities of members are set out in the Terms of Reference which are derived from our Corporate Governance Manual, which includes our Standing Orders, Standing Financial Instructions and Scheme of Delegation. All these documents are reviewed annually. Details of the Board biographies and the Register of Interests are in Appendix B on page 168.

A Register of Interests of all Board members is maintained, updated and published in advance of every statutory board meeting. The Chair or Senior Independent Director manage conflicts of interest if and when these arise.

The powers retained by and the responsibilities of the Board include:

- agreeing our vision and values, culture and strategy within the policy and resources framework agreed with the Department of Health and Social Care

- agreeing appropriate governance and internal assurance controls, especially in relation to financial and performance risks

- approving business strategy, business plans, key financial and performance targets and the annual accounts

- ensuring sound financial management and value for money

- supporting the Executive Management Team (EMT) and holding it to account

- ensuring that we comply with any duties imposed on public bodies by statute

Two non-executive directors retired and three non-executive directors were appointed during the year. Professor Martin Severs retired from the Board on 28 February 2019. In April 2019, he was replaced as Chief Medical Officer by Dr Amir Mehrkar on an acting basis.

On 31 March 2019, seven of the non-executive directors were male and two were female. Two of the executive directors were male and one was female.

Professor Soraya Dhillon MBE was appointed as the Senior Independent Director in the year and carried out an informal review of Board effectiveness and reported her findings to the Chair. She continues to regularly monitor the Board's effectiveness and performance. Looking towards 2019-20, the Chair anticipates commissioning a more comprehensive and independent Board effectiveness review.

NHS Digital Board and committees
During 2018-19, six statutory public meetings were held and there were a further five business meetings.

Statutory meetings consist of:

- meetings of the Board held in public that other members of the senior management team may attend. Members of the public may attend and observe. Papers and previous minutes are made available on the NHS Digital website (www.digital.nhs.uk/about-nhs-digital) in advance of the meetings

- meetings of the Board held in private at which items of a commercial or confidential nature are tabled that cannot be discussed in public

In addition to standing agenda items on the governance and performance of our organisation, the statutory meetings discussed a range of topics including:

- the resolution of the TPP data opt-out issue and subsequent system changes to avoid a recurrence

- arrangements for the provision of data to the Home Office and suspension of the memorandum of understanding

- the impacts of the NHS Long Term Plan

- the risks and potential impact of the internal transformation programme, Org2

- implementation of General Data Protection Regulations (GDPR)

- the impact of the creation of NHSX to oversee the strategy, policy and the commissioning of digital solutions

- the potential impacts of Brexit, especially in relation to the hosting of data

Members of the Board use the business days to consider strategic issues within the organisation and in the broader digital environment. These in-depth meetings include additional senior operational staff. Some key issues discussed during 2018-19 included:

- development of corporate strategy

- development of the Board

Board committees

The Board has appointed four committees whose delegated responsibilities are described below.

Attendance during 2018-19 is described in Appendix C on page 176. A standing item on the Board's agenda allows the chairs of committees to report on their deliberations. The minutes of the Board's subcommittees (other than those of the Talent, Remuneration and Management Committee) are circulated to board members after they are ratified.

The Audit and Risk Committee (ARC)

Provides an independent view to the Chief Executive and the Board of the organisation's internal controls, operational effectiveness, governance and risk management. This includes an overview of internal and external audit services, risk management and counter fraud activities.

The Committee is authorised to investigate any activity within its terms of reference and to seek any information that it requires from any employee. It is able to seek legal or independent professional advice and secure the attendance of external specialists.

The key areas reviewed in 2018-19 included:

- oversight of the preparation of the Annual Report and Accounts, including the annual governance statement on behalf of the Board

- strategic input into the internal audit plan

- review of internal audit reports and actions arising, together with the Head of Internal Audit's annual opinion which was Moderate for the organisation as a whole during the year

- review of the external audit plan and regular updates on progress of the audit including actions taken in response to recommendations made during the previous year

- received from the National Audit Office (the organisations external auditors) the 'Letter to those charged with Governance' which resulted in an unqualified opinion on the financial statements

- review of the internal counter-fraud specialist work plan and receive regular updates on fraud investigations and an annual report covering fraud and whistleblowing

- review of whistleblowing arrangements. There was one reported case of whistleblowing during the year

- an annual report on year end assurance processes and progress on developing assurance maps

- regular review of the strategic risk register and several strategic risk deep dives including organisational restructuring, clinical risk, business continuity and data quality

The Information Assurance and Cyber Security Committee (IACSC)

Provides an independent view to the Chief Executive and the Board. The IACSC has representation from across government, including the Department of Health and Social Care. It is responsible for ensuring that there is an effective information assurance function that meets recognised industry and government standards and provides appropriate independent assurance to the Chief Executive and the Board.

The IACSC reviews the work of the Data Security Centre and considers the implications of management responses to its work. It monitors other significant cyber assurance functions, both internal and external to the organisation. It is authorised to investigate activities within its terms of reference and all employees are directed to co-operate with its requests for information. It can seek legal or independent professional advice at NHS Digital's expense.

The main areas considered in 2018-19 included:

- the funding and implementation of the NHS Digital Cyber Security programme

- the National Cyber Security Centre assessment of threats to health and care and operational relationships with other government departments

- implementation of actions from the Department of Health and Social Care response to the National Data Guardian's report on data security, consent and opt-outs and from the departmental Data Security Leadership Board

- the implications for NHS Digital of the WannaCry incident and the subsequent development of the joint operational handbook for incident response

- the development of the Information Security and Protection Toolkit

- the risk profile and security of the Citizen Identity programme and the implementation of 'internet of things' technologies across health and care

- the information assurance implications for NHS Digital of GDPR

- cyber security awareness training for NHS Digital's and other boards

The Talent, Remuneration and Management Committee (TRaMCo).
Provides an independent view to the Chief Executive and the Board.

The role of TRaMCo is to:

- make recommendations to the Department of Health and Social Care on the level of the remuneration on packages of the Chief Executive and other executive directors within the provisions of the Pay Framework for Executive and Senior Managers (ESM) or successor arrangements

- monitor and evaluate the performance of ESMs and make recommendations on annual performance pay awards

- determine pay arrangements for medical and other staff groups who are not subject to Agenda for Change, ESM or Transfer of Undertakings (Protection of Employment) terms and conditions

- maintain an overview of senior non-medical staff pay to ensure that it remains consistent with public pay policy

- approve the level of any annual performance related pay awards to NHS Digital staff on ex-Civil Service terms and conditions

- approve the annual performance objectives and targets of executive directors

- ensure that pay arrangements meet equal pay requirements

- consider and approve redundancy payments and other exceptional arrangements

- ensure that all matters relating to pay and conditions that require approval from the Department of Health and Social Care Talent, Remuneration and Management Committee or other external authorities, are sent to those bodies and that the decisions are implemented

- review and make recommendations on the size, composition and structure of the Board, including advising the Department of Health and Social Care of the skills, knowledge and experience required of new Board appointments

- oversee pay-related diversity and inclusion matters relating to protected characteristics within the workforce

- review the expenses and subsistence claims of executive and non-executive directors

- provide advice to the Executive Management Team on talent, remuneration and employment matters

Investment Committee (IC)
Provides an independent view to the Chief Executive and the Board. The Committee considers investment and/or financial proposals whose value exceeds the delegated authority of the Chief Executive. The Committee consists of two non-executive directors, the Chief Executive and the Chief Finance Officer. The Chief Commercial Officer and the Executive Director of Product Development also attend. One of the non-executive directors acts as chair.

The purpose of the Committee is to review and assure investment and other financial proposals and to ensure that NHS Digital assumes an acceptable level of delivery risk.

Specifically, the Committee ensures that programmes have demonstrated that they:

- have appropriate management and resourcing arrangements, including agreed commercial strategies and risk management

- are technically robust and clinically safe

- are affordable

- have robust proposals for cyber security and information security

- have acceptable levels of compliance risk, particularly with respect to information governance and procurement.

Following IC endorsement, business cases are submitted to the Technology and Data Investment Board hosted by NHS England

Executive Management Team (EMT)
EMT is responsible for communicating and delivering the strategy agreed by the Board. It is chaired by the Chief Executive and meets regularly. Action points and decisions are disseminated to all staff through the corporate intranet.

Data and information governance
A wide-ranging legal, regulatory and compliance framework governs our receipt, processing and dissemination of data and information, and our production of statistics. A schedule covering the key areas is included in Appendix D on page 177.

A key element of our responsibilities is to ensure that all data and information is collected, stored and disseminated appropriately. Information and statistical governance are taken extremely seriously. We have improved controls and protocols through the Data Access Request Service (DARS). DARS enables data applicants to submit and manage data access requests and sign data sharing agreements through a single, intuitive online portal. This has delivered far greater transparency and a significant reduction in administrative burden.

The service is being continuously improved and there has been a programme of engagement across the health and care community. We have also developed our Data Collections Service, which continues to make significant progress in consolidating data collections and transitioning them to a unified suite of collection tools. Improvements made in recent years mean the service has now consolidated collections into the Strategic Data Collection System, which has increased efficiency and public benefit.

By centralising all data requests and disseminations through DARS and through the introduction of new tools and services, we continue to increase efficiency and improve the quality of service for external users. We also provide system-wide advice on operational information governance to the health and social care sectors in England. This is separate from our principal role as the guardian of data, set out in the Health and Social Care Act 2012.

Improving governance and assurance processes across the system
We all have an interest in getting the right decision, made by the right people, at the right time and for the right reasons. This is particularly important for the Department of Health and Social Care and NHS England, who fulfil a number of roles including paymaster, budget holder, sponsor, service user, Senior Responsible Owners for programmes and the bodies holding the system to account.

Our role within the wider informatics arena and our relationships with our key partners is clear. We are the main informatics delivery organisation and both contribute to, and are held operationally accountable by, the Digital Delivery Board (DDB). Our Chief Executive is a member of DDB and the deputy Chief Executive and Chief Finance Officer attend whilst a significant number of our EMT and senior managers are involved in the development of future plans.

However, the governance arrangements are in the process of changing as responsibility for informatics strategy and delivery transfers to NHSX. The exact arrangements and how they impact on our delivery role are still to be finalised.

Annual governance statement

for the year ended 31 March 2019

NHS Digital is an executive non-departmental public body. It is responsible for setting up and operating systems for the collection, analysis, dissemination and publication of information relating to health services and adult social care and for ensuring citizens' health data is protected.

We develop and operate information and communications systems for health services and adult social care in England and act as the authority for determining and publishing information standards. We are accountable directly to Parliament for the delivery of the statutory functions described within the Health and Social Care Act 2012.

The Senior Departmental Sponsor for the Department of Health and Social Care is responsible for ensuring our procedures operate effectively, efficiently and in the interest of the public and the health sector.

Governance framework

Details of our constitution, our operational accountability, our Board and its appointed committees are provided on pages 110 to 115. Information about the conduct of the Board and the roles and responsibilities of members are set out in our Corporate Governance Manual, which incorporates the Standing Orders, Standing Financial Instructions and the Scheme of Delegation. This is reviewed and updated annually. We comply with the best practice described in the corporate governance code for central government departments issued by HM Treasury.

Corporate policies are reviewed on a regular basis and are refined as appropriate.

Risk and assurance framework

We have reviewed our corporate risk and assurance framework methodology during 2018-19 and made further improvements, which included creating directorate assurance maps and enhancing control and assurance statements.

Each directorate completed an annual self-assessment statement that included:

- an acknowledgement of their responsibilities and objectives over the financial year, including new responsibilities and objectives

- a statement that a sound system of internal controls was in place and that these controls had operated as intended

- confirmation of compliance with statutory obligations and organisational policies

- a description of the directorate's action plans and improvement activity

- a quality assessment of the level of information supplied to allow for effective decision-making

We continue to carry out regular quality assurance checks to ensure that the risk information held is current, accurate and of good quality. We have refined strategic risk reporting to focus on the outcomes of our risk management effort and this work has been reported to the Audit and Risk Committee (ARC), Executive Management Team (EMT) and the Board. The use of risk management performance metrics is starting to drive an overall improvement in risk data quality and risk management behaviours, although further improvements are planned for 2019-20.

Risks are reported regularly and escalated through our internal governance structure, with the top strategic risks and issues ultimately being considered by the Delivery Assurance Board (DAB), EMT, ARC and our Board.
During 2018-19, we:

- reviewed our strategic and other key risks, so that they continued to reflect the most significant risks to the delivery of our strategic objectives

- began work to refine the control and assurance framework for our strategic risks

- continued delivery of our targeted risk management improvement plan. This focused on risk maturity, capability and awareness, including improved tools, metrics, reporting and collection methods

- started work to strengthen our governance and accountabilities for managing and reporting risks, to ensure that the most significant risks are escalated appropriately and in a timely manner, to enable effective risk mitigation

- continued to refine the reporting of risks that cross organisational boundaries

- continued development of a set of key risk indicators to provide early warning and triggers for risk interventions

- sought opportunities to leverage the use of risk information in decision-making

We will continue this work in 2019-20, including a review of our strategic risk-appetite model.

Internal audit and other third-party assurance
NHS Digital's internal audit service is provided by the Government Internal Audit Agency (GIAA). It plays a crucial role in reviewing the effectiveness of management controls, risk management and governance. It focuses audit activity on the key risk areas. This service uses a blend of internal GIAA staff and resources from professional firms. The internal audit service operates in accordance with the Public Sector Internal Audit Standards and to an annual internal audit plan approved by ARC.

Regular reports are submitted on the effectiveness of our systems of internal control and the management of key business risks, with recommendations for improvement by management. The status of audit recommendations is reported to each meeting of ARC, and ARC noted significant progress in implementing these. There were no overdue actions outstanding at the end of the year.

During 2018-19, there were 19 separate audits undertaken across a range of business areas which confirmed our controls were largely operating as intended. GIAA target areas of high risk to ensure they remain controlled and assured.

The following areas were identified for improvement:

- procurement and contract management arrangements for one particular programme of work. This has led to the development of a plan to drive forward improvements to the commercial arrangements across the organisation in 2019-20

- review of Workforce Planning and Transformation: the initial scope of the programme, communications, resource levels, financial oversight and governance required some immediate rectification, which has since been implemented

- internal decision-making arrangements required some refinement. Work during 2019-20 will review our internal governance structure, ensuring all internal boards and committees are aligned

In addition to our internal audit service, we receive other third-party assurances including:

- ISAE3402 assurance reports covering our external payroll and financial services provided by NHS Shared Business Services (SBS). The financial services report was unqualified. The payroll services report received a qualified opinion. SBS was unable to evidence independent approvals for all checks to manual payroll and recurring calculations. Consequently, the report was unable to confirm that all controls as set out by SBS were fully operational. Controls within the payroll and e-expenses systems, together with internal NHS Digital processes, contribute to reducing risks arising from the areas of concern

- ISAE3402 assurance reports for the GP Payment Systems we provide to the wider NHS. This received an unqualified assurance

- an external review of our Supplier Audit Management processes. This including two of the biggest suppliers of GP Systems of Choice (GPSoC).

The GPSoC review presented an opportunity to improve our existing processes and practices. It highlighted a number of areas for improvement, including understanding the governance and roles and responsibilities in supplier management and ensuring thorough exit plans are created and adhered to. The actions will be implemented during 2019-20.

External audit
We have worked constructively with the National Audit Office. They attend and contribute to all ARC meetings during the year. The work of external audit sits outside our normal governance arrangements but independently informs the suitability and appropriateness of relevant financial and other controls and our governance and risk processes. The work of external audit is monitored by ARC through regular progress reports.

Counter fraud
We are responsible for investigating allegations of fraud related to our functions and work.

We have an internally appointed counter-fraud manager who ensures that appropriate anti-fraud arrangements are in place and who undertakes reactive and proactive counter-fraud work. The internal policy on tackling fraud, bribery and corruption is communicated to all staff. The policy and our management statement on corruption is available on our website.

We work closely with a number of bodies including the Department of Health and Social Care Anti-Fraud Unit to establish appropriate and efficient anti-fraud arrangements, and to ensure we comply with the counter fraud functional standard set out by the Cabinet Office. We

continue to work jointly with the biennial National Fraud Initiative. Fraud referrals have increased in the year and one investigation resulted in action against an individual. This included seeking an appropriate sanction and redress.

We also hold a quarterly fraud working group chaired by the Chief Finance Officer, which includes key senior internal and external stakeholders. We undertake an annual review of the fraud risk assessment and risk register and hold internal fraud risk workshops with key stakeholders. We continuously review our processes, sample check employee subsistence and travel claims and recover overpayments. We have introduced a data analytics tool to improve compliance checking, detect fraud more effectively, and reduce errors and losses.

Public interest disclosure

NHS Digital was one of the first 100 organisations to sign up to the Protect (formerly Public Concern at Work (PCAW)) Whistleblowing Commission code of practice. We attend an annual networking event to discuss progress in implementing whistleblowing procedures and will continue to improve our policy and practice through engagement with Protect. We have well-established reporting routes and mechanisms to allow staff to raise concerns.

The organisation has appointed one nominated officer at board level to protect and develop whistleblowing arrangements and encourage staff to openly raise concerns. There was one whistleblowing case in the year which was fully investigated and no further action was deemed necessary.

Performance management

Corporate performance management, including the use of key performance indicators, is linked with business planning and risk management to provide a joined-up view of what we intend to deliver (business planning), what factors could prevent successful delivery and how they can be mitigated (risk management), and how well we are delivering (performance management). The development of our business plan commitments includes assessment of constraints, dependencies and risks, and we track delivery using relevant measures.

Our organisation-wide performance management framework includes periodic reporting at differing levels of granularity in performance packs to the Digital Delivery Board, our Board, the Executive Management Team and other internal business units.

This performance reporting covers:

- financial and non-financial information, key risks and issues, and an assessment of delivery against strategic commitments

- business plan delivery at corporate and directorate levels

- other key work, such as delivery of specific programmes and organisational development and transformation

Our performance framework and individual performance indicators are kept under regular review to ensure they remain meaningful and effective. With the exception of a limited number of confidential indicators, all elements of the performance framework are reported to public meetings of the Board and most of the information is available on our website.

Our performance reporting supports open and transparent governance and helps ensure public accountability. Performance packs and business plan monitoring reports also inform quarterly accountability meetings between the Department of Health and Social Care and ourselves.

Data and cyber security

Our Data Security Centre continues to lead the provision of support to health and care organisations to manage cyber security risk, enabling the safe and secure use of data and technology to deliver improved patient care. We worked with NHS England, NHS Improvement, the Department of Health and Social Care, the National Cyber Security Centre and other partners to strengthen cyber resilience in 2018-19.

We are leading a multi-tiered approach to reduce systemic cyber security risk in the health and social care system. This involves central interventions, such as the Cyber Security Operations Centre (CSOC) as well as local interventions with NHS providers to increase preparedness and reduce vulnerability.

Alongside our system-wide responsibility, we provide consultancy and assurance to systems and services delivered by NHS Digital.

In 2018-19, the Data Security Centre triaged, created and distributed 63% more threat intelligence content than in the previous financial year. There was a 34% decrease in notifications of active infections sent to health and social care organisations.

Our CSOC capability is being developed in collaboration with our strategic partner, IBM. We have significantly improved its service, including onboarding the Incident Response and Intelligence Service, implementing the Vulnerability Management Service (which provides healthcare organisations with access to vulnerability scanning for their external-facing services) and integrating the Bitsight platform (which provides the CSOC with organisational 'league tables' based on vulnerability risk profiles).

Supporting local organisations with cyber security

To address critical weaknesses identified at a local level through on-site assessments, the Data Security Centre developed a Cyber Security Support Model. This helps organisations identify issues and provide bespoke advice and support to address vulnerabilities and increase cyber security preparedness in line with national standards. The model is underpinned by a GCHQ-accredited, board-level training offer to ensure leadership buy-in. We also provided a toolkit of communications materials to help organisations raise cyber and data security awareness among their staff.

We have supported the migration to a more resilient and secure operating system and published tailored Windows 10 build toolkits and online training to support NHS trusts in managing their transition. We also enrolled 750,000 devices onto the national end-point detection, threat and vulnerability management tool, which helps identify and monitor emerging threats at a local and national level.

The risks to the health and social care system from cyber attacks are growing and will increase significantly with the adoption of new technologies and services. We will continue to provide guidance, assessments and support to help organisations manage risk effectively, be prepared and be ready to respond.

Data Security and Protection Toolkit (DSPT)

During 2018-19 we developed and launched the DSPT, a replacement for the Information Governance Toolkit. The new resource combines data security and data protection principles. Additional functionality includes:

- the ability to report data security incidents to the Information Commissioner's Office or the Department of Health and Social Care

- the ability for pharmacy, opticians and social care providers to submit assessments for their sites in bulk

- additional reporting and exporting functionality (including the ability to export an action plan based on an organisation's assessment)

Over 30,000 health and social care organisations have registered with the toolkit and 26,800 organisations have published an assessment against the National Data Guardian's standards. This is 18% more than with the previous toolkit.

The DSPT is also used to assess third-party suppliers to the NHS and organisations applying for data through our data dissemination services.

We are required to submit an annual return against the DSPT. Our result was "standards met", which means that all mandatory assertions were evidenced.

Data sharing arrangements

DARS handles all requests for personal data that is identifiable or potentially identifiable. Before any data is shared, we ensure that:

- a legal basis for accessing the data exists

- the customer has an appropriate level of security to safeguard the data

- the customer passes our assessment process

- dissemination is covered by a signed data sharing agreement and a data sharing framework contract

Particularly sensitive releases follow a full governance and approval process and we seek independent advice from the Independent Group Advising on the Release of Data (IGARD) when appropriate.

We will continue to ensure that the governance around the dissemination of such data is of the highest priority. This includes close collaborations with IGARD, which reviews applications for sensitive NHS Digital data and has expert members and an enhanced transparency remit.

We conduct data-sharing audits to ensure that organisations meet the terms of their data-sharing agreement and framework contract. The organisations audited are selected by the DARS Team, based on a risk assessment that considers the overall level of assurance required for a specific agreement. The audit team may also carry out some random or sampling audits as a check on the overall assurance process.

During 2018-19, we conducted audits of 20 separate organisations and recorded observations about their processes, procedures and non-conformities with NHS Digital contractual documentation.

The non-conformities are subsequently followed up with a post-audit review to ensure they have been addressed. During 2018-19, 17 post-audit reviews were conducted. The outcome of audits and post-audit reviews are published on our website at: https://digital.nhs.uk/services/data-access-request-service-dars/data-sharing-audits.

Changes to cross-government data sharing

The memorandum of understanding between the Home Office, the Department of Health and Social Care and NHS Digital in relation to information sharing was terminated in October 2018 by NHS Digital following the government's announcement that it would no longer request tracing information in respect of individuals suspected of immigration offences. Urgent tracing requests from the Home Office and other government departments or agencies where there is a need to trace an individual for welfare and safeguarding purposes are assessed on a case by case basis by NHS Digital's welfare and safeguarding request panel.

Data quality assurance

We understand the importance of good quality data and our role in ensuring that the data we collect, process and share is subject to the most rigorous levels of quality assurance.

Given our unique position as a processor, user and sharer of health and social care data, we also have a duty to promote understanding of the importance of data quality across the health and social care sector.

We continue to seek ways to improve our data quality assurance. During 2018-19, we:

- monitored the implementation of our secondary uses data quality assurance policy

- worked collaboratively with our partners to develop requirements-based data quality assurance products, processes and tools

- ensured new and existing data collections and extractions went through the appropriate data quality assurance assessment processes

Information governance

We have appointed a new executive director to lead this area and establish a revised operating model to support a more efficient and resilient service, and embed good information governance compliance across the organisation.

The information governance work plan for 2019-20 includes:

- designing the future operating model and implementing interim changes in structure

- implementing tracking and reporting mechanisms to support resource management and to monitor and report on performance

- developing and implementing further staff training

- developing and starting the delivery of an information governance programme to review, improve and streamline existing processes, and to establish new processes, policy, guidance, tools and training

- reviewing and updating the NHS Digital Code of Practice on Confidential Information in line with work being undertaken separately by the Department of Health and Social Care to update the NHS Code of Practice on Confidentiality.

General Data Protection Regulation (GDPR)

In May 2018, the GDPR and the Data Protection Act 2018 replaced the Data Protection Act 1998, providing a comprehensive legal framework for data protection in the UK. NHS Digital has a responsibility to ensure that its policies, procedures and working practices reflect current EU and UK legislation. Our GDPR implementation programme and work plan began in 2017 and culminated in quarter two of 2018.

We have restructured our internal teams, developed our internal policies and processes and raised awareness through communications and training.

We supported good information governance across NHS Digital by:

- appointing a Data Protection Officer and a supporting team to help respond to the tasks and responsibilities required under GDPR

- putting in place a comprehensive Unified Register which holds the records of over 700 information assets with built-in controls, filters and guidance to help ensure accurate details are recorded and we are able to comply with its record keeping requirements under GDPR Article 30

- ensuring a process is in place for creating and maintaining Data Protection Impact Assessments

- updating our Data Subject Access Request procedure to support staff, patients and citizens to apply and receive the personal data NHS Digital holds about them

- updating our transparency notices, which advise on how we collect, analyse and store personal data and information

Incident management

In 2018-19, 20 incidents were classified as a personal data breach under GDPR and the Information Commissioner's Office (ICO) guidance. Two personal data breach incidents were reported to the ICO. The ICO has confirmed it is not taking action on either incident.

Freedom of Information (FOI) requests and Data Subject Access Requests (DSARs):

During 2018-19, 1,368 FOI requests were received. Nine responses were outside of the statutory deadline, a compliance rate of 99.3%.

We received 266 DSARs. DSAR compliance within statutory deadlines was 98.8%. In the three cases where statutory deadlines were breached, reasons for the delay were investigated and steps taken to address issues where necessary.

Three complaints were made to the ICO by applicants dissatisfied with our responses to FOI requests or DSARs. Two are now closed and we are waiting for further correspondence regarding the third. The outcomes of ICO investigations can be found on their website. http://www.ico.org.uk/action-weve-taken/

Business continuity

NHS Digital manages a range of essential IT systems on behalf of the NHS. It is critical that these systems operate in an efficient manner and that we can support the NHS in event of an outage. We conduct stress testing, provide a fully manned service bridge and maintain a Business Continuity Management System (BCMS) that is aligned to the requirements of ISO 22301 and related standards. The capability of the BCMS includes:

- a corporate incident management framework and supporting processes

- business continuity plans covering all NHS Digital activities

- a range of IT service continuity and disaster recovery plans for services managed in-house or by external suppliers

- arrangements to support the management of NHS Digital facility-related health and safety incidents

- supply chain continuity management. We confirm that critical suppliers and other delivery partners have suitable business continuity arrangements in place to protect delivery of service to NHS Digital and its customers

Our professional and qualified staff provide subject matter expertise in line with best practice across government and relevant industry standards.

An ongoing work programme is focused on corporate incident management capability, exercising business continuity plans, facility/site emergency plans, supply chain continuity management and people aspects of business continuity planning.

Clinical governance

As we move toward providing digital programmes and services that impact more closely on the lives of patients and citizens, there is a requirement to raise the profile of clinical governance at all levels of the organisation. This year, we worked towards developing a clinical governance framework and have appointed two very senior clinicians to non-executive positions and allocated one with special responsibility for this area. We also appointed nine senior clinicians with strong informatics competencies to lead on our major areas of activity.

We have invigorated our patient safety approach to ensure it keeps pace with new digital technologies. This work is ongoing but includes consideration of decision-support algorithms, apps and machine learning. Clinician time will be allocated according to clinical risk in each programme.

Org2

During 2018-19, NHS Digital began a transformation programme aimed at transforming itself into a modern, agile organisation capable of meeting future delivery commitments. This programme, known as Org2, is responsible for delivering a range of initiatives including restructuring the workforce. All 3,000 permanent staff will be affected, as a net reduction of around 500 full-time equivalent staff is expected. This programme introduces significant risks and a separate risk register has been created to manage these. This is reviewed regularly at board level. The first wave of this change started in 2018-19 and the programme is expected to be completed during 2020-21.

Service issues

- **Breast cancer screening service**

  In May 2018, an issue was identified with the Breast Cancer Screening Service in England that resulted in thousands of women aged between 68 and 71 not being invited to their final breast screening between 2009 and 2018. NHS Digital has provided extensive support to Public Health England and other system partners on the response to, and resolution of, this critical issue.

- **Patient Objections Management extract**

  On 20 June 2018, NHS Digital discovered an issue with the Patient Objection Management data extracts from one of the system providers, TPP. It was established this was due to a coding error in TPP SystmOne where new objections between 31st March 2015 and the 8th May 2018 had not been collected and sent to NHS Digital. Following investigation, it was identified that this affected submissions from 148,873 patients.

  NHS Digital worked swiftly to report the error and on 27 June 2018 stopped all data flows from NHS Digital where type 2 opt-outs should have been upheld. By the evening of 28 June 2018, the opt-out data had been corrected and data flows were restarted. Affected patients were contacted to make them aware of the issue. We also worked with organisations that received data to ensure data files were replaced and incorrect data was destroyed where possible. No patient's personal care and treatment was reported to be affected by this issue and NHS Digital informed GPs, the Information Commissioner's Office and the National Data Guardian. All objections are now being honoured.

  TPP apologised for its role and committed to work with NHS Digital so that errors of this = nature do not occur again. Subsequently, Type 2 opt-outs are now collected and converted to National Data Opt-outs. These are held on a central service managed by NHS Digital. There is no further need for TPP, or other system providers, to collect the opt-out information.

- **System outages**

  Multiple users were unable to access Microsoft Portal, Outlook Web Access, Skype or send email via Outlook on the 1st of December 2018 due to a server storage issue. A full service stability plan was initiated by Accenture and ourselves to rectify the issue (which was completed by 3rd December) and seek mitigations for the future.

  Following extensive clinical assessments, no patient harm or impact on the security or integrity of patient data was identified.

Chief Executive's review of effectiveness

As Accounting Officer, I have responsibility for the system of internal controls supporting and enabling the achievement of NHS Digital's aims and objectives, while safeguarding the public funds and assets for which I am personally responsible in accordance with 'Managing Public Money' and as set out in my Accounting Officer appointment letter. In particular, I am responsible for ensuring that expenditure does not exceed the annual budget allocated. I have undertaken this responsibility by seeking a range of assurances. In 2018-19, I was primarily informed by:

- my attendance at ARC and review of its minutes, papers and annual report to the Board

- work undertaken by the National Audit Office

- the work of internal audit who have completed an agreed, comprehensive range of assessments. The head of internal audit provided an opinion on the overall arrangements for assurance and on the controls reviewed and concluded on a Moderate rating

- monitoring of regularly reviewed audit and gateway actions

- the assurance framework itself, which provided evidence on the effectiveness and maintenance of internal controls that manage the risks to the organisation. To support this assessment, each directorate produced a self-assessment control and assurance statement and assurance maps highlighting areas for improvement

- clear performance management arrangements for executive directors and senior managers

- the effectiveness of the system of internal control provided by the Board, Information Assurance and Cyber Security Committee and ARC and I am accordingly aware of any significant issues that have been raised

Significant internal control issues

The past year has been challenging, with an acceleration of the technology transformation programme, increasing external risks to our technology services and continued internal transformation activities. I am confident that the level of governance, assurance and control has improved and that we are now progressing toward achieving the standards of control I expect from the organisation.

Issues we have dealt with in the year:

1. On 20 June 2018, we discovered an issue with the Patient Objection Management extracts from one of the system providers. The detailed issue is explained on page 125 but we consider we should have spotted the issue earlier and have included as a significant internal control issue.

2. During the year, we continued to improve our control processes for off-payroll workers and implemented a new approach, following a change in the main agency provider. HMRC continues to review our previous processes and is continuing to challenge our interpretation of the rules implemented within the public sector from April 2017. The position has not yet been fully resolved but we have made an accrual of £4.3 million, including penalties and interest, to meet expected liabilities.

Key areas of focus in the coming year are:

- ensuring the changes, following the organisation's restructure, minimise disruption to our services and programmes while refocussing our efforts in transitioning to the agreed new model for the organisation

- continuing to work closely with Department of Health and Social Care colleagues on the management of risks arising from the UK's exit from the European Union

- ensuring that NHS Digital's governance and internal controls integrate with those of NHSX

- managing the potential risks and issues arising from the UK's exit from the European Union in collaboration with other health and care bodies. These potential risks relate to the flow and hosting of data, impacts on the supply chain, organisational cost impacts and workforce recruitment and retention for which some actions have already commenced

The delivery of these priorities will be an immediate requirement of the newly established Assurance and Risk Directorate and will be supported by the appointment of a new director to lead the function.

I accept the observations by both the internal auditors and the National Audit Office and I believe them to be a fair and accurate view of the organisation. We will continue to embed rigorous and sound assurance as a priority for NHS Digital in 2019-20.

Statement of the Board and Chief Executive's responsibilities

Under the Health and Social Care Act 2012 and directions made thereunder by the Secretary of State with the approval of HM Treasury, we are required to prepare a Statement of Accounts for each financial year in the form and on the basis determined by the Secretary of State. The Accounts are prepared on an accruals basis and must give a true and fair view of our state of affairs and of our net resource outturn, application of resources, changes in taxpayers' equity and cashflows for the financial year.

In preparing the Accounts, the Board and Accounting Officer are required to comply with the requirements of the Government Financial Reporting Manual and, in particular, to:

- observe the accounts direction issued by the Secretary of State for Health and Social Care, including the relevant accounting and disclosure requirements, and apply suitable accounting policies on a consistent basis

- make judgements and estimates on a reasonable basis

- state whether applicable accounting standards, as set out in the Government Financial Reporting Manual, have been followed and disclosed and explain any material departures in the financial statements

- prepare the financial statements on a going concern basis, unless it is inappropriate to presume that NHS Digital will continue in operation

The Accounting Officer for the Department of Health and Social Care has appointed our Chief Executive as the Accounting Officer who has responsibility for preparing our accounts and transmitting them to the Comptroller and Auditor General. Specific responsibilities include the propriety and regularity of the public finances for which the Accounting Officer is answerable, for keeping proper records and for safeguarding our assets, as set out in 'Managing Public Money' published by the HM Treasury. As Accounting Officer I am able to confirm that:

- as far as I am aware, there is no relevant audit information of which the auditors are unaware

- I have made myself aware of any relevant audit information and established that the entity's auditors are aware of that information

- the Annual Report and Accounts as a whole are fair, balanced and understandable

- I take personal responsibility for the Annual Report and Accounts and the judgment required for determining that they are fair, balanced and understandable

Sarah Wilkinson
Chief Executive
26 June 2019

The certificate and report of the Comptroller and Auditor General to the Houses of Parliament

Opinion on financial statements

I certify that I have audited the financial statements of the Health and Social Care Information Centre for the year ended 31 March 2019 under the Health and Social Care Act 2012. The financial statements comprise: the statements of comprehensive net expenditure, financial position, cash flows, changes in taxpayers' equity; and the related notes, including the significant accounting policies. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information in the accountability report that is described in that report as having been audited.

In my opinion:

- the financial statements give a true and fair view of the state of the Health and Social Care Information Centre's affairs as at 31 March 2019 and of net expenditure for the year then ended; and

- the financial statements have been properly prepared in accordance with the Health and Social Care Act 2012 and Secretary of State directions issued thereunder

Opinion on regularity

In my opinion, in all material respects the income and expenditure recorded in the financial statements have been applied to the purposes intended by Parliament and the financial transactions recorded in the financial statements conform to the authorities which govern them.

Basis of opinions

I conducted my audit in accordance with International Standards on Auditing (ISAs) (UK) and Practice Note 10 'Audit of Financial Statements of Public Sector Entities in the United Kingdom'. My responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of my certificate.

Those standards require me and my staff to comply with the Financial Reporting Council's Revised Ethical Standard 2016. I am independent of the Health and Social Care Information Centre in accordance with the ethical requirements that are relevant to my audit and the financial statements in the UK. My staff and I have fulfilled our other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Conclusions relating to going concern

I am required to conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Health and Social Care Information Centre's ability to continue as a going concern for a period of at least twelve months from the date of approval of the financial statements If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern. I have nothing to report in these respects.

Responsibilities of the Board and Accounting Officer for the financial statements

As explained more fully in the statement of Accounting Officer's responsibilities, the Board and the Accounting Officer are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view.

Auditor's responsibilities for the audit of the financial statements

My responsibility is to audit, certify and report on the financial statements in accordance with the Health and Social Care Act 2012.

An audit involves obtaining evidence about the amounts and disclosures in the financial statements sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs (UK), I exercise professional judgment and maintain professional scepticism throughout the audit.

I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control

- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Health and Social Care Information Centre's internal control

- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management

- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

In addition, I am required to obtain evidence sufficient to give reasonable assurance that the income and expenditure reported in the financial statements have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

Other information

The Board and the Accounting Officer are responsible for the other information. The other information comprises information included in the annual report, other than the parts of the accountability report described in that report as having been audited, the financial statements and my auditor's report thereon. My opinion on the financial statements does not cover the other information and I do not express any form of assurance conclusion thereon. In connection with my audit of the financial statements, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or my knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact. I have nothing to report in this regard.

Opinion on other matters

In my opinion:

- the parts of the accountability report to be audited have been properly prepared in accordance with Secretary of State directions made under the Health and Social Care Act 2012;

- in the light of the knowledge and understanding of the Health and Social Care Information Centre and its environment obtained in the course of the audit, I have not identified any material misstatements in the Performance report or the Accountability report; and

- the information given in e.g. Performance report and Accountability report for the financial year for which the financial statements are prepared is consistent with the financial statements

Matters on which I report by exception

I have nothing to report in respect of the following matters which I report to you if, in my opinion:

- adequate accounting records have not been kept or returns adequate for my audit have not been received from branches not visited by my staff; or

- the financial statements and the parts of the Accountability report to be audited are not in agreement with the accounting records and returns; or

- I have not received all of the information and explanations I require for my audit; or

- the governance statement does not reflect compliance with HM Treasury's guidance

Report

I have no observations to make on these financial statements.

Gareth Davies
Comptroller and Auditor General
1 July 2019
National Audit Office
157-197 Buckingham Palace Road
Victoria
London
SW1W 9SP

Statement of comprehensive net expenditure for the year ended 31 March 2019

	Note	2018-19 £000	Represented 2017-18 £000
Expenditure			
Staff costs	3	177,798	164,331
Termination benefits	3	11,165	659
Operating expenditure	5	218,031	179,709
Depreciation and amortisation	5	33,705	32,756
Impairment of property, plant and equipment	5	-	56
Loss on disposal of non-current assets	5	217	624
Total expenditure		**440,916**	**378,135**
Less income	4	(33,583)	(35,245)
Net operating expenditure for the financial year		**407,333**	**342,890**
Net expenditure for the financial year		**407,333**	**342,890**

Details of the representation can be found on note 3.

All income and expenditure derives from continuing operations.

Notes 1 to 20 form part of these financial statements.

Statement of financial position at 31 March 2019

	Note	31 March 2019 £000	31 March 2018 £000
Non-current assets			
Property plant and equipment	6	24,101	28,252
Intangible assets	7	136,140	89,445
Other non-current receivables	8	6,103	3,045
Total non-current assets		**166,344**	**120,742**
Current assets			
Trade and other receivables	9	25,096	31,149
Cash and cash equivalents	10	21,204	23,929
Total current assets		**46,300**	**55,078**
Total assets		**212,644**	**175,820**
Current liabilities			
Trade and other payables	11	(61,934)	(42,376)
Provisions	12	(1,543)	(64)
Total current liabilities		**(63,477)**	**(42,440)**
Total assets less current liabilities		**149,167**	**133,380**
Non-current liabilities			
Provisions	12	(3,666)	(2,546)
Total assets less total liabilities		**145,501**	**130,834**
Taxpayers' equity and other reserves			
General reserve		145,501	130,834
Total taxpayers' equity and other reserves		**145,501**	**130,834**

Notes 1 to 20 form part of these financial statements.

The financial statements on pages 132 to 163 were approved by the Board on 5 June 2019 and signed on its behalf by:

Sarah Wilkinson,
Chief Executive
26 June 2019

Statement of cash flows for the year ended 31 March 2019

	Note	2018-19 £000	2017-18 £000
Cash flows from operating activities			
Net operating expenditure for the financial year		(407,333)	(342,890)
Adjustment for non-cash transactions:			
- depreciation and amortisation	5	33,705	32,756
- impairments of property, plant and equipment	5	-	56
- loss on disposal of non-current assets	5	217	624
- provisions arising during the year	12	2,784	548
- provisions reversed unused	12	(158)	-
(Increase) / decrease in non-current receivables	8	(3,058)	1,190
Decrease in trade and other receivables	9	6,053	2,777
Increase in trade and other payables	11	19,558	11,553
Decrease / (increase) in capital accruals		1,133	(2,749)
Provisions utilised	12	(27)	(26)
Net cash outflow from operating activities		**(347,126)**	**(296,161)**
Cash flows from investing activities			
Purchase of property, plant and equipment		(5,620)	(15,054)
Purchase of intangible assets		(71,979)	(46,290)
Net cash outflow from investing activities		**(77,599)**	**(61,344)**
Cash flows from financing activities			
Grant in aid from the Department of Health and Social Care: cash drawn down in the year		422,000	366,000
Net financing		**422,000**	**366,000**
Net (decrease) / increase in cash in the period	10	**(2,725)**	**8,495**
Cash and cash equivalents at the beginning of the period	10	23,929	15,434
Cash and cash equivalents at the end of the period	10	21,204	23,929
Net (decrease) / increase in cash in the period	10	**(2,725)**	**8,495**

All cash flows relate to continuing activities.

Statement of changes in taxpayers' equity for the year ended 31 March 2019

	General reserve £000
Balance at 31 March 2017	**107,724**
Changes in taxpayers' equity	
Net expenditure for the financial year	(342,890)
Total recognised income and expense	**(342,890)**
Grant in aid from the Department of Health and Social Care: cash drawn down in the year	366,000
Total grant-in-aid funding	**366,000**
Balance at 31 March 2018	**130,834**
Balance at 31 March 2018	**130,834**
Changes in taxpayers' equity	
Net expenditure for the financial year	(407,333)
Total recognised income and expense	**(407,333)**
Grant in aid from the Department of Health and Social Care: cash drawn down in the year	422,000
Total grant-in-aid funding	**422,000**
Balance at 31 March 2019	**145,501**

Notes to the accounts

Note 1

1.1 General information

The Health and Social Care Information Centre (NHS Digital) is an executive non-departmental government body established under the Health and Social Care Act 2012. The address of its registered office and principal place of business are disclosed in the introduction to the annual report. The principal activities of NHS Digital are to improve health and care by providing national information, data and IT services for patients, clinicians, commissioners and researchers. It is accountable to the Secretary of State for Health and Social Care for discharging its functions, duties and powers effectively, efficiently and economically. The Department of Health and Social Care actively undertakes this role on his behalf on a day-to-day basis.

1.2 Basis of accounting

The financial statements have been prepared in accordance with the 2018-19 Government Financial Reporting Manual (FReM) issued by HM Treasury as interpreted for the health sector in the Department of Health and Social Care Group Accounting Manual (GAM). The accounting policies contained in the FReM apply International Financial Reporting Standards (IFRS) as adopted and interpreted for the public sector context. Where the FReM permits a choice of accounting policy, the accounting policy which is judged to be most appropriate to the particular circumstances for the purpose of giving a true and fair view has been selected. The particular policies adopted by NHS Digital are described below. They have been applied consistently in dealing with items that are considered material to the accounts.

These accounts have been prepared under the historical cost convention, modified to account for the revaluation of tangible fixed assets. This is in accordance with directions issued by the Secretary of State for Health and Social Care and approved by HM Treasury.

The presentational currency is pounds sterling and, unless otherwise stated, the accounts have been prepared to the nearest pounds thousands (£000).

No accounting standard changes were adopted early in 2018-19.

The FReM does not require the following standards and interpretations to be applied in 2018-19:

- **IFRS 16 Leases**
  Implementation for those entities that follow the FReM has been deferred for 2019-20. Adoption will take place in 2020-21. NHS Digital currently has total future commitments under operating leases of £113 million, which IFRS 16 would require to be recognised on the statement of financial position as right of use assets with corresponding lease liabilities. NHS Digital is assessing the extent to which services other than those currently identified as containing a lease per IAS 17 and IFRIC 4 may be identified as a right of use asset under the revised recognition criteria. The finalisation of the public sector interpretations and adaptations for IFRS 16 will enable conclusion of the assessment. If IFRS 16 had applied in 2018-19, the impact would have been to bring commitments under operating leases of approximately £16 million on to the statement of financial position as right of use assets, with a corresponding lease liability

- **IFRS 17 Insurance Contracts**
  Effective for accounting periods beginning on or after 1 January 2021, but not yet adopted by the 2018-19 FReM. The application of IFRS 17 would not have a material impact on the accounts for 2018-19, had it been applied in the year

1.3 Income

Income is recognised to the extent that it is probable that the economic benefits will flow to NHS Digital and the income can be reliably measured.

The main source of funding is a parliamentary grant from the Department of Health and Social Care within an approved cash limit, which is credited to the general reserve. The grant is recognised in the financial period in which it is received.

In line with IFRS 15, contract income is not recognised until a signed agreement is in place; in previous years, income may have been recognised from the point at which work commenced. The impact of this change was that £3.5 million of income was not recognised in the year as the probability of payment was not certain at the balance sheet date. This income may have been recognised had the accounting standards and policies of the prior year still applied, and this would have resulted in higher income reported in the statement of comprehensive net expenditure, and correspondingly higher contract receivables not yet invoiced in the statement of financial position. At the date the accounts were signed by the Accounting Officer, only £0.05 million of this income had been invoiced.

Income is recognised in proportion to the fulfillment of the performance obligations set out in the agreement. Some performance obligations may be fulfilled by third parties under contract. Performance obligations are satisfied: as data, reports and analysis are supplied; or by the passage of time as the service is delivered; or as time and material costs are incurred; or by the fulfillment of specific milestones. Where recognition is based on time and materials incurred or achievement of milestones, income is recognised as progress and / or costs incurred are agreed with the customer, either by correspondence or at project and programme board meetings.

The practical expedient in IFRS 15.121 has not been applied. All consideration for contracts is received in the form of cash. Warranties are not offered in relation to services provided, and hence refunds and returns do not apply. There are no assets recognised from the costs incurred to obtain or fulfil a contract with a customer.

Non-contract income is recognised when it has been invoiced, and relates to smaller income streams.

All prices are based on full cost recovery.

Contract liabilities refer to income received in the year for which the related costs have not yet been incurred.

1.4 Administration, programme and annually managed expenditure

The analysis of income and expenditure for non-departmental public bodies between administration and programme is only required to be consistent with returns made for the purposes of the Department of Health and Social Care Group consolidation. The net operating expenditure for the financial year in the consolidation return, submitted to the Department of Health and Social Care, was split between net administration expenditure of £122.6 million and net programme expendifure of £282.1 million.The difference between the total of the administration and programme expenditure and the net operating expenditure for the year reported in the statement of comprehensive net expenditure is attributable to expenditure falling under the annually managed expenditure heading, which relates to the creation and usage of provisions and certain impairments.

1.5 Taxation

NHS Digital is not liable to pay corporation tax. Income is shown net of VAT, and expenditure is shown net of recoverable VAT. Irrecoverable VAT is charged to the most appropriate expenditure heading or capitalised if it relates to a non-current asset.

1.6 Losses and special payments

Losses and special payments are items that Parliament would not have contemplated when it agreed funds for the health service or passed legislation. By their nature they are items that ideally should not arise. They are therefore subject to special control procedures compared with the generality of payments. They are divided into different categories, which govern the way each individual case is handled.

Losses and special payments are charged to the relevant functional headings in the statement of comprehensive net expenditure.

1.7 Employee benefits

Salaries, wages and employment-related payments are recognised in the period in which the service is received from employees. The cost of leave earned but not taken by employees at the end of the period is recognised in the financial statements to the extent that employees are permitted to carry forward leave into the following period.

1.8 Non-current assets

A. Capitalisation

All assets falling into the following categories are capitalised:

1) intangible assets include software development expenditure and the purchase of computer software licences, where they are capable of being used for more than one year and:

- individually have a cost equal to or greater than £5,000; or

- collectively have a cost of at least £5,000 and, the assets are functionally interdependent, they had broadly simultaneous purchase dates, are anticipated to have simultaneous disposal dates and are under single managerial control

Development expenditure is transferred to other categories of non-current assets when the development is sufficiently complete to enable the asset as a whole to be fully deployed and effective for the management's intended purpose.

2) tangible assets which are capable of being used for more than one year, and:

- individually have a cost equal to or greater than £5,000; or

- collectively have a cost of at least £5,000 and, the assets are functionally interdependent, they had broadly simultaneous purchase dates, are anticipated to have simultaneous disposal dates and are under single managerial control; or

- form part of the initial equipping and setup cost of a new asset irrespective of their individual cost

Internally generated assets are recognised if, and only if, all of the following have been demonstrated:

- the technical feasibility of completing the intangible asset so that it will be available for use

- the intention to complete the intangible asset and use it

- the ability to use the intangible asset

- how the intangible asset will generate probable future economic benefits

- the availability of adequate technical, financial and other resources to complete the intangible asset and use it

- the ability to measure reliably the expenditure attributable to the intangible asset during its development

Expenditure on research activities and project management costs are recognised as an expense in the period in which it is incurred.

B. Carrying gross cost

Non-current assets are initially recognised at cost, including expenditure such as installation directly attributable to bringing them into working condition. Subsequently, non-current assets are held at current value in existing use. Any increase in value is credited to the revaluation reserve, except to the extent that it reverses a revaluation decrease for the same asset previously recognised as an expense. In such a case the increase is credited to the statement of comprehensive net expenditure to the extent of the decrease previously expensed. A decrease in carrying amount arising on the restatement in value of the asset is charged as an expense to the extent that it exceeds the balance, if any, held in the revaluation reserve relating to a previous revaluation of that asset.

Assets are assessed either using appropriate indices provided by the Office for National Statistics or, in the case of internal software developments, by considering the inflation rates of staff and other resources and other potential efficiency factors. The current value in existing use at March 2019 was not materially different to the original historic cost and thus no adjustment has been incorporated, except for land and buildings which are subject to a professional valuation. The carrying values of all assets are reviewed for impairment if events or changes in circumstances indicate the carrying value may not be appropriate.

C. Depreciation

Development expenditure is not depreciated until such time as the asset is available for use. Otherwise, depreciation and amortisation is charged on a straight-line basis to write off the costs or valuation of tangible and intangible non-current assets, less any residual value, over their estimated useful lives as follows:

1) intangible software development assets are amortised, on a straight-line basis, over the estimated life of the asset or 10 years, whichever is less. The asset lives are reviewed on an annual basis considering the degree of evolution of the asset and what plans, if any, are being made for its replacement

2) purchased computer software licences are amortised over the term of the licence or five years, whichever is less

3) property, plant and equipment is depreciated on a straight-line basis over its expected useful life as follows:

- buildings 27 years

- fixtures and fittings 1 - 12 years

- office, information technology, short life equipment 1 - 5 years

The estimated useful lives and residual values are reviewed annually

1.9 Research and development

Expenditure incurred on pure and applied research is treated as an operating charge in the year in which it is incurred. Development expenditure is for the development of specific business systems. Expenditure which does not meet the criteria for capitalisation is treated as an operating cost in the year in which it is incurred. Development expenditure meeting the criteria for capitalisation is treated as an intangible asset under construction until such time as the asset is brought into use.

1.10 Leases

Leases are classified as finance leases when substantially all the risks and rewards of ownership are transferred to the lessee. All other leases are classified as operating leases.

Amounts held under finance leases are initially recognised, at the inception of the lease, at fair value or, if lower, at the present value of the minimum lease payments, with a matching liability for the lease obligation to the lessor. Lease payments are apportioned between finance charges and reduction of the lease obligation so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are charged directly to the statement of comprehensive net expenditure.

Operating lease payments are recognised as an expense on a straight-line basis over the lease term. Lease incentives are recognised initially as a liability and subsequently as a reduction of rentals on a straight-line basis over the lease term.

Contingent rentals are recognised as an expense in the period in which they are incurred.

1.11 Provisions

Provisions are recognised when a present obligation exists as a result of a past event, and it is probable that NHS Digital will be required to settle that obligation. Provisions are measured at the directors' best estimate of the expenditure required to settle the obligation at the reporting date, and are discounted to present value where the effect is material.

1.12 Contingent liabilities

In addition to contingent liabilities disclosed in accordance with IAS 37, NHS Digital discloses for parliamentary reporting and accountability purposes certain statutory and non-statutory contingent liabilities where the likelihood of a transfer of economic benefit is remote, but which have been reported to Parliament in accordance with the requirements of the GAM. Where the time value of money is material, contingent liabilities that are required to be disclosed under IAS 37 are stated at discounted amounts and the amount reported to Parliament separately noted. Contingent liabilities that are not required to be disclosed by IAS 37 are stated at the amounts reported to Parliament.

1.13 Pensions

Past and present employees are covered by a number of pension schemes including the NHS Pension Scheme and the Principal Civil Service Pension Scheme. These schemes are unfunded, defined benefit schemes. They are not designed to be run in a way that would enable NHS bodies to identify their share of the underlying scheme's assets and liabilities. Therefore, the schemes are accounted for as if they were defined contribution schemes, with the cost to the body participating in the scheme taken as equal to the contributions payable to the scheme for the accounting period.

Early retirements, other than those due to ill health, are not funded by the schemes. The full amount of the liability for the additional costs is charged to expenditure at the time the retirement agreement is committed, regardless of the method of payment.

1.14 Critical accounting judgements and key sources of estimation uncertainty

In the application of the accounting policies, the directors are required to make judgements, estimates and assumptions about the carrying value of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

The following are the critical judgements and estimations that the directors have made in the process of applying the accounting policies and that have the most significant effect on the amounts recognised in financial statements:

- **revenue recognition**
  NHS Digital receives income from various sources to cover the cost of expenditure on project related and other activities. Expenditure is regularly incurred over several financial years and income is released to the statement of comprehensive net expenditure in order to reflect the completion of performance obligations

- **dilapidation provision**
  NHS Digital has provided £3.3 million in respect of anticipated dilapidation costs of its leased accommodation across its estate where required. Management has used external property advisors to assess likely liabilities at the end of the leases

- **termination benefits provision**
  NHS Digital is undertaking a significant internal restructure to meet the future expectations of the organisation. This restructure is split into three waves and the first wave is nearing completion. Costs of £11.2 million have been accounted for, of which £4.9 million has been accrued, and a further £1.3 million is included in provisions in respect of specific employees who have been notified as at risk but have not received formal notice. These calculations are based on specific individual quotes for assumed departure dates

- **employment taxes**
  Liabilities have been indentified for several employment-related taxes, which have been included in accruals. This includes £4.3 million for IR35 and £0.7 million for employees' home-to-work travel. The calculations follow HMRC methodology, but have yet to be finalised

- **developed systems**
  NHS Digital manages a suite of national infrastructure systems as well as a number of large internal data collection systems and databases. Much of the development of such systems is undertaken in-house and a detailed assessment is required to determine the level of capitalisation of such work. In addition, management undertakes an annual review of the likely asset life, over which these systems should be amortised

- **valuation of non-current assets**
  NHS Digital uses a mixture of appropriate Office for National Statistics indices and estimates or other inflation factors to assess the value of non-current assets. The difference in the calculated value to the historical cost is not material, and has therefore not been adjusted

1.15 Business and geographical segments
NHS Digital has adopted IFRS 8 Operating Segments. IFRS 8 requires operating segments to be identified on the basis of internal reports about components of the business that are regularly reviewed by the Chief Executive, to allocate resources to the segments and to assess their performance.

1.16 Cash and cash equivalents
Cash is cash-in-hand and deposits with any financial institution repayable without penalty on notice of not more than 24 hours. Cash equivalents are investments that mature in 3 months or less from the date of acquisition and that are readily convertible to known amounts of cash with insignificant risk of change in value.

1.17 Financial instruments
NHS Digital has adopted IFRS 9 Financial Instruments in line with the FReM. This has not had a material impact. NHS Digital operates largely in a non-trading environment and the majority of its income is from other government or NHS bodies. Consequently NHS Digital is not exposed to the significant degree of financial risk that is faced by most other business entities. NHS Digital has no borrowings and relies largely on grant in aid from the Department of Health and Social Care for its cash requirements. NHS Digital is therefore not exposed to liquidity risks. All cash balances are held within the Government Banking Service and all material assets and liabilities are denominated in sterling, so it is not exposed to interest rate or material currency risks.

Financial assets are recognised on the statement of financial position when NHS Digital becomes party to the financial instrument contract or, in the case of trade receivables, when the goods or services have been delivered. Financial assets are derecognised when the contractual rights have expired or the asset has been transferred. NHS Digital has no financial assets other than trade receivables. Trade receivables do not carry any interest and are stated at their nominal value, less any provision for expected credit losses.

Financial liabilities are recognised on the statement of financial position when NHS Digital becomes party to the contractual provisions of the financial instrument or, in the case of trade payables, when the goods or services have been received. Financial liabilities are derecognised when the liability has been discharged, that is, the liability has been paid or has expired. NHS Digital has no financial liabilities other than trade payables. Trade payables are not interest bearing and are stated at their nominal value.

1.18 Going concern

The NHS Digital financial statements have been produced on a going concern basis. Confirmation has been received of the main grant in aid budget allocation for the 2019-20 financial year in line with the business plan submitted, and funding flows have already commenced.

Note 2

Statement of operating costs by activity

IFRS 8 requires operating segments to be identified on the basis of internal reports that are regularly reviewed by the Chief Executive.

The NHS Digital Board monitors the performance and resources of the organisation by directorate. The statement of financial position is reported internally as a single segment. Accordingly, no segmental analysis of assets and liabilities is reported.

For the year ended 31 March 2019

£000	Assurance and Risk Management	Corporate Services	Data, Insights and Statistics	Live Services and Cyber Security
Income	(453)	(407)	(12,491)	(342)
Staff costs	11,610	20,301	36,135	19,118
Professional fees	346	2,251	8,326	4,610
Information technology	53	994	6,669	16,886
Accommodation	14	10,024	167	146
Travel and subsistence	165	1,619	616	340
Marketing, training and events	21	3,052	100	726
Office services	1	1,790	39	10
Other	2	516	60	69
Loss on disposal of non-current assets	-	45	-	-
Depreciation / amortisation	58	884	3,790	178
Reallocation of central costs	3,496	(41,069)	14,275	6,914
Non-staff costs	**4,156**	**(19,894)**	**34,042**	**29,879**
Net expenditure	**15,313**	**-**	**57,686**	**48,655**

The reallocation of central costs attributes central overheads to programmes and services. The composition of directorates has changed during the year, and the figures for 2017-18 are not directly comparable.

Platforms and Infrastructure	Product Development	Strategy, Policy and Governance	Total
(2,591)	(16,926)	(373)	**(33,583)**
43,895	49,785	8,119	**188,963**
25,563	21,224	3,240	**65,560**
82,111	19,846	204	**126,763**
707	457	58	**11,573**
642	2,153	249	**5,784**
122	233	405	**4,659**
235	285	118	**2,478**
385	166	16	**1,214**
96	76	-	**217**
17,940	10,490	365	**33,705**
(6,220)	20,479	2,125	**-**
121,581	**75,409**	**6,780**	**251,953**
162,885	**108,268**	**14,526**	**407,333**

Assurance and Risk Management
Provides independent assurance that strategic and delivery risks are being managed appropriately and in line with our approach to risk across live services, change programmes and corporate functions. Provides oversight to ensure compliance with standards and accurate and timely information, intelligence, analysis, and insight to enable robust decision-making.

Corporate Services
The centre of expertise and management for financial, commercial, people and workforce functions. Is delivering the Org 2 transformation programme, which is reshaping the way NHS Digital organises itself, develops its capabilities and supports the work of its programmes.

Data, Insights and Statistics
As the data custodian for the health and care system, has primary responsibility for improving data quality and our ability to link data, transforming our data architecture and platforms and providing independent and reliable statistics to guide policy and research. All work is guided by an absolute respect for data privacy and a commitment to empowering healthcare research and the UK life sciences sector.

For the year ended 31 March 2018

£000	Care Services	Data and Integration	Digital Transformation and Engagement	Finance and Corporate Services
Income	(1,067)	(9,960)	(3,280)	(611)
Staff costs	10,505	33,025	29,661	14,516
Professional fees	2,615	10,954	17,734	2,076
Information technology	723	3,600	63,106	548
Accommodation	52	79	210	10,745
Travel and subsistence	342	761	1,717	598
Marketing, training and events	97	164	1,256	89
Office services	12	109	211	1,439
Other	1	2	12	225
Depreciation / amortisation	1	2,412	102	1,009
Reallocation of central costs	3,076	11,610	10,920	(30,634)
Non-staff costs	**6,919**	**29,691**	**95,268**	**(13,905)**
Net expenditure	**16,357**	**52,756**	**121,649**	**-**

Live Services and Cyber Security
Responsible for the reliable performance and secure operation of all of the live systems and services that we operate for the health and care system. Includes the Information Technology Operations Centre and the Cyber Security Operations Centre.

Platforms and Infrastructure
Provides the core infrastructure and platforms that connect digital service providers across the health and care system and delivers platforms to support NHS Digital's data management and product development.

Product Development
Designs and delivers new applications and services commissioned by NHS England, NHS Improvement, Public Health England and other arm's-length bodies to help citizens, patients and clinicians across primary, secondary and social care. Works with the external healthcare market and fosters digital knowledge and capabilities across the system.

Strategy, Policy and Governance
Defines our strategic direction based on the needs of our clients and evolving political, technical, government and market environments. Liaises with the department of health and social care, third parties and internal teams to ensure coherent and clear policies and governance. Provides clinical and information governance, guidance and oversight.

Implementation and Programmes	Operations and Assurance Services	Provider Digitisation and Programmes	Workforce	Total
(109)	(12,267)	(7,951)	-	**(35,245)**
15,573	36,372	18,255	7,083	**164,990**
1,376	5,634	4,024	308	**44,721**
12,435	28,565	3,246	7	**112,230**
80	104	57	102	**11,429**
933	735	588	201	**5,875**
265	587	149	236	**2,843**
13	259	2	227	**2,272**
5	9	1	84	**339**
4,759	20,311	4,842	-	**33,436**
5,248	(6,910)	5,860	830	**-**
25,114	**49,294**	**18,769**	**1,995**	**213,145**
40,578	**73,399**	**29,073**	**9,078**	**342,890**

Note 3

Staff costs

	2018-19 £000	Represented 2017-18 £000
Staff costs comprise:		
Permanent staff		
Salaries and wages	142,608	134,803
Social security costs	16,417	14,788
Apprenticeship levy	681	657
Employer superannuation contributions - NHS Pension Scheme	17,778	17,192
Employer superannuation contributions - other	439	447
Staff seconded to other organisations	1,159	1,331
Capitalised employed staff costs	(16,669)	(16,180)
	162,413	**153,038**
Other staff		
Temporary staff	5,049	2,388
Contractors	10,551	9,573
Staff seconded from other organisations	693	1,147
Capitalised other staff costs	(908)	(1,815)
	15,385	**11,293**
Staff costs	**177,798**	**164,331**
Termination benefits	**11,165**	**659**
Total staff costs including termination benefits	**188,963**	**164,990**

The 2017-18 disclosure has been represented to separate capitalised costs between permanent staff and all other staff, and to create a new subheading for termination benefits. There has been no change to overall costs.

Note 4

Income

	2018-19 £000	Represented 2017-18 £000
Income analysed by classification and activity is as follows:		
Contract income		
Programme and project management	5,428	6,082
Service delivery	23,000	22,953
Surveys and data collection	1,099	2,205
Fees and charges	2,229	2,235
	31,756	**33,475**
Non-contract income		
Service delivery	401	213
Surveys and data collection	2	6
Non-trading income	1,371	1,551
Apprenticeship levy utilisation	53	-
	1,827	**1,770**
	33,583	**35,245**

Following the adoption of IFRS 15, the 2017-18 income has been reanalysed between contract and non-contract. There was no change to the 2017-18 income in total.

Income from programme and project management relates to workstreams primarily for the Department of Health and Social Care, NHS England and Public Health England, together with staff time recharged to the Department of Health and Social Care national programmes.

Income from service delivery covers a range of data management, system support and hosting, training and helpdesk services.

Income from surveys and data collection refers to undertaking health surveys and other data-collection activities.

Fees and charges relate to data services and are detailed on page 81.

£502,928 of income was included in contract liabilities at 31 March 2018 and has been recognised in full in 2018-19.

£927,030 of the income recognised in 2017-18 was uninvoiced accrued income; during 2018-19 the actual sum invoiced in respect of these accruals was £1,011,111.

Payment terms are 14 days for all income types.

Contract income expected to be recognised in future periods, related to contract performance obligations, not yet completed at the reporting date:

	Contract income not yet invoiced £000	Contract income invoiced and deferred £000	Total £000
Not later than one year	2,788	487	**3,275**
Between one and five years	842	103	**945**
Later than five years	-	-	-
	3,630	**590**	**4,220**

Note 5

Expenditure

	2018-19 £000	2017-18 £000
Expenditure		
Workpackages and professional fees	59,327	36,978
Data collection and surveys	4,478	5,831
Legal fees	1,429	1,613
Chair and non-executive directors' emoluments	122	131
Marketing, training and events	4,447	2,590
Travel	5,784	5,875
Premises and establishment	12,050	11,505
IT maintenance and support	27,332	31,091
IT managed services	99,431	81,139
General office supplies and services	1,968	2,026
Communications	437	419
Insurance	167	205
External audit fees	115	115
Internal audit fees	211	184
Apprenticeship levy training	53	-
Expected credit loss on contract receivables	2	-
Expected credit loss on non-contract receivables	3	-
Other	675	7
Operating expenditure	**218,031**	**179,709**
Depreciation - property, plant and equipment	8,500	8,543
Amortisation - intangible assets	25,205	24,213
Impairments - property, plant and equipment	-	56
Loss on disposal of non-current assets	217	624
Non-cash transactions	**33,922**	**33,436**
Total expenditure	**251,953**	**213,145**

Note 6

Non-current assets – property, plant and equipment

2018-19	Land £000	Buildings £000	Computer hardware £000	Fixtures and fittings £000	Total £000
Cost or valuation					
At 1 April 2018	310	1,170	48,339	9,922	**59,741**
Additions	-	-	2,442	2,519	**4,961**
Reclassification	-	-	(469)	-	**(469)**
Disposals	-	-	(4,079)	(1,797)	**(5,876)**
At 31 March 2019	**310**	**1,170**	**46,233**	**10,644**	**58,357**
Depreciation					
At 1 April 2018	-	435	25,600	5,454	**31,489**
Provided during the year	-	42	7,624	834	**8,500**
Reclassification	-	-	(8)	-	**(8)**
Disposals	-	-	(3,960)	(1,765)	**(5,725)**
At 31 March 2019	**-**	**477**	**29,256**	**4,523**	**34,256**
Net book value at 1 April 2018	310	735	22,739	4,468	28,252
Net book value at 31 March 2019	**310**	**693**	**16,977**	**6,121**	**24,101**

The total depreciation charged in the statement of comprehensive net expenditure, in respect of assets held under finance leases and hire purchase contracts, was £nil.

The gross cost of property, plant and equipment that has been fully depreciated but is still in use is £14,850,382.

The freehold building was independently valued in March 2019 at existing use by the local District Valuation Office. The valuation was materially the same as the carrying value and therefore no adjustment has been made.

All tangible assets are owned by NHS Digital.

2017-18	Land £000	Buildings £000	Computer hardware £000	Fixtures and fittings £000	Total £000
Cost or valuation					
At 1 April 2017	310	1,170	38,803	8,783	**49,066**
Additions	-	-	13,792	1,139	**14,931**
Disposals	-	-	(4,256)	-	**(4,256)**
At 31 March 2018	**310**	**1,170**	**48,339**	**9,922**	**59,741**
Depreciation					
At 1 April 2017	-	393	21,828	4,516	**26,737**
Provided during the year	-	42	7,563	938	**8,543**
Impairments	-	-	56	-	**56**
Disposals	-	-	(3,847)	-	**(3,847)**
At 31 March 2018	**-**	**435**	**25,600**	**5,454**	**31,489**
Net book value at 1 April 2017	310	777	16,975	4,267	22,329
Net book value at 31 March 2018	**310**	**735**	**22,739**	**4,468**	**28,252**

The total depreciation charged in the statement of comprehensive net expenditure, in respect of assets held under finance leases and hire purchase contracts, was £nil.

The gross cost of property, plant and equipment that has been fully depreciated but is still in use is £14,277,505.

The freehold building was valued in March 2014 at existing use by the local Valuation Office. We consulted with the local Valuation Office in December 2016, who clarified that the market for this type of property has not materially changed since 2014, and a further valuation report has therefore not been commissioned.

All tangible assets are owned by NHS Digital.

Note 7

Non-current assets – intangible assets

2018-19	Software licences £000	Information technology £000	Development expenditure £000	Websites £000	Total £000
Cost or valuation					
At 1 April 2018	23,464	120,779	20,082	1,692	**166,017**
Additions	120	46,382	23,684	1,319	**71,505**
Reclassification	292	25,571	(25,394)	-	**469**
Disposals	(7,863)	(1,294)	-	-	**(9,157)**
At 31 March 2019	**16,013**	**191,438**	**18,372**	**3,011**	**228,834**
Amortisation					
At 1 April 2018	15,254	60,124	-	1,194	**76,572**
Provided during the year	2,991	21,955	-	259	**25,205**
Reclassification	8	-	-	-	**8**
Disposals	(7,769)	(1,322)	-	-	**(9,091)**
At 31 March 2019	**10,484**	**80,757**	**-**	**1,453**	**92,694**
Net book value at 1 April 2018	8,210	60,655	20,082	498	89,445
Net book value at 31 March 2019	**5,529**	**110,681**	**18,372**	**1,558**	**136,140**

The total amortisation charged in the statement of comprehensive net expenditure, in respect of assets held under finance leases and hire purchase agreements, was £nil.

The gross cost of intangible assets that were fully amortised but still in use is £28,697,110.

Internally generated assets have a carrying value at 31 March 2019 of £42,455,177 and the additions in the year amounted to £17,577,160. They are amortised in line with our amortisation policy, with the charge in year amounting to £8,279,527.

Research and development expenditure associated with intangible asset development has been recognised as an expense in Note 5 and is categorised by the nature of the spend incurred.

The value of own staff capitalised within intangible assets additions amounts to £17,577,160.

All intangible assets are owned by NHS Digital.

2017-18	Software licences £000	Information technology £000	Development expenditure £000	Websites £000	Total £000
Cost or valuation					
At 1 April 2017	23,386	152,686	3,222	1,165	**180,459**
Additions	4,831	24,292	19,514	527	**49,164**
Reclassification	-	2,654	(2,654)	-	**-**
Disposals	(4,753)	(58,853)	-	-	**(63,606)**
At 31 March 2018	**23,464**	**120,779**	**20,082**	**1,692**	**166,017**
Amortisation					
At 1 April 2017	16,902	97,681	-	1,165	**115,748**
Provided during the year	3,101	21,083	-	29	**24,213**
Disposals	(4,749)	(58,640)	-	-	**(63,389)**
At 31 March 2018	**15,254**	**60,124**	**-**	**1,194**	**76,572**
Net book value at 1 April 2017	6,484	55,005	3,222	-	64,711
Net book value at 31 March 2018	**8,210**	**60,655**	**20,082**	**498**	**89,445**

The total amortisation charged in the statement of comprehensive net expenditure, in respect of assets held under finance leases and hire purchase agreements, was £nil.

The gross cost of intangible assets that were fully amortised but still in use is £29,366,329.

Internally generated assets have a carrying value at 31 March 2018 of £32,654,395[1] and the additions in the year amounted to £17,995,504[1]. They are amortised in line with our amortisation policy, with the charge in year amounting to £7,724,427.

Research and development expenditure associated with intangible asset development has been recognised as an expense in Note 5 and is categorised by the nature of the spend incurred.

The value of own staff capitalised within intangible assets additions amounts to £17,995,504.

All intangible assets are owned by NHS Digital.

[1] figures have been restated as incorrectly stated in the 2017-18 accounts.

Note 8

Other non-current receivables

	31 March 2019 £000	31 March 2018 £000
Prepayments	6,103	3,045

Non-current prepayments relate to software licences and support, and extended hardware warranties.

Note 9

Trade and other receivables

Amounts falling due within one year	31 March 2019 £000	Represented 31 March 2018 £000
Contract receivables invoiced	6,372	11,587
Other receivables	276	408
Value added tax	6,271	4,588
Deposits and advances	16	16
Prepayments and other receivables	11,609	13,623
Contract receivables not yet invoiced	543	830
Other accrued income	9	97
	25,096	31,149

The reduction in contract receivables is due to improved partnership-working with key customers, leading to earlier agreement and payment.

Following the adoption of IFRS 15, trade receivables and accrued income have been reanalysed between contract and non-contract balances. There was no change to the 2017-18 receivables in total.

Note 10

Cash and cash equivalents

	31 March 2019 £000	31 March 2018 £000
Balance at 1 April 2018	23,929	15,434
Net changes in cash and cash equivalents	(2,725)	8,495
Balance at 31 March 2019	**21,204**	**23,929**

Bank balances were held during the year with the Royal Bank of Scotland under the Government Banking Service.

At 31 March 2018, £5,539,200 of the balance reported above was held in a solicitor's client account pending a contract completion. The contract subsequently did not complete, and the cash was returned to NHS Digital in April 2018.

Note 11

Trade and other payables

Amounts payable within one year	31 March 2019 £000	31 March 2018 £000
Trade and other payables	12,907	8,305
Income tax, national insurance and superannuation	7,607	6,834
Contract liabilities	590	503
Accruals	40,830	26,734
	61,934	**42,376**

Following the adoption of IFRS 15, 'deferred income' has been renamed as 'contract liabilities'.

Note 12

Provisions for liabilities and charges

	Dilapidations £000	Injury benefit £000	Termination benefits £000	Total £000
Balance at 1 April 2018	2,028	582	-	**2,610**
Arising during the year	1,400	94	1,290	**2,784**
Utilised during the year	-	(27)	-	**(27)**
Reversed unused	(158)	-	-	**(158)**
Balance at 31 March 2019	**3,270**	**649**	**1,290**	**5,209**

Expected timing of cash flows				
Within one year	226	27	1,290	1,543
One to five years	3,044	106	-	3,150
Over five years	-	516	-	516

The dilapidations provision refers to the anticipated costs for remedial works at the end of property leases, and is based on an assessment made by an external property advisor or an internal assessment using industry standard estimates. As part of the strategic review of our locations all dilapidations provisions were reassessed during the year. At Skipton House (London) we are a sub-tenant of the Department of Health and Social Care (DHSC); following discussions with the DHSC Estates Team a new provision of £780,000 has been made in respect of this building.

The injury benefit costs refer to an award where quarterly payments are made to the NHS Pension Scheme.

Termination benefits relate to the anticipated costs of redundancies where specific employees have been notified as at risk, but formal notice has not been provided.

Note 13

Capital commitments

Capital commitments amount to £2,224,626 (31 March 2018: £7,811,429). Of this £918,966 relates to ordered IT equipment and office furniture, and £1,305,660 relates to software licences and development work.

Note 14

Other financial commitments

NHS Digital has not entered into any non-cancellable contracts (which are not operating leases) for the provision of services as at 31 March 2019 (31 March 2018: £nil).

Note 15

Contingent assets and liabilities

Contingent liabilities amount to £26,000,000 (31 March 2018: £nil), and relate to the estimated termination benefits in relation to Waves 2 and 3 of the Org2 change programme. The anticipated cost for the liability has been derived from the Wave 1 outturn, but the future liability is dependent on the assessment process. The waves are expected to be completed by summer 2020, although this is contingent on the availability of funding.

Note 16

Commitments under operating leases

Expenditure includes the following in respect of operating leases:	2018-19 £000	2017-18 £000
Accommodation	4,955	5,000
Other operating leases	70	95
	5,025	**5,095**

At the reporting date non-cancellable operating lease commitments were:	31 March 2019 £000	31 March 2018 £000
Land and buildings		
Not later than one year	5,040	4,643
Between one and five years	20,989	11,232
Later than five years	86, 820	122
	112,849	**15,997**
Other leases		
Not later than one year	36	53
Between one and five years	29	38
Later than five years	-	-
	65	**91**
Total	**112,913**	**16,088**

During the financial year NHS Digital committed to occupy two floors of the new Leeds Government Hub from October 2020, on a 25-year term without break clauses, as a sub-tenant of HM Revenue and Customs. The Hub will bring together most Leeds-based staff into one building, enabling a phased exit from various existing buildings.

Note 17

Related parties

The Health and Social Care Information Centre, also known as NHS Digital, is an executive non-departmental public body created by the Health and Social Care Act 2012. It is sponsored by the Department of Health and Social Care (DHSC), and the Department together with its associated bodies are therefore regarded as related parties. During the year NHS Digital had the following transactions with DHSC group bodies: income £28.1 million and expenditure £8.2 million, and at 31 March 2018 had the following balances with DHSC group bodies: £6.3 million receivables and £3.4 million payables. The major customers within the group were the Department of Health and Social Care, NHS England and Public Health England. The majority of expenditure was in respect of transactions with the Department of Health and Social Care.

In addition, NHS Digital has had a number of transactions with other government departments and other central and local government bodies. In order to reduce the volume of detailed disclosures, IAS 24 does not require the disclosure of transactions between bodies under the control of the same government.

During the year, NHS Digital received invoices from Accenture (UK) Limited totalling £33,294,830 excluding VAT. The Chair and two non-executive directors of NHS Digital hold shares in Accenture (UK) Limited. £18,166,254 of this related to the NHSmail contract, which was novated from the Department of Health and Social Care to NHS Digital as part of the transfer of informatics programmes on 1 December 2016. No special terms and conditions were applicable to transactions with related parties, no guarantees or securities were accepted or given, all transactions were or will be settled in cash, and no provisions were made for doubtful debts in respect of these transactions. The bad debt expense in the year relating to related parties amounted to: £nil (2017-18: £nil).

	Related to roles within NHS Digital	Amounts payable at 31 March 2019 £000	Amounts receivable at 31 March 2019 £000	Income in 2018-19 £000	Expenditure in 2018-19 £000
Accenture (UK) Ltd	Non-executive directors	2,282	-	-	33,295
Chartered Institute of Internal Auditors	Non-executive director	-	-	-	1
Imperial College London	Chief Executive	-	33	64	11
Kings College London	Chief Executive	-	13	11	-
McKinsey & Company	Non-executive director	-	2	1	1,550
Royal College of Physicians	Chief Medical Officer	-	3	20	10
University of Oxford	Chief Executive	-	286	451	26
University of Portsmouth	Chief Medical Officer	-	-	-	1
University of Warwick	Non-executive directors	-	14	29	10
		2,282	**351**	**576**	**34,904**

No other related party transactions were noted with key management other than remuneration and expenses as disclosed in the remuneration report.

Note 18

Financial instruments

As the cash requirements of NHS Digital are met through grant in aid by the Department of Health and Social Care, and invoiced income largely received from the Department of Health and Social Care and its related bodies, financial instruments play a more limited role in creating and managing risk than would apply to a non-public sector body. The majority of financial instruments relate to contracts to buy non-financial items in line with NHS Digital's expected purchase and usage requirements, and NHS Digital is therefore exposed to little credit, liquidity or market risk:

a) market risk
NHS Digital was not exposed to material currency risk or commodity risk. All material assets and liabilities were denominated in sterling. NHS Digital had no significant interest bearing assets or borrowings subject to variable interest rates, hence income and cash flows were largely independent of changes in market interest rates.

b) credit risk
Credit risk arises from invoices raised to customers for services provided. Most high value receivables relate to balances with the Department of Health and Social Care and its related bodies against purchase orders and therefore do not represent a significant credit risk. NHS Digital had a comparatively small value of external receivables and therefore disclosure of the largest individual debt balances was not considered in the evaluation of overall credit risk.

Movement in the provision for expected credit losses	2018-19 £000	2017-18 £000
Balance at 1 April	1	2
Provided for in the year	6	1
Reversed unutilised	(1)	(1)
Amounts written-off during the year as uncollectible	-	(1)
Balance at 31 March	**6**	**1**

The provision for expected credit losses is assessed on an individual debt basis.

The table below shows the ageing analysis of trade receivables at the reporting date:

	Current £000	< 30 days overdue £000	31-60 days overdue £000	> 61 days overdue £000	Total £000
Balance at 31 March 2019	**2,479**	**3,130**	**739**	**300**	**6,648**
Balance at 31 March 2018	9,018	2,649	133	195	11,995

NHS Digital's standard payment terms are 14 days from date of invoice. The maximum exposure to credit risk at the reporting date is the fair value of each class of receivables mentioned above. NHS Digital did not hold any collateral as security.

c) liquidity risk

Liquidity risk is managed through regular cash flow forecasting. NHS Digital had no external borrowings and relies on grant in aid from the Department of Health and Social Care for its cash requirements and was therefore not significantly exposed to liquidity risks.

The table below analyses NHS Digital's financial liabilities, which will be settled on a net basis in the period of less than one year. The carrying value of financial liabilities was not considered to differ significantly from the contractual undiscounted cash flows:

	31 March 2019 £000	31 March 2018 £000
Current liabilities	61,934	42,376

Note 19

Events after the reporting period ended

In accordance with IAS 10, events after the reporting period are considered up to the date on which the accounts are authorised for issue.

There are no post statement of financial position events that would require to be adjusted.

Note 20

Authorised date for issue

NHS Digital's Annual Report and Accounts are laid before Parliament. IAS 10 requires NHS Digital to disclose the date on which the Annual Report and Accounts are authorised for issue.

The Accounting Officer authorised these financial statements for issue on 1 July 2019.

Sustainability report

A year of progress

2018-19 has been the first full year of our sustainability programme following the publication of our first Sustainability Development Management Plan (SDMP) in late 2017. It has been a year of awareness raising, momentum building and strategic thinking. We have set up a sustainability steering group that is chaired by the Chief Finance Officer. This reports annually to the Executive Management Team.

Quantitative progress is encouraging in most cases where data is available. However, if we are as an organisation to play our full part in meeting the Intergovernmental Panel on Climate Change (IPCC) requirements, a step change is required in both ambition and performance.

The 2018 IPCC special report states that we have 12 years to make huge changes to global carbon emissions, with carbon neutrality now required in the near to medium term. 2018-19 has been a very significant year for climate science and, specifically, public awareness of the scale of the issues we face globally. As a public sector organisation in a developed country, we should lead the way in showing what is possible with concerted effort.

Hitting the 43% carbon reduction 2020 target in the Greening Government commitments is an important short-term target and we will be contributing to change in 2019-20 by:

- switching to renewable energy for buildings and data centres

- increasing digital collaboration and reducing travel

- consolidating our office estate and moving to the Leeds Hub in 2020-21

- creating a mechanism for monitoring and improving the sustainability impact of products and services

- considering business continuity issues arising from global warming

Our carbon footprint

NHS Digital was created in 2013 and data from our predecessor organisations was incomplete. For that reason, we have adopted 2013-14 as the baseline year, rather than 2009-10.

Encouraging progress has been made in implementing our SDMP, including improvements to our carbon footprint, estate management, paper use, green ICT and staff engagement. Further work is needed to accelerate progress in the procurement, business travel, water use and sustainable technology workstreams.

The chart below shows the key contributors to NHS Digital's carbon footprint since 2013-14:

Legend: Building electricity, Travel, Data centre electricity, Gas
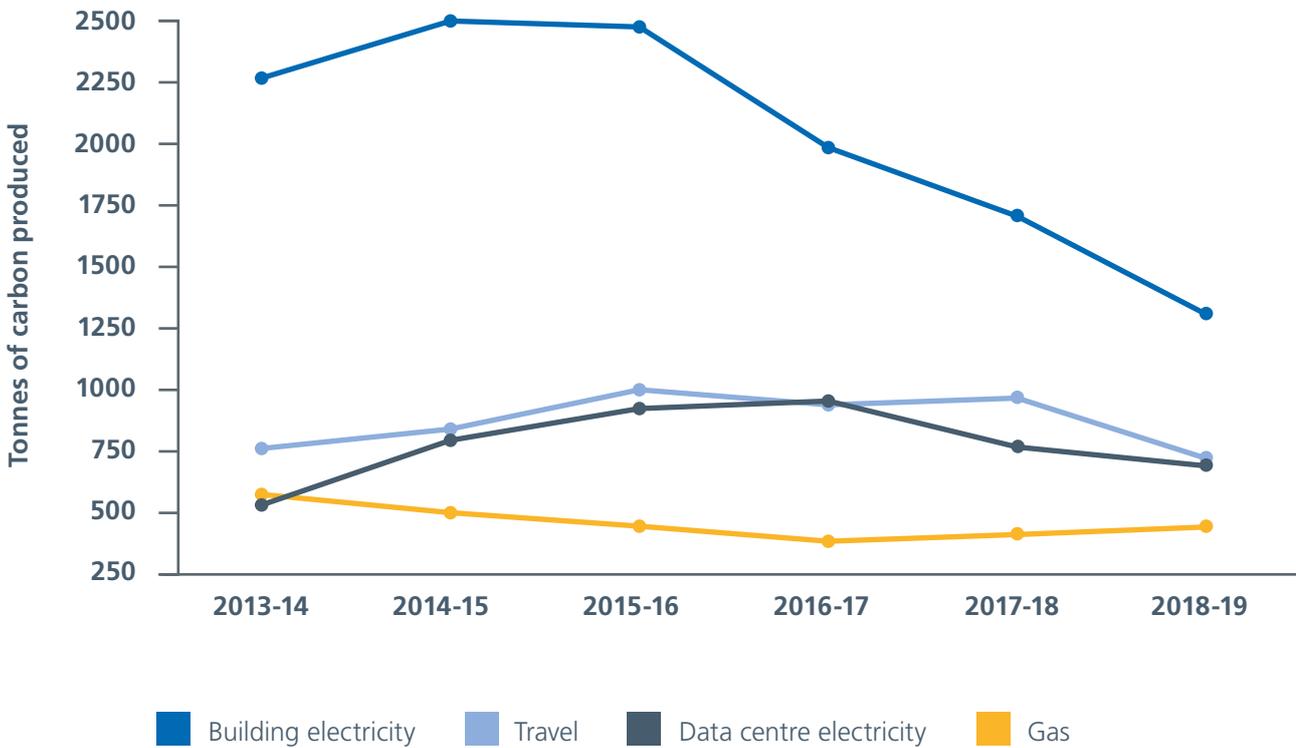
The headline achievement is a 19% reduction in our carbon footprint since 2013-14. This is strong progress, especially since the number of people working at NHS Digital has increased significantly over this period. It translates to an impressive 44% carbon saving per employee.

The reduction in building electricity usage has been partly offset by movement of data storage facilities to specialised data centres. The lowering in grid carbon and improved estate utilisation have contributed to the improvement.

Our 2020 carbon reduction target was increased in July 2018 from 32% to 43% and this will be the primary focus of our SDMP update and future planning.

The table below provides a full summary of performance against our sustainability KPIs. Key achievements in 2018-19 include:

- estate rationalisation and utilisation improvements

- building energy improvements through better use of building management systems and lighting projects

- refurbishing washrooms and implementing water saving measures

- waste system improvements (bins, signage, battery and reusable coffee cup collection)

- creation and strengthening of green ICT, sustainable procurement and digital collaboration working groups

- a staff engagement programme, including the NHS Sustainability Day and the relaunch of the Green Digits network

Sustainability KPIs – performance vs target

Element	Key 2018-19 actions	Target 2018-19
Carbon footprint (CO_2)	Greening of grid electricity, estate utilisation	10% reduction
Electricity use (building) [kWh]	Building Management Systems (BMS) enhancements, LED lights, server room optimisation	10% reduction
Gas use [kWh]	BMS enhancements	10% reduction
Water use [m^3]	Washroom refurbishments	10% reduction
Waste diverted from landfill [tonnes]	Recycling improvements	N/A
Lease car CO_2 rating [g/km]	New lease car contract	<110g/km
Domestic flights (km)	Creation of business travel management	10% reduction[1]
Trains (km)	Information packs and team-level budgets	10% reduction[1]
Paper procurement [reams]	Engagement with high print users	N/A

Further information on the content of our SDMP and our action plans is available on our website https://digital.nhs.uk/about-nhs-digital/corporate-information-and-documents/

Good progress has been made on the sustainable technology element of the SDMP. Our engagement with the government-wide Sustainable Technology Programme (led by the Department for Environment, Food and Rural Affairs) has been strengthened.

We have created a healthcare technology sector 'community of interest' across the NHS. We are also in discussions with the NHS Digital Academy hosted by the Imperial College, London to create a sustainable technology module on their courses and have recently appointed two MSc students to work with our programme teams on sustainable technology projects.

	Actual 2018-19	Key 2019-20 opportunities	Target 2020-21
	19% reduction or 44% reduction by FTE	Renewable energy, consolidation of estate, significant reduction in travel	43% reduction (challenging)
	7% reduction or 36% reduction by FTE	Project to improve efficiency of Exeter estate being explored. Limited scope for Leeds until the Leeds Hub is occupied	30% reduction (challenging)
	14% reduction or 41% reduction by FTE	Project to improve efficiency of Exeter estate being explored. Limited scope for Leeds until the Leeds Hub is occupied	30% reduction (challenging)
	80% increase or 24% increase by FTE	To identify reasons for increased use and address. Limited scope for improvement in short term	40% reduction (very challenging)
	86% reduction	Continued improvement to recycling infrastructure	90% reduction (on track)
	99g/km	Specify carbon efficient vehicles	<90g/km (on track)
	75% increase (+21% / FTE)[1]	Major opportunity for step change in organisational travel patterns	30% reduction (challenging)
	62% increase (+12% / FTE)[1]	Relocation strategy to minimize travel. Increase use of technology	30% reduction (very challenging)
	59% reduction (-72% / FTE)	Move to paperless meetings and training	50% reduction (achieved)

[1] Allowing for all modes of transport, overall increase in mileage per full time equivalent (FTE) since 2013/14 is 4%. Between 2017-18 and 2018-19 a reduction of 13% was achieved

Board members' biographies and Register of Interests

All directors have confirmed that they know of no relevant audit information of which the auditors are unaware. They have also confirmed that they have taken all the steps that they ought to have taken as directors to find out relevant information and to establish that auditors are aware of it.

The Register of Interests of Board directors are included within the board papers for each public meeting at https://digital.nhs.uk/about-nhs-digital/our-leadership-and-governance/nhs-digital-board/board-meetings

The summary of directors' expenses can be viewed at https://digital.nhs.uk/about-nhs-digital/our-leadership-and-governance/nhs-digital-board/board-membership/nhs-digital-board-directors-expenses

Executive directors

Sarah Wilkinson
Chief Executive

Sarah joined NHS Digital in August 2017. She previously worked as Chief Digital, Data and Technology Officer at the Home Office with responsibility for the delivery of all technology services for counter terrorism, the UK border, visas and immigration and asylum and policing.

Before working for the Home Office, Sarah spent 23 years in financial services and held chief information officer roles at Credit Suisse, UBS, Deutsche Bank and Lehman Brothers.

Sarah is a non-executive director of NatWest Markets, a member of the Audit, Risk and Compliance Committee of Kings College London and a member of the advisory boards of the Department of Computing at Imperial College London and the Institute of Mathematics at the University of Oxford.

Rob Shaw CBE
Deputy Chief Executive and Senior Information Risk Owner

Rob was appointed as NHS Digital's Deputy Chief Executive in August 2017, after serving as Interim Chief Executive in early 2017 and Chief Operating Officer since April 2016.

He has helped lead the transformation of the health and care system's IT infrastructure since 2014, delivering more efficient, flexible and secure services. In his current role, he is responsible for live services, technical architecture, the governance of all releases into live service and cyber security. Rob is managing the movement to cloud of existing infrastructure services and building our cloud capability in partnership with our delivery partners, Microsoft and AWS. He also leads the UK input to the Global Digital Health Partnership with the Department of Health and Social Care.

Rob became our Director of Operations and Assurance Services in April 2014 and managed the insourcing of three critical infrastructure services: the core NHS Spine systems, the Care Identity Service and the Secondary Uses Service. He was also responsible for overseeing the provision of more than 60 essential live services to NHS and social care organisations.

Executive directors

Carl Vincent
Executive Director
- Chief Finance Officer

Carl heads NHS Digital's Finance and Improvement directorate. He joined NHS Digital in June 2013 on secondment from the Department of Health and Social Care. In addition to his current responsibilities, he has had periods leading NHS Digital's commercial, human resources and data and information functions. Carl joined the Department of Health and Social Care as an economist in 1996 and had a number of roles in analytical services, commercial and finance. He also spent a year on secondment at Ernst and Young.

Dr Amir Mehrkar
Chief Medical Officer (a.i.)

Amir is an NHS GP working in Southampton and joined NHS Digital in May 2017 as Senior Clinical Lead for Interoperability and Architecture.

In 2016, Amir co-founded INTEROPen, an open collaboration of individuals, industry, standards organisations and health and social care providers. In 2017, he co-founded the Interopsummit, an educational interoperability event.

Amir has extensive international and clinical experience in informatics. He is a former member of the HL7 UK board and is currently a member of the Royal College of General Practitioners (RCGP) Health Informatics Group.

Previously, he was National Clinical Lead for NHS Digital's e-Referral Service and, between 2013 and 2015, he was Chief Clinical Information Officer (CCIO) for the Hampshire Health Record. In 2014, he took on the role of Digital Clinical Champion for NHS England's Patient Online Programme and the following year became CCIO for Orion Health.

Non-executive directors

Noel Gordon
Chair

Skills and experience: Noel chairs the NHS Digital Board.

Noel is also a non-executive director of NHS England and Chair of the Healthcare UK Advisory Board. He also serves as a non-executive director of the Payments Systems Regulator and is chair of the board of trustees of UserVoice.org. He was formerly a member of the Life Sciences Industrial Strategy Board, the Accelerated Access Review and the chair of the Specialised Services Commissioning Committee.

Previously an economist and a banker, Noel spent most of his career in consultancy, where he was Global Managing Director of the banking industry practice at Accenture from 1996 until his retirement in 2012. He has extensive practical experience in restructuring complex organisations across technology and business cycles and driving fundamental innovations in transforming industries through big data, analytics and digital technologies.

Appointed to the Board: 1 June 2016.

Term expires: 31 May 2020.

Committee membership: Chair, Talent, Remuneration and Management Committee.

Professor Soraya Dhillon MBE

Skills and experience: Soraya is the Senior Independent Director and leads on clinical safety and governance, e-channels and diversity and inclusion for the NHS Digital Board.

Soraya has 35 years' experience in academia and clinical practice, retiring as Dean of the School of Life Sciences at the University of Hertfordshire in November 2016. She has held a number of non-executive posts in the NHS since 1991. She was Chair of Luton and Dunstable NHS Foundation Trust (1999-2010), a member of the General Pharmaceutical Council and a board director for the Eastern Academic Health Science Network. She is a non-executive director and vice chairman at the Hillingdon Hospital NHS Foundation Trust and an academic manager at the University of Hertfordshire.

Soraya was awarded an MBE for her contribution to health services in Bedfordshire, is a fellow of the Royal Pharmaceutical Society, and a recipient of the society's Charter Gold Medal for Sciences and Practice.

Appointed to the Board: 1 January 2017.

Term expires: 31 December 2020.

Committee membership: Chair, Equality Diversity and Inclusion Steering Group and member of the Talent, Remuneration and Management Committee

Non-executive directors

Daniel Benton

Skills and experience: Daniel leads on IT delivery excellence, operational transformation and technology strategy for the NHS Digital Board.

Having spent most of his career at Accenture, where he was Global Head of Technology Strategy and Digital Strategy Practices, Daniel has extensive experience in setting and implementing technology agendas for large organisations going through periods of transformational change, including the implementation of consumer-facing technologies. He led much of Accenture's thinking around the impact of technology on business models and on transforming IT organisations. He also served as chief information officer of an international bank and a large global insurer.

Daniel is a trustee of the Grange Festival.

Appointed to the Board: 1 January 2017.

Term expires: 31 December 2020.

Committee membership: Chair, Investment Committee; Member, Audit and Risk Committee; and Member, Digital Committee in Common.

Deborah Oakley

Skills and experience: Deborah leads on assurance and risk for the NHS Digital Board.

Deborah was formerly a non-executive director and chair of the audit and risk committee of the Medicines and Healthcare Products Regulatory Agency (MHRA). She was chair of the audit committee at the Royal Free London NHS Foundation Trust, chair of the Health Protection Agency's Medicines Technical Committee and chair of the audit committee at the NHS Camden Clinical Commissioning Group.

She has spent most of her career in the financial services sector as a director of Newton Investment Management. Since 2010, she has worked at Veritas Investment Management, where she manages portfolios for private clients, trusts and charities.

Deborah is involved in several charities including a winter night shelter for the homeless and a parent teacher association in Camden.

Appointed to the Board: 1 July 2018.

Term expires: 30 December 2021.

Committee membership: Chair, Audit and Risk Committee; Member, Information and Cyber Security Committee.

John Noble CBE

Skills and experience: John leads on information and cyber security for the NHS Digital Board.

He was Director of Incident Management at the National Cyber Security Centre (NCSC), where he led on nearly 800 major cyber security incidents. Before this, he spent four years at the British Embassy in Washington DC.

During his 40 years of government service, John has specialised in operational delivery and strategic business change. He was awarded a CBE for his work in creating effective partnerships in the run-up to the London 2012 Summer Olympics.

Appointed to the Board: 1 July 2018.

Term expires: 30 June 2021.

Committee membership: Chair, Information and Cyber Security Committee; and Member, Audit and Risk Committee.

Rob Tinlin MBE

Skills and experience: Rob leads on integrated care, digitising social care, change management and organisational development for the NHS Digital Board.

Rob is a non-executive director on the board of the Crown Office and the Procurator Fiscal Service and chairs its audit and risk committee.

Until his retirement in 2017, he was chief executive of Southend-on-Sea Council for 12 years, during which it received the LGC Council of the Year Award (2012) and MJ Senior Leadership Team of the Year Award (2016). He was formerly chief executive of South Northamptonshire Council.

Rob was the chief executive leading on health and social care for the East of England and was a founding member of the Southend Health and Wellbeing Board. He has been a member of the National Information Board, the Anglia Ruskin MedTech Campus Board and the advisory board for the Queen Mary University of London School of Business.

He was awarded an MBE in 2017 for services to local government.

Appointed to the Board: 1 January 2017.

Term expires: 31 December 2019.

Committee membership: Member, Talent, Remuneration and Management Committee.

Non-executive directors

Professor Sudhesh Kumar OBE

Skills and experience: Sudhesh leads on big data, partnerships with the research sector, clinical informatics, medical technology and life sciences for the NHS Digital Board.

Sudhesh is Dean of the Warwick Medical School and Director of the Institute of Digital Healthcare at the University of Warwick. He is a Non-Executive Director on the board of University Hospital Coventry and the Warwickshire NHS Trust.

He is a clinical endocrinologist with 24 years' experience as a consultant physician in the NHS. His research has included developing novel approaches in areas such as medical technology, obesity and diabetes management. His work has helped to transform and improve patient care and treatment, on which he has published over 240 papers and six books.

Appointed to the Board: 1 January 2017.

Term expires: 31 December 2019.

Committee membership: Member, Audit and Risk Committee and Member, Research Advisory Group.

Dr Marko Balabanovic

Skills and experience: Marko leads on innovation, emerging technologies, partnerships and technology transfer for the NHS Digital Board.

Marko has been driving innovation in academia, corporations and start-ups both in the UK and the USA for more than 20 years. As Chief Technology Officer at Digital Catapult, his role is to drive innovation by bringing together expertise from the creative and research and development fields, and ensuring that the organisation remains at the forefront of key trends and emerging technologies. He has been instrumental in bringing several new technologies to market, including 'State', a digital global opinion network.

He was head of innovation at lastminute.com, where his team launched an array of award-winning mobile phone apps. He studied computer science at the University of Cambridge and has a PhD in Computer Science (Artificial Intelligence) from Stanford University, where he led foundational work on recommender systems.

Appointed to the Board: 1 January 2017.

Term expires: 31 December 2019.

Committee membership: Member, Information and Cyber Security Committee and Member, Investment Committee.

Balram Veliath

Skills and experience: Balram leads on culture, values and stakeholder relations for the NHS Digital Board.

He is the Director of Quality, Risk and Assurance at the BBC, where his responsibilities include internal auditing, risk management, safety and security, and assurance of critical projects.

He qualified as a chartered accountant in 1988 and has over 25 years' experience of risk governance, including developing and implementing risk management systems, assisting organisations to assess their capability to handle risk, and supporting boards in culture, diversity and inclusion.

Previously, he worked in senior executive roles at the Royal Bank of Scotland and ABN AMRO, covering internal auditing and risk management across operations and technology. He worked at KPMG for 12 years, including as a partner with responsibility for financial audits across a range of sectors.

Appointed to the Board: 1 July 2018.

Term expires: 30 June 2021.

Committee membership: Member, Audit and Risk Committee.

Attendance at the Board and committees

Attendance at the Board and committees during 2018-19 was as follows:

	Public Board	Board Development	ARC	IACSC	TRaMCo	IC
Number of meetings	6	5	5	4	6	10
Executive directors						
Sarah Wilkinson	6/6	5/5	3/5	-	6/6	-
Rob Shaw	5/6	4/5	3/5	2/4	-	6/10
Carl Vincent	6/6	5/5	5/5	-	-	10/10
Prof Martin Severs	3/5	2/4	2/5	2/4	1/1	-
Non-executive directors						
Noel Gordon	6/6	5/5	-	-	6/6	8/10
Dr Marko Balabanovic	6/6	5/5	-	4/4	-	3/3
Daniel Benton	6/6	5/5	5/5	-	-	10/10
Prof Soraya Dhillon	6/6	5/5	-	-	6/6	-
Prof Sudhesh Kumar	5/6	5/5	1/1	-	4/6	-
Rob Tinlin	5/6	5/5	3/5	-	2/2	-
Sir Ian Andrews	4/4	3/3	4/4	3/3	-	-
Dr Sarah Blackburn	1/2	1/2	2/2	1/1	1/1	-
John Noble	5/5	4/4	3/3	3/4	-	-
Deborah Oakley	5/5	4/4	3/3	3/3	-	-
Balram Veliath	5/5	4/4	2/3	-	-	-

The above table reflects those non-executive and executive directors who attended meetings and the number of meetings they are entitled to attend in their relative capacities.

Representatives from our main sponsors, Jonathan Marron - Director General for Community and Social Care, Department of Health and Social Care and Dr Simon Eccles - Chief Clinical Information Officer for health and social care are invited to the Public Board and attend the Private Board as an observer. They fully contribute to the discussions but have no voting rights. They are not paid by NHS Digital for their attendance. Jonathan Marron resigned on 30 September 2018.

Key
ARC – Audit and Risk Committee
IACSC – Information Assurance and Cyber Security Committee
TRaMCo – Talent, Remuneration and Management Committee
IC – Investment Committee

Our regulatory and compliance framework

Our regulatory and compliance framework includes (but is not limited to):

The published guidance of the National Data Guardian, Department of Health and Social Care and NHS England:

- Caldicott Report - Review of Patient-Identifiable Information 1997

- Caldicott 2 Report - Information: To Share or Not To Share? The Information Governance Review 2013

- Caldicott 3 Report - Review of Data Security, Consent and Opt-Outs 2016

- Care Quality Commission - Safe Data, Safe Care: Data Security Review 2016

- Code of Practice on Confidential Information, NHS Digital

- Common law duty of confidentiality

- Confidentiality: NHS Code of Practice 2003

NHS Acts including:

- NHS Act 2006

- Health and Social Care Act 2012

- Care Act 2014

Legislation affecting the management of information:

- Data Protection Act 2018 and EU General Data Protection Regulation

- Privacy and Electronic Communications (EC Directive) Regulations 2003 (SI 2003/2426)

- Environmental Information Regulations 2004

- Freedom of Information Act 2000

- ICO Code of Practice and Anonymisation Standard

- Public Records Act 1958

- Human Fertilisation and Embryology Act 1990

- Gender Recognition Act 2004

- Statistics and Registration Service Act 2007

- The False or Misleading Information (Specified Care Providers and Specified Information) Regulations 2015

- Official Statistics Order 2018/888

- Information Security Management: NHS Code of Practice 2007

- International Information Security Standard: ISO/IEC 27001:2013 and ISO/IEC 27002:2013

- International Standard on Records Management ISO 15489-1:2016

- BS 10008 Evidential Weight and Legal Admissibility of Electronic Information

- Records Management Code of Practice for Health and Social Care 2016

- The UK Statistics Authority, established under the Statistics and Registration Service Act 2007, guides our statistical work through its Code of Practice for Official Statistics. The authority monitors and can comment publicly on compliance with the code. It also formally assesses compliant statistics for designation as National Statistics

Legislation impacting management of public services:

- Re-Use of Public Sector Information Regulations 2005

- Copyright, Designs and Patents Act 1988

- Human Rights Act 1998, Article 8

- Equality Act 2010

- Public Contracts Regulations 2015

- European Union exit-related legislation

Notes