Health Economics Unit
B8a – lead data scientist / econometrician
Job description

Job title	Lead data scientist / econometrician
Band	8a
Team	The Health Economics Unit
Accountable to	Chief analyst
Responsible for	2 x B6 data scientists; 1 x B7 senior data scientist
Working location	Based in either our office in Canary Wharf, London or agile/home-based from anywhere in the UK. The inner London HCA would be paid if you come into the office twice per week (and pass a DBS and BPSS check to gain clearance to access the building).

Our mission

Leading the generation of world-class evidence through economics and analytics, improving health and care

Our vision

The best possible health and care through evidence-based decision-making

Our values

Passionate: we are a highly motivated team who do projects which excite us and stretch our thinking

Outstanding: we use our vast knowledge, experience and network to provide high-quality products and achieve our clients' aims

Collaborative: we share our knowledge, invest in our community and value our diversity

The Health Economics Unit is a specialist team hosted by NHS ML. The HEU has been created to deliver impactful insights that power the future development of health and care delivery. Our experts support health system and industry leaders to make the best possible decisions and design the highest quality, most efficient and most innovative services to improve the health of communities across the country.
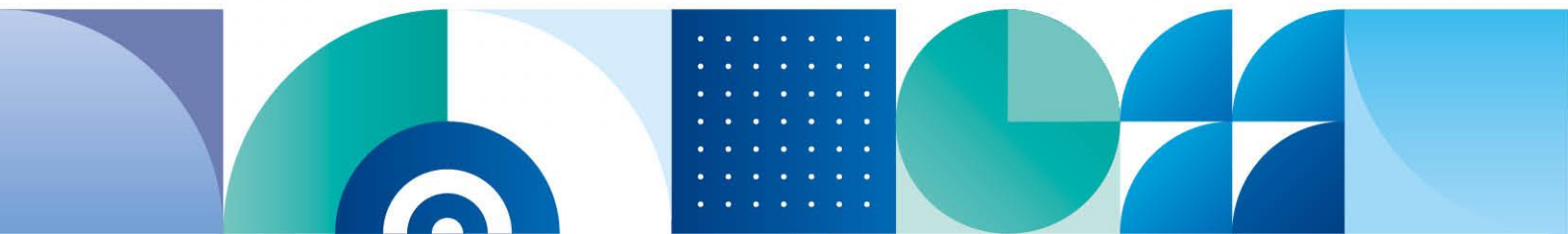
Job summary

The lead data scientist / econometrician provides vital data and insights to inform decisions, driving improvements in healthcare and impacting millions of people. You will lead the delivery of a range of complex projects, focussing on data and analytical aspects. You will be the lead expert for your areas of specialism, giving specialist advice, guidance and leadership on the use of data and analytics to the HEU. You will work on various research projects as commissioned by our clients under a consultancy model, which will take up to 80% of your time (this may change as the work of the unit evolves). You will line manage three people and support the chief analyst in the management and strategic development of the data and analytics function of the HEU.

Key responsibilities

Data science function

- Plan, organise and deliver the data and analytic aspects of highly projects with highly complex technical aspects, in a project leadership role. Projects could include:
    - Building predictive models to forecast patient admissions and discharges, helping optimise hospital resources and reduce bottlenecks in areas like emergency departments.
    - Analysing disparities in health outcomes across different populations, identifying factors like socio-economic status, geography, or access to care that contribute to inequalities.
    - Applying NLP techniques to unstructured text data, such as clinician notes or patient feedback, to extract key information and improve understanding of patient needs and outcomes.
    - Using supervised and unsupervised machine learning techniques to predict outcomes such as readmission rates, disease progression, or patient deterioration, aiding proactive care.
    - Developing econometric models to evaluate the effects of healthcare policies or interventions on key outcomes, such as patient health, hospital utilisation, or treatment costs.
- Analyse complex joined datasets to identify trends and patterns, and applies statistical models to solve business problems; make decisions on appropriate methods for data cleaning, processing, and analysis.
- Work on highly complex novel issues and questions which may not have precedent about how they have been tackled before. This may include fully identifying multifaceted and unclear question being asked, with high levels of uncertainty, and identifying novel and new approaches to solve our client's needs.
- Follow data analysis and econometrics best practices, ensuring others do too. Lead the ongoing development and improvement of these.
- Manage systems and software used to deliver statistical analysis and other functions as required for projects. This includes identifying, procuring, implementing and improving software and systems which would improve the work of the unit.
- Propose and develop policies and procedures relating to data and analytics, which affect the HEU or other teams in the CSU. Implement changes once agreed with the relevant person or group.
- Appraise and quality assure the analytical outputs from the team.

- Act as expert specialist in own area, and act as lead expert for the HEU and wider CSU colleagues.
- Act independently within established guidelines, escalating and seeking advice as required.
- Independently undertake business development meetings. Lead on proposal writing, with a focus on data science aspects of the work. This includes understanding the client aims and scope of project, identifying how we can achieve this, and calculating cost.

Team-working and function development

- Provide line management, guidance and mentorship to three direct reports. This includes all aspects of line management including appraisals, performance management, regular communication and support, providing personal development, demonstrating best practices and assisting with technical challenges.
- Identify, develop and implement strategies to develop the data and analytics function of the HEU and wider CSU, continually improving what we do and ensuring we stay ahead of the changing environment in data and analytics, and the NHS.
- Act as a lead on committees and working groups representing the HEU, especially from a data and analytics perspective. This may be internally, such as in the CSU, and externally, such as with professional bodies.
- Support the chief analyst with management of the data and analytics function in the HEU.
- Supervise the completion of tasks by others. This may include more junior members of staff, or more senior.
- Proactively provide training and share knowledge on areas of expertise to the wider Unit, identifying where gaps exist and where our work could be further developed.
- Deliver training to clients on own area of expertise.
- Work independently on projects within established guidelines, with minimal supervision needed. Provide advice and direction to junior and senior members of the team, setting the standard for how others should act and work on projects.

Communication and networking

- Communicate and present complex information and insights to non-technical audiences in a way which can be easily understood. This may be written or oral, and may include communicating findings which may be unwelcome to the client.
- Write high-quality reports which effectively communicate our findings in an engaging way, focussing on impact and achieving our clients' goals.
- Synthesise multiple sources to communicate on complex issues.
- Understand client needs and objectives, working with the client and team to find solutions and achieve these goals. This may include negotiating with clients to achieve a positive outcome for all parties.
- Make judgements where there are conflicting views and make decisions where necessary, working with all parties to achieve buy-in.
- Contribute to other areas of the HEU to support our wider development as a unit and as a team, in a leadership role.
- Proactively work with the senior communications manager to help promote our work, contributing to the communications plan of the HEU and sharing our work so that we contribute to the development of analytics in the NHS.

- Present at conferences to large groups to promote our work and develop the analytical capacity of the wider NHS. This includes communicating complex information and techniques in a way which is easily understood by a general audience.

Project and financial management

- Lead on medium and large sized projects and work with others to deliver projects to time, scope, budget and quality.
- Plan and organise highly complex data analysis projects, ensuring that timelines are met; adjust activities based on evolving data requirements.
- Manage project budgets, including the cost of own time and others spent on a project. Where potential for budget deviation is identified, identify/implement remedial actions to ensure project is delivered to budget. Support the team where this is escalated to you.
- Contribute towards the formulation of the HEU budget.
- Horizon-scan and identify potential issues before they occur, and resolve issues where they do occur.
- Follow all business processes of the HEU.

Key relationships

The HEU is an NHS consultancy of 17 team members across three teams: Health Economics, Service Delivery and Data and Analytics.

You will sit within the data and analytics team, led by the chief analyst and reporting to the lead data scientist/econometrician.

During projects you will work closely across the HEU team, with data scientists, analysts, project managers, and health economists.

You will engage with our clients, partners and stakeholders throughout projects, understanding their needs and communicating your work.

Person specification

	Essential
Experience	- Significant and varied experience of extracting data, manipulating, understanding, transforming, wrangling, cleaning, and storing health data, at a managerial level. - Ability to write well-designed code (e.g. SQL or Python) which follows good coding standards. - Possess foundational knowledge in data science, statistical analysis, and machine learning techniques. - Significant and varied experience working in data and analytics functions in the NHS, at a managerial level. - Significant and varied experience of project management and delivery, ideally in healthcare or the NHS, at a managerial level. - Experience of staff and line management.
Qualifications	Masters degree in a related STEM subject or equivalent level of experience of working at a similar level in multiple similar settings.
Skills, Knowledge & Competencies	- Ability to understand the challenges of data engineering tasks and delivery, of conflicting deadlines for projects, on time and within budget. - Excellent communication (written & oral) and people skills to communicate complex analyses to a wide variety of audiences - Ability to provide and receive complex information and to overcome barriers to understanding
Personal Qualities	- Fosters a culture of learning and improvement within the team. - Inquisitive and proactive in seeking insights, solving problems, and exploring new data sources or methods to drive impactful results. - Passionate about the role of data science and health economics in the improvement of patient outcomes.

Team structure
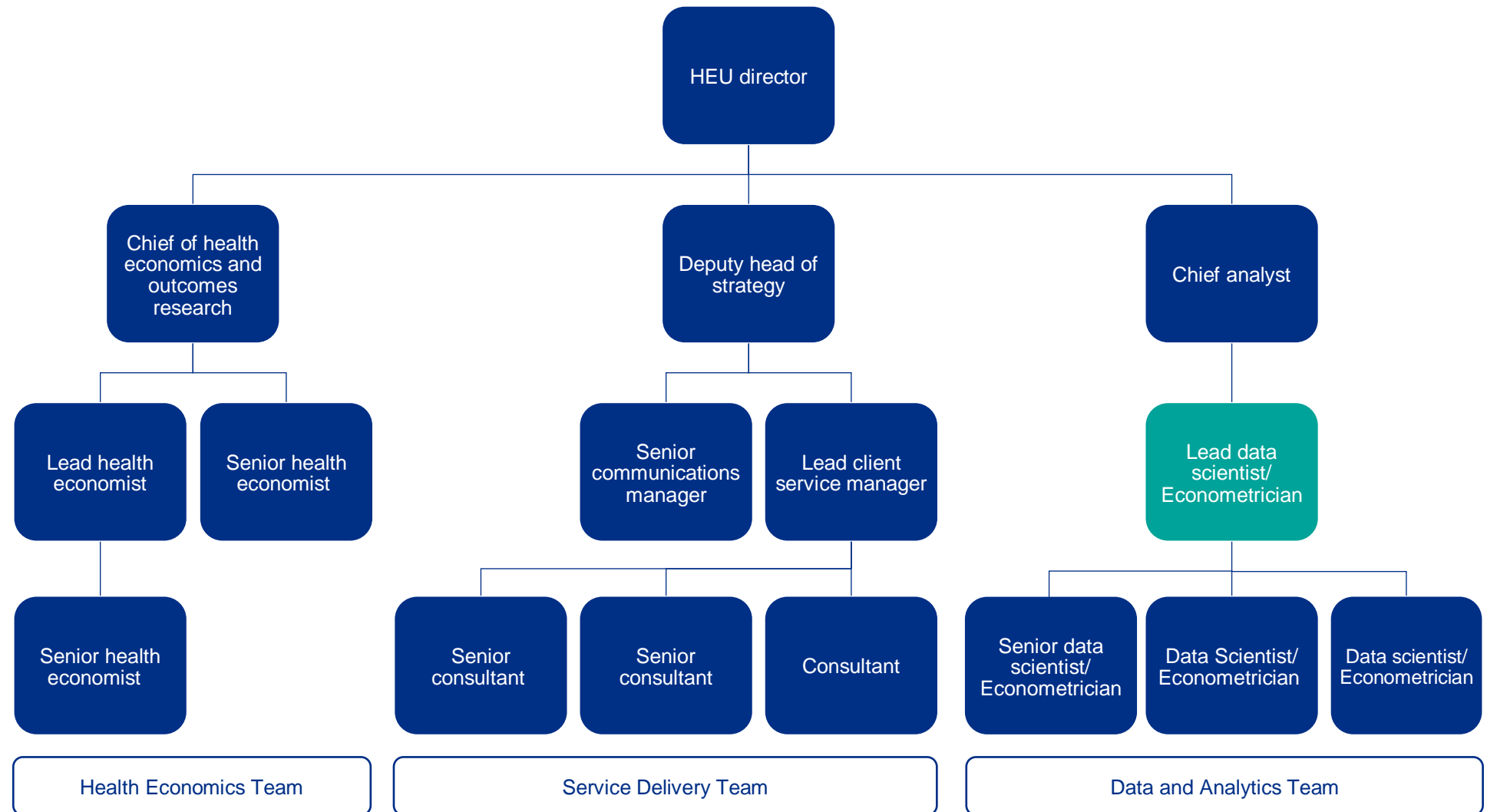
Information Governance, Data Protection and Confidentiality

All staff are expected to:
- ensure the confidentiality and security of all information that is dealt with in the course of performing your duties in accordance with the requirements of the Data Protection Act 2018 and adhere to the principles of Caldicott;
- Be aware that the CSU has an Information Governance Handbook which provides the framework and procedures in which information should be managed. They should become familiar with the "handbook" and "code of conduct" and keep up to date with any changes that are made, including the completion of mandatory IG Training on an annual basis. Breaches of the procedures within the "handbook" and "code of conduct" could be regarded as gross misconduct and may result in serious disciplinary action being taken, up to and including dismissal;
- comply with and keep up to date with the requirements of legislation such as the Freedom of Information Act 2000 and Computer Misuse Act 1990;
- ensure that your staff maintain that the confidentiality and security of all information that is dealt with in the course of performing their duties is in accordance with the requirements of the Data Protection Act 2018 and the principles of Caldicott; and
- Ensure that your staff are aware of their obligations under legislation such as the Freedom of Information Act 2000; Computer Misuse Act 1990, and that staff are updated with any changes or additions relevant to legislation.

Equality and Diversity

The CSU is committed to equality and diversity and works hard to make sure all staff and service users have access to an environment that is open and a free from discrimination. As a CSU we value the diversity of our staff and service users, and therefore recognise and appreciate that everyone associated with the CSU is different and so should be treated in ways that are consistent with their needs and preferences.

In support of this all staff are required to be aware of the CSU's Equality and Diversity Policy and the commitments and responsibilities the CSU has to:
- Eliminate unlawful discrimination, harassment and victimisation and other conduct prohibited by the Act
- Advance equality of opportunity between people who share a protected characteristic and those who do not.
- Foster good relations between people who share a protected characteristic and those who do not

We firmly believe that it makes good business sense to have a workforce representative of the communities we serve and so encourage applications from all sections of the community.

Safeguarding Children and Adults

All CSU employees are required to act in such a way that at all times safeguards and promotes the health and well-being of children and vulnerable adults. Familiarisation with and adherence to the policies and procedures of the Local Safeguarding Boards (Children and Adults) and those of the CSU is an essential requirement of all employees as is participation in mandatory safeguarding training in accordance with the employee's roles and responsibilities.

Personal Development

The CSU is committed to supporting the development of all staff. All employees have a responsibility to participate in the personal development process with their manager, which will provide an opportunity to:

- establish and take action towards achieving goals
- have a conversation about job role, career aspirations and personal development
- align personal aspirations with corporate objectives
- agree actions that are underpinned by the CSU's value base

As part of development, employees have joint responsibility with their line manager for the development of skills and competencies through identification and participation in training and development activities relevant to their role.

External Interests

Each member of the CSU's staff is responsible for ensuring that any external interest they have does not conflict with the duties of their posts and they must disclose the external interest if this is likely to occur, or if they are in doubt about a possible conflict of interest.

Health & Safety

In accordance with the Health and Safety at Work Act 1974 and other supplementary legislation, you are required to take reasonable care to avoid injury during the course of work and co-operate with the CSU and others in meeting statutory regulations:

- To comply with safety instructions and CSU policies and procedures.
- To use in a proper safe manner the equipment and facilities provided.
- To refrain from wilful misuse of or interference with anything provided in the interest of health and safety and any action which might endanger yourself and others.
- To report as soon as practical any hazards and defects to your senior manager.
- To report as soon as practical accidents and untoward incidents and to ensure that accident forms are completed.

Smoke Free Policy

In line with the Department of Health guidelines, the CSU operates a strict smoke-free policy. This includes not permitting the use of E-Cigarettes on the premises.

Notes & Review

This is not an exhaustive list of duties and responsibilities, and the post holder may be required to undertake other duties, which fall within the grade of the job, in discussion with their manager. This job description will be reviewed regularly in the light of changing service requirements and any such changes will be discussed with the post holder.

This job description is intended as an outline indicator of general areas of activity and will be amended in the light of the changing needs of the organisation. It will be reviewed in conjunction with the post holder on an annual basis.