

# **The Data Domain: Summarising how Digital Readiness is supporting and developing the data team and developing the profession in 21st century health and care**

A paper to support defining ‘data’ as a priority specialism in health and care and a summary of the projects and collaborations that the Digital Readiness programme are delivering to ensure that the data workforce can support the delivery 21<sup>st</sup> century health and care data (2020/21).

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### Why the data domain and data science matters

In 2018, the DHSC policy paper, [The future of healthcare: our vision for digital, data and technology in health and care](#), sets out the government's vision for the use of technology, digital and data within health and care, to meet the needs of all users. Within that paper, was a clear recommendation - *we need to recruit and retain specialist non-clinical professions, such as a highly skilled and well-resourced **data science and analytics workforce** to make the best use of all the data we will unlock*. In 2019, recommendations in [The Topol Review](#), made reference to the 'healthcare workforce', explicitly the clinical workforce - *within 20 years, 90% of all jobs in the NHS will require some element of digital skills. **Staff will need to be able to navigate a data-rich healthcare environment.***

For data-driven healthcare transformation to truly succeed, recognition of and investment in the **non-clinical data team is equally as important and essential** as developing the clinical workforce. The flow of data is the lifeblood of organisations and deriving safe and clinically effective meaningful insights from this data is critical for 21<sup>st</sup> century healthcare. The COVID-19 pandemic has a continuous flow of data and information with scientific papers published daily. It has demonstrated that we need experts with the skills to turn that data into meaningful information for non-experts, including healthcare commissioners and providers, patients and the public. Large-scale collection of data could help curb any future pandemics, but it should not neglect privacy and public trust. Best practices should be identified to maintain responsible data-collection and data-processing standards at a global scale, as well as at an organisational level. This requires the knowledge and capability from a well-functioning data team and the requisite leadership from data experts and epidemiologists at chief professional officer level, such as Chief Analytical Officers and Chief Data Officers.

**Data scientists, analysts and data engineers'** roles differ, the latter for example, involves a lot more programming and software development skills while needing fewer statistical analysis skills. A well-functioning data team requires membership of all these essential roles and the skill levelling and mix will be dependent on the size of the service and the population it serves and the digital and data maturity of the organisation. Today, data analysts need to move from gathering and collecting data to analysing data and communicating information, and being part of performance improvement teams, where they will serve as data experts and data translators. For the data ecosystem to thrive, a capable data team requires professionalised and standardised clearly defined roles, appropriate areas of work and skill levelling which benefit from a community based approach to ensuring that they remain continually reviewed and improved to be fit for purpose. Data as a domain deserves to be recognised as a key specialism alongside other traditional clinical specialities if data driven healthcare in the 21<sup>st</sup> Century is to be successfully realised.

**Establishing a career framework for analysts** can be thought of as providing the foundation of their professional structure or developing a fit for purpose job architecture. Job architecture refers to the infrastructure or hierarchy of jobs and **encompasses job levels, job titling conventions, grades, career paths, spans of control, the criteria for career movement, and equitable compensation programs based on job value**. *Job architecture not only serves as the foundation of effective pay program design but also provides the infrastructure for the human capital and financial practices that drive the business, including total rewards, workforce planning, career paths, learning and development, and succession planning* ([Job architecture](#);

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[Laying the building blocks of effective Human Capital Management. Deloitte, 2015](#)). A stakeholder workshop, held in December 2019, for scoping workforce planning projects for the Digital Supply and Capacity in the Digital Readiness programme, determined that establishing a career framework for informaticians, inclusive of data analysts, was identified as the number one priority project to tackle (read a [summary of the workshop outputs](#)). To be able to count and plan, deciding what to call professionals and agreeing the skills and role descriptors will enable that process to be undertaken more successfully, nationally, regionally, and locally. In early 2020, a series of Unconferences, hosted by NHSX, discovered that career pathways and aligning to the [GSDaT capability framework](#) (appendix 1) and job descriptions were seen as a priority, amongst other objectives such as building communities, branding roles and developing innovative opportunities for placements and training across sectors ([access outputs](#)).

The recent publication of Ben Goldacre and colleague's paper, [Bringing Data Analysis into the 21<sup>st</sup> Century](#), highlights the importance of ensuring that the professionalisation of data analysts is recognised in the terminology of the workforce and a submission to the Workforce Information Reference Group has recommended that the Informatics workforce, inclusive of the data family, are classified as Scientific and Professional (submission March 2020).

In early October 2020, leaders from the Analytical Professions have jointly written [a letter to Matt Hancock](#), Secretary of State for Health and Social Care, and Sir Simon Stevens, the Chief Executive of the NHS with a series of recommendations to improve analytical capability in the NHS.

The [NHSX AI Lab](#) initiative is setting the bar for what good looks like in developing and deploying and accelerating the adoption of AI technologies in health and care. Linking into this, our programme can learn how they are developing and building in-house expertise in this area and how the wider system can benefit from this expertise and learning.

There is an urgency and a need to ensure to support the development of these skills and the development of the data profession in health and care.

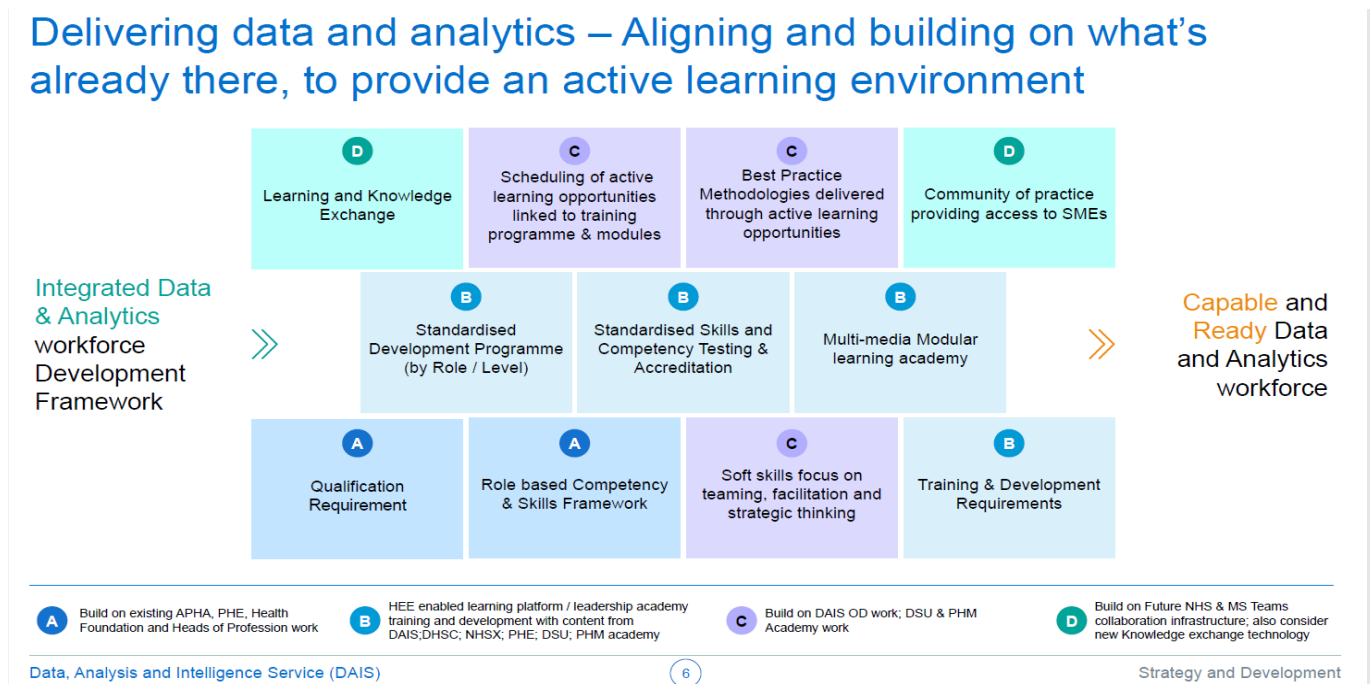
## What is happening in the wider system and what can Digital Readiness support?

### What is happening in the wider system? Signposting....

There are programmes and initiatives that aim to address the data analytical gap that are ongoing in health and care. Some examples include the following, but there will be others.

- **Health Data Research UK's (HDR-UK) [talent and training strategy](#)** aims to build the skills needed for the UK to lead the health data science revolution across the NHS, academia and industry by supporting and empowering people at every stage in their career.
- **The Data Analytics and Intelligence Service at NHSE/I, led by Ming Tang**, is piloting an integrated data and analytics workforce development framework approach with the Strategy Unit in the Midlands Team, with the outcome towards building a world class data analytics service in the NHS by 2021 (See Figure 1). [Read more on FutureNHS](#) (login required).

**Figure 1: Approach to developing a world class data analytics workforce in health and care. Source: Ming Tang, DAIS, NHSE / I.**



- **The Health Foundation has an analytics workstream** that includes the [Advancing Applied Analytics programme](#), aimed at improving analytical capability in the NHS and social care system. £750,000 of funding is available annually to support up to 12 project teams across the UK over 15 months.
- **The NW ISDN** has a project that is developing a portal of opportunities to help develop the analyst workforce and providing signposting to opportunities for learning online.
- **The Department for Digital, Culture, Media and Sport (DCMS) and the Office for Artificial Intelligence (OAI)** are providing funding for providers to develop [postgraduate conversion courses in Data Science and AI](#). These new conversion courses will build on work already underway to diversify the sector and in 2020 are offering up to 1000 scholarship places to support students from underrepresented groups to access, participate and succeed in higher education.
- **Open resources**, such as [Advancing Analytics and AI in health and care](#), provides a resource for analysts and data scientists working in the health and care sectors, with a section on curated training and education opportunities and networks (primarily in the SW). This initiative is led by Keyah Consulting.
- **National Analysts’ Workforce Board**: Convened in September 2020 with the aim of supporting the development and implementation of a national Analysts Board, co-chaired by the Interim Head of Analytics, NHSX and the Deputy Director, Data, Analysis and Intelligence (DAIS) in NHSE/I. The Board aims to bring together key stakeholders to raise awareness of current and planned work, identify synergies, and to jointly establish future priorities (established September 2020).

### The key partners identified are:

- AphA
- The Health Foundation
- The Strategy Unit
- PHE
- NHS Digital
- HEE
- NHS E/I
- NHSX

An early position paper is in draft as are ToR (October 2020), but we anticipate that this Board will report into our Digital Readiness programme and help establish priority projects and programmes for commissioning as well as being a conduit to the key professionals' subject matter expertise to advise and guide.

## What is happening in the Digital Readiness programme? Live and future projects....

The [Digital Readiness Programme](#) is currently supporting the delivery of several projects and initiatives across six workstreams which are: -

- [Supporting our Senior Leaders](#)
- [Supporting our Digital Experts](#)
- [Building our Future Digital Workforce](#)
- [Establishing the Digital Academy](#)
- [Digital Literacy of the Wider Workforce](#)
- [Embedding Social Care into the Programme](#)

**Our high level strategy is** to support the professionalism agenda of data analysts working with professional bodies and the FEDIP, establish the future demand for data science and the data family through workforce planning, develop and fund pipelines for in-demand and competitive roles in the data field and to review and build on the existing offers for continuing professional development for the data science community within the home of the Digital Academy.

- **Supporting our Digital Experts Workstream:** 'Live' projects include...
  - Establishing a Career Framework:** A live project that will establish an occupational architecture that better describes the data family / team in health and care (and wider digital, data and technology workforce). Project initiated September 2020 (due to complete April 2021) and led by HEE. By March 2021, as well as an agreed architecture and terminology, key outputs of this project will also be ensuring that **Heads of Profession** and **Heads of Community** job roles are described and agreed to enable sustainability of the professional priorities.
  - Developing standardised job roles for analysts:** A set of four roles descriptions have been developed by a cross-organisation group led by HEE and developed using the SFIA+ based Role Model tool. Role descriptions are aligned to FEDIP registration standards and will be piloted via AphA and ALBs. (Alongside a live project to create and implement role descriptions for IT staff, using the same tool.)
  - Investing in the Federation for Informatics Professionals and the Faculty of Clinical Informatics:** These two organisations will ensure all our digital staff are



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both good enough and able to progress to a level of excellence within a well-described career, supported by training, development, mentorship, and networks of compassionate peers.

- **Building our Future Digital Workforce:** ‘Live’ projects include....

**Workforce Planning for digital and informatics:** HEE have developed a demand forecasting toolkit for the digital and informatics workforce and the analysis from this project will help inform future demand in the data domain, currently identified as Information Management. Once this analysis is available (Q3 2020) we will review options to address the gaps and likely suggest the development of a **post graduate (Level 7) education and training model, to develop key skills in advanced data science** utilising the standards available to employers via the apprentice levy and the Institute for Apprentices standards. Ideally, this would involve an industry collaboration model, to enable the sharing and training of workforce across sectors. *A pilot project has been approved by the DR ODG group (Bioinformatics Retention Study and Industry Collaboration Model) that should help test a partnership collaboration model for sharing and training staff in this way.*

*The Education Skills Funding Agency provides HEE with workforce data in starts in apprentices for data programmes. For Level 4 Data Analyst, since 2018 there have been 2017 starts in the NHS, For Level 6 in Data Science, there have been 2 starts in the NHS.*

**NHS Graduate DDaT Model:** The Digital Readiness funded programme commenced as a Pilot in London and by December 2020 we should have approximately 20 graduates in posts. By April 2021, we aim to have 74 graduates in place in two to three regions nationally, as the programme scales. As of October 2020, 8 of these graduates will be data analysts.

- **Establishing the Digital Academy:** Specialist Academies

**The programme has invested in the NHS Digital Academy:** the first cohort which will ensure 300 chief information officers and chief clinical information officers are trained by March 2021.

**The future vision of the NHS Digital Academy is in draft,** but the current narrative is based on two key aspects.

The first is a suite of flagship learning products and the second is development of its core offer as a branded service, providing supporting infrastructure where needed to enable the health and care workforce to get the most out of the Digital Academy. While this service offer will develop over the next five years, a key component and positive step change will be the ability to work with key stakeholders to develop tailored or localised programmes and content where demand exists.

This demand should be led by key stakeholders who include heads of profession, the Federation for Informatics Professionals (FEDIP), the Faculty of Clinical Informatics (FCI), associated professional bodies, regions and skills development networks, ideally with collaboration between the groups. This will ensure we focus our efforts where demand exists and create what is needed by the health and care system, ensuring that learning and learning programmes can be contextualised against roles and career pathways.

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The analyst community has been one of the first groups who have indicated interest in development of a specialist academy. A meeting is scheduled for November 2020 to confirm next steps, but we envisage this will be a discovery piece led by AphA to understand what need for an analyst specialist academy exists. If the outcome is a specialist academy should exist, work can start on this from 21/22.

## Conclusion

There are several initiatives in place to support the urgency for improving the professionalism and supply of skills in the data family. In 2021, analysis from the workforce planning demand forecast exercise can help us further prioritise what skills and roles to invest in and where to support further.

## Appendix 1: The Government Digital Service (GDS) Data, Digital and Technology (DDaT) Capability Framework – Data Family

**Table 1: Describes the Data Family**

| Job Family | Job Role            | Skill Level                   | Skill Level           | Skill Level                | Skill Level              | Skill Level                  |
|------------|---------------------|-------------------------------|-----------------------|----------------------------|--------------------------|------------------------------|
| Data       | Data Analyst        | Associate Analyst             | Data Analyst          | Senior Data Analyst        | Principle Data Analyst   |                              |
| Data       | Data Engineer       | Data Engineer                 | Senior Data Engineer  | Lead Data Engineer         | Head of Data Engineering |                              |
| Data       | Data Scientist      | Trainee Data Scientist        | Junior Data Scientist | Data Scientist             | Senior Data Scientist    | Head of Data Science         |
| Data       | Performance Analyst | Associate Performance Analyst | Performance Analyst   | Senior Performance Analyst | Lead Performance Analyst | Head of Performance Analysis |

*The data job family will need to incorporate other roles as decided by the Steering Group brought together in the GDS DDaT Project that is looking to develop an occupational architecture in health and care for digital and informatics.*

**Author:** Nicola Calder, Building our Future Digital Workforce Workstream Lead, Digital Readiness, HEE.