|  |  |
| --- | --- |
| **JOB TITLE:** | Data Insights Manager  |
| **DEPARTMENT:** | Science & Innovation |
| **JOB HOLDER:** | N/A |
| **REPORTS TO (JOB TITLE):** | Programme Manager (data insights and knowledge exchange) |
| **JOB PURPOSE***Summary, in one or two sentences, of the unique contribution this job makes to the organisation’s purpose*This post will provide a considerable contribution to the organisation, working on a highly innovative, new programme of work, Physics2020, to develop a robust, comprehensive knowledge base about physics in the UK. The post holder will be a technical lead on Physics 2020, supporting strategic and operational decision making. They will work across the organisation to develop a database relating to the discipline, analysing data for relevant trends using state of the art analytical tools and processes, producing regular updates to inform engagement with senior internal and external stakeholders and will develop engaging data visualisations as well as content for reports, blogs and consultations.They will deliver data insights to support policy work, inform IOP members and contribute to knowledge exchange programmes.  |
| **CONTEXT***This briefly sets out the necessary background, including the department’s purpose, to understand how the job fits into the organisation and how it relates to other functions or jobs in the organisation***The department’s purpose**Through the work of our Science and Innovation Department, we aim to:1. Deliver value to our membership and physics community.
2. Recognise and reward excellence in science & innovation in academia and industry.
3. Promote physics-based science & innovation through IOP member networks, events and content.
4. Encourage and foster collaboration across traditional boundaries.
5. Support physicists, particularly those in early career.
6. Ensure that Physics is recognised for the contribution it makes to the economy.
7. Support large, medium and small businesses to actively exploit and commercialise new and emerging physics-based research.

We do this through the following portfolio of programmes:* Awards: 44 science and innovation major awards
* Groups: 50 Special Interest Groups
* Events: Over 100 Group conferences and events per year
* Bursaries: 3 travel bursaries schemes for early career researchers
* Data insights: Physics2020 (dashboard with suite of visualisations as well as reports and blogs)
* Knowledge exchange: Open Innovation – physics solving industry challenges

**The job’s context**The post-holder will deliver key aspects of Physics 2020, a strategic programme for the IOP which will provide a knowledge base and evidence on which to base much of the Institute’s advocacy work, support our knowledge exchange programmes and will support IOP members in the special interest groups to strategically develop their respective disciplines.Physics2020 will include:* working with the Groups to deliver a programme that is strongly focused on developing the core discipline…and our Groups are working together on new emerging areas of discovery.
* increasing information exchange and produce evidence about the value of physics to the economy.
* enhancing our reputation as a trusted and influential voice in evidence-based policymaking on issues of importance to society
* delivering value and supporting our members in Institute activities.

The post-holder will work with other teams in the Institute to deliver aspects of the programme and will also work with groups of external stakeholders – both members and external consultants -- in developing analytical tools and approaches. The post-holder will be responsible for (i) building relationship with partners to access external data sources, (ii) development of a database collecting information about physics in the UK and organised according to a uniform taxonomy, (iii) conducting analysis of data, (iv) generating monthly reports/dashboards for the communication of data and briefing senior stakeholders (v) working with external consultants to develop engaging data visualisations, and (vi) developing content for reports and consultations. |
| **ORGANISATIONAL STRUCTURE**  |
| **TASKS & ACCOUNTABILITIES***A list of 6 – 12 statements identifying the principal outputs required of the job, which integrate to achieve the purpose of the job***Development of a database containing information about UK physics and accompanying data management protocols*** Ensuring that the data is clean and organised according to a uniform taxonomy
* Developing data management protocols
* Data cleaning and validation
* Ensure that the database is kept in line with organisational best practice

**Extract knowledge or insights from data in various forms from diverse range of external sources*** Source, access, manipulate and engineer data processes with data from multiple internal and external data sources (high in volume, velocity and variety)
* Build statistical models from the data and use best coding practices to generate reproducible work
* Explore and visualise the data to present the ‘story’ of the data in a meaningful way, and to a range of technical and non-technical audiences
* Use an evolving range of data analysis tools and techniques, including open source, some of which must be learnt quickly, as and when required
* Conduct research and frame open-ended questions for industry and academia
* Employ sophisticated analytics programs, machine learning and statistical methods to prepare data for use in predictive and prescriptive modelling
* Communicate predictions and findings to stakeholders through effective data visualisations and reports
* Maintain a web presence, updated regularly, highlighting relevant information to the community.

**Delivering through external stakeholders/organisations*** Identifying and clearly delineating where there is need for external contractors to contribute to the project – e.g., in development of data visualisations.
* Managing relationship with external contractors and working with them to ensure they deliver objectives.
* Convening a group of super-users – composed of key stakeholders – to support development of data analytical tools.
 |
| **SCOPE OF DECISION MAKING / CHALLENGES***A summary, of no more than the 4 key main decisions/challenges the post holder may face in carrying out the accountabilities of this job** Determining priorities and setting project milestones with a view to delivering set objectives
* Identifying appropriate database and setting appropriate protocols
* Selecting appropriate methods for visualising data and responsible for delivery
* Identifying appropriate contractors and setting scope of their work.

**DIMENSIONS***A summary of any numerical facts and figures that are relevant to illustrate the scale of the role e.g.** The post holder will manage one data analyst
* The post holder reports to the Programme Manager (Data Insights and Knowledge Exchange)
* Responsible for delivery of work by external contractors (estimated value of work ~£60,000)
* Sign off project spend of up to £5000.
 |
| **KNOWLEDGE, SKILLS & EXPERIENCE***The below are the skills, qualifications, membership requirements and experiences that are* ***necessary*** *for full and effective performance* **Skills*** Data visualisation, statistics, data mining, machine learning and algorithms are essential skills
* Detailed understanding of databases and a knowledge of at least one scripting language, eg, Python or R
* Use of Drupal to support development and maintenance web content
* Report writing and development of engaging digital content.

**Qualifications / Educations requirements*** A degree in a numerate subject or equivalent – essential
* Programming skills obtained through educational programmes - desirable

**Experiences*** Significant proven experience of working as a data scientist essential
* Experience working with multiple data sources and predictive analytics software
* Able to demonstrate having designed and implemented systems for data analysis
* Experience and ability to interpret and present data for reporting
* Experience in developing user friendly, online, interactive visualization tools
* Experience of using databases and tools such as AWS cloud, Excel, MySQL, Alteryx, Tableau and Gephi is desirable.
 |
| **COMPETENCIES***The behaviours that must be demonstrated in the job** Customer focus – Is dedicated to meeting the expectations and requirements of internal and external customers / partners
* Excellent communication, written and verbal, and interpersonal skills.
* Drive for results – Can be counted on to meet or exceed goals successfully
* Managing and measuring work – Takes responsibility for tasks and decisions; sets clear objectives and measures; monitors process, progress and results.
* Functional/technical skills - Has the functional and technical knowledge and skills to do the job at a high level of accomplishment
* Personal learning - Picks up on the need to change personal and interpersonal behavior quickly
* Flexibility – Able to respond effectively as circumstances change.
 |