Office for National Statistics and Data Science Campus written submission

Welsh Assembly, Economy Infrastructure and Skills Committee inquiry: Degree Apprenticeships

Growing the next generation of Data Scientists

Data science is a broad and fast-moving field spanning maths and statistics, software engineering and communications. Data Scientists blend experience and knowledge from a wide range of fields and organisations, and continuously seek to expand their range of technical skills. Developing data science skills is an important priority for both the Data Science Campus (the Campus), the Office for National Statistics (ONS) more broadly, and across government. Degree apprenticeships are a great way to encourage talent into the organisation and appeal to those looking for alternatives to university, with a more practical approach.

Two years ago, the ONS and the Campus were chosen to lead a trailblazer group of employers to develop a new degree apprenticeship standard. This followed the success of the ONS flagship foundation apprenticeship in data analytics in Wales. Together this group agreed the role profile of a data scientist and the knowledge, skills and behaviours required.

The data science degree apprenticeship is now live for delivery in England and Wales. In Wales, the Welsh Government are funding this apprenticeship as part of their degree apprenticeship trial. The ONS, Welsh Government, Ministry of Justice, Companies House, and start-up company Nightingale are the first adaptors of the degree apprenticeships, and the Campus and other business areas in the ONS ran a successful recruitment campaign for the first intake of apprentices, who started their employment on 25 March 2019. The Civil Service (Government Statistical Service) and several organisations (such as Bank of England, Santander, GSK, Nestle) have also recently advertised for apprentices in England.

The ultimate aim is for the ONS and the Campus is to reach as many people as we can through our different initiatives and emerging talent pipeline. We recognise that both graduate programmes and degree apprenticeships offer different skills sets that are equally valuable in responding to evolving challenges in the workforce.

Data Science Career Pathway

The data analytics level 4 apprenticeship was newly developed in Wales in 2017. The ONS was the first adopter of the framework and collaborated with ALS Training to develop and deliver an apprenticeship fit for the analyst world. One of the many skills the apprentices learned was to manipulate data in programming languages such as Python and R, so they can apply the latest data visualisation techniques to their work. The skills learnt provide the first steps on a career as a data scientist or statistician.

Within the Campus, we recruited two cohorts of the level 4 apprenticeship, totaling 13 apprentices. All members of both cohorts who successfully completed their apprenticeship have secured promotions into different roles in the ONS, Welsh Audit Office, Cabinet Office and in the private sector. This is testament to the skills, knowledge and behaviors they acquired and developed throughout the apprenticeship.

The next step was to introduce the Level 6 Data Science Degree Apprenticeship into the Campus[1]. The Welsh Government incorporated data science as part of their pilot, and

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[1] https://datasciencecampus.ons.gov.uk/innovative-data-science-degree-apprenticeship-for-wales-launches/

provided funding for the delivery of degree apprenticeships. This was an exciting and unique opportunity to collaborate with Cardiff Metropolitan University (our provider), the Welsh Government, and other government departments to develop a degree that would bring the apprenticeship standard alive and develop the data science knowledge, skills and behaviours that employers truly need.

The ONS recruited four Level 6 Data Science apprentices who started in the first year of the pilot. In the second year, another five, who had progressed from Level 4 to the degree apprenticeship, started Level 5. These are all in different business areas across the organisation.

Since developing the Level 6 apprenticeship, the trailblazer for the Level 7 Artificial Intelligence (AI) Specialists is now available in England. Developing career pathways is key to enable development progression within the Data Science profession. Different levels of apprenticeship allow us to recruit at different points and provide development opportunities at different levels for existing staff. The Campus is currently also piloting a two year Data Science Graduate programme, as well as working closely with universities offering placement opportunities for PhD and MSc students.

Success of degree apprenticeships

The Data Science Degree apprenticeship is new in both England and Wales, and therefore lessons have been learnt. For example, as an employer, we now know collaboration with the provider is key to ensure the degree is fit for purpose and the apprentices can embed their learning back in the workplace. We also know that for retention we must provide support and opportunities, with a clear career pathway. In line with this, we provide additional training on core skills, such as resilience, presentation skills, time management and will provide leadership training in year three of the course.

Overall, degree apprenticeships appear, so far, to be great at recruiting emerging talent and a good way to provide development opportunities into this profession. Our apprentices' evidence during the Committee's visit to the Campus on 4 March illustrates this especially well.

Data Science Campus

Office for National Statistics

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