

apprenticeship FRAMEWORK

Data Analytics (Wales)

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Framework summary

Data Analytics

Higher Apprenticeship in Data Analytics

Pathways for this framework at level 4 include:

Pathway 1: Data Analytics

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - Diploma in Data Analytics

This pathway also contains information on:

- Employee rights and responsibilities
- Essential skills

Framework information

Information on the Publishing Authority for this framework:

The Tech Partnership

The Apprenticeship sector for occupations in business and Information Technology.

Issue number: 1	This framework includes:
Framework ID: FR03781	Level 4
Date this framework is to be reviewed by: 30/03/2018	This framework is for use in: Wales

Short description

This Apprenticeship framework at Level 4 provides the skills and knowledge to become a professional in the field of Data Analytics (which includes Big Data). The framework covers jobs in areas such as:

- Business Intelligence
- Data Warehouse
- ETL (Extract, Transform and Load)
- Data Analysis
- Data Modelling
- Data Mining
- Data(base) Management

Contact information

Proposer of this framework

The fundamental principles guiding the development of this framework were established during development and consultation for the Data Analysis NOS which were approved in November 2014. The need for an apprenticeship framework was explicitly identified by the consultation. The qualification underpinning the apprenticeship framework is directly based on these NOS.

Involved in the consultation were:

- Software Alliance for Wales (SAW)
- University of South Wales
- Invictious Ltd
- Butterfly Projects
- Yard Digital/Yard
- Ideoba
- Teamwork Technology Services Ltd
- HPC Wales
- NHS Wales National Informatics Service
- Office for National Statistics

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Purpose of this framework

Summary of the purpose of the framework

ICT is a key sector for Wales as the application of ICT drives productivity and competitiveness across the whole economy. The ICT sector in Wales spans electronics, software development and new technologies with a mix of large multinationals and indigenous businesses.

Wales has approximately 25,000 people directly involved in the ICT industry. There are nearly 3,000 operations in Wales – among them Fujitsu Services, BT, Mitel, Logica, Cassidian, General Dynamics UK, SAIC, Sony UK, Logica and IBM, contributing around £1 billion to the Welsh economy annually. Welsh higher and further education institutions produce more than 3,500 graduates every year in ICT-related disciplines.

Big Data-focused roles in Wales include: Data Engineers, Data Administrators, Data Managers, Data Analysts and Data Scientists. The demand for big data skills in Wales is increasing. The growth in data analysis and interpretation employers and capability in Wales is increasing. See <https://www.e-skills.com/research/research-themes/big-data-analytics/>

Young businesses in Wales such as Butterfly Projects, which provides Big Data and predictive analytics services to the likes of Lloyds Banking Group and Zurich Insurance have started up and are growing. The sector also includes a number of specialist companies that provide the Data Analytics tools and services for as well as many others, in all sectors, who use these tools as part of their business improvement processes.

This framework will contribute towards meeting the following skills priorities for Wales:

Skills for Jobs: The National Strategic Skills Audit for Wales; June 2011

- The Minister's response to the WESB report on Skills for Jobs Priorities
- Growth and Sustainable Jobs
- Digital Wales

Aims and objectives of this framework (Wales)

A major barrier to adoption of big data analytics by organisations is a lack of skills in the marketplace. Across the UK, between 2012 and 2013, there was an increase in demand for Data Analytic staff of 41%. It is anticipated that demand across the UK will grow by an incredible 222% in the period to 2017. From historical trends demand increase in Wales is expected to at least equal that of the UK as a whole. Amongst those recruiting data analytics specialists in 2013-14, just fewer than three out of every five (57 per cent) stated that they

had found it difficult or very difficult to find people with the required skills, qualifications or experience needed.

This Apprenticeship programme is designed to provide a new vocational route to filling the future skills need for Data Analytics professionals.

The roles covered by this framework could either be within:

- IT & Telecoms organisations providing development and/or operational services to a range of clients; or
- Organisations operating in any sector which make use of IT Systems to process and store data of any type.

The range of organisations for which these roles will be relevant includes obvious ones such as large retailers, financial services providers and government departments but in reality almost all users of IT Systems of any sort.

How is an apprenticeship delivered?

An Apprenticeship programme is fundamentally designed to be a work-based programme, whereby instructor-led learning can be immediately applied by apprentices in a real work context.

The qualification contained in the framework reflect the overall design of an apprenticeship. The mandatory units from the qualification must be assessed in the workplace, and wherever possible, it is recommended that optional units should also be assessed in this context.

The knowledge units will generally be taught in an off-the-job setting, and assessed using assignments or tests, in order to ensure the apprentice has gained the underpinning theory and principles required for the role.

Entry conditions for this framework

There are no specific entry criteria for this framework.

However in general, learners should possess qualifications (or equivalent experience) at the level below the level of the award. For example, candidates may have a qualification at CQFW level 3. Alternatively candidate may have successfully completed an Advanced Apprenticeship at CQFW Level 3.

There is no absolute requirement that learners possess Computing or IT qualifications prior to undertaking this framework, however given the cognitive demands of the underpinning qualification, it is unlikely that candidates will successfully complete without some knowledge and experience of computers and/or demonstrable intellectual skills at an appropriate level.

Level 4

Title for this framework at level 4

Higher Apprenticeship in Data Analytics

Pathways for this framework at level 4

Pathway 1: Data Analytics

Level 4, Pathway 1: Data Analytics

Description of this pathway

This pathway covers all roles in Data Analytics.

A minimum of 124 credits is required.

Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions.

Job title(s)	Job role(s)
Data Analyst	Transforming, validating or modeling data with the purpose of understanding or making conclusions from the data for decision making purposes
Data Manager	Management of large, highly dynamic data sets, often referred to as 'Big Data'. The data will be derived from a range of sources and can relate to contexts including business and scientific or social research.

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - Diploma in Data Analytics					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
B1a	1	Agored Cymru	124	GLH	n/a

Relationship between competence and knowledge qualifications

The mandatory units of the combined qualification contain a total of 72 credits of which 30 credits relate to competence and 42 credits relate to knowledge. This exceeds the minima required by the SASW.

Transferable skills (Wales)

Essential skills (Wales)

	Minimum level	Credit value
Communication	2	6
Application of numbers	2	6
IT	2	6

Progression routes into and from this pathway

Candidates wishing to enter a Higher Apprenticeship will need to have achieved or demonstrated one of the following:

- A Levels, or equivalent educational attainment, including the Level 3 IT Diploma, Welsh or International Baccalaureate or a relevant Level 3 Technical Certificate
- An Apprenticeship (Level 3)
- Employment within the technology/telecommunications industry for a number of years and demonstrated to their employer that they have a reasonable expectation of achieving the required outcomes of the Higher Apprenticeship. This can be supported by the demonstration or evidence of prior achievement or performance in the role prior to starting the Higher Apprenticeship.

Potential apprentices should bear in mind that a Higher Apprenticeship combines the challenges of higher-level education with full-time employment, and should be prepared for the greater volume and level of study than in the Apprenticeship or another Level 3 qualification.

Following the completion of the Level 4 Higher Apprenticeship framework, successful apprentices will be able to follow up on their knowledge studies and continue on to complete full Honours degree programmes.

Other industry recognised, role-specific qualifications:

- Project Management training and accreditation (PRINCE2, MSP, PMI, APM and Agile)
- Service Management training and accreditation (ITIL, SDI and ISO/IEC 2000 training)
- Management and Personal Development Training

A wide range of vendor and core technology training – leading to industry recognised qualifications.

Some qualifications entitle membership of a professional organisation, offering networking and career advancement opportunities. For example, becoming a member of a professional organisation:

- The British Computer Society (BCS)
- The Institute of Engineering and Technology (IET)

UCAS points for this pathway: n/a

Employee rights and responsibilities

Employee Rights & Responsibilities must be formally assessed and verified through:

- Completing and assessing the Employment Rights and Responsibilities Portfolio, available at www.thetechpartnership.com
- Achievement of an accredited unit approved by the Tech Partnership as suitable for this purpose

In either case evidence of completion must be submitted when claiming the apprenticeship certificate.

The remaining sections apply to all levels and pathways within this framework.

How equality and diversity will be met

The Tech Partnership Data Analytics Framework offers no barriers to entry and is intended to accommodate all learners regardless of gender, age, disability or ethnic origin.

The learning content required for the off-the-job learning can be delivered in a number of different learning styles to accommodate learner requirements.

The Tech Partnership expects employers and training providers to comply with the Equality Act 2010 to ensure that applicants are not discriminated against in terms of entry to, and progression within the sector, using the protected characteristics.

The following sections are included to identify current workforce demographics.

(Data refers to the UK as a whole and to the whole of the IT & Telecoms sector of which Information Security is a part)

GENDER EQUALITY

Gender imbalance remains a significant issue for the IT & Telecoms sector. Considering IT & Telecoms professional job roles across all sectors, there has been a drop of female representation from 22% in 2001 to 18% in 2011. This compares to the overall UK workforce being 48% female.

As is the case in industry, gender imbalance is prevalent across IT-related courses, and this is worsening over time throughout the education system. 15% of applicants to Computing degree courses are female and the proportion of females who sat the 2013 Computing A-Level is 6.5%, 1.3 percentage points lower than in 2012.

This under-representation of women across the whole IT & Telecoms sector has a number of causes including:

- a lack of awareness (by both individuals and career advisors) of the broad range of career opportunities available
- confusion in school teaching of ICT between IT User and IT professional roles

The Tech Partnership has initiated or participated in a number of programmes to address this gender gap and encourage girls to consider a career in IT.

AGE OF WORKFORCE

Analysis of the period 2001-2011 shows a changing trend in the age profile of IT & Telecoms professionals. The proportion of people aged 16-29 has dropped from 33% in 2001 to 19% in 2011.

The average age of IT & Telecoms professionals working in the UK is estimated to be 39 years

old, compared with 41 years old for workers more generally. Just under one half (47%) of IT & Telecoms professionals are aged 40 or above and less than one in five (19%) are in the 16-29 age bracket.

A key contributory factor to this changing dynamic in IT & Telecoms is the effect of globalisation. The maintenance of strong apprenticeship programmes in the sector will be vital to ensure that this trend can be halted or reversed in the coming years, thereby ensuring that the sector has the pipeline of skilled professionals that it requires to move into higher level job roles in 5-10 years time.

ETHNICITY AND DISABILITY

The Information and communication technologies industry is one of the most ethnically diverse industries in the UK, with 13 per cent of the workforce (an increase from 8% of the workforce in 2002) coming from Black, Asian and Minority Ethnic backgrounds compared to nine per cent across the whole economy.

There is significant provision for individuals with disabilities throughout the IT & Telecoms sector with many, varied opportunities for rewarding careers at all levels. This in turn means that apprenticeships are available in a wide range of areas for those with differing levels of disability.

On and off the job training (Wales)

Summary of on- and off-the-job training

The minimum total number of training hours which each apprentice must receive is 765 hours (inclusive of Essential Skills Wales).

Recognition of prior learning (RPL) is encouraged e.g. relevant content from the Welsh Baccalaureate.

Training hours are delivered during contracted working hours under an Apprenticeship Agreement, or must have been completed no more than three years prior to commencing the apprenticeship.

On and off the job training hours:

- must be planned, reviewed and evaluated jointly between the apprentice and tutor, teacher, mentor or manager;
- must allow training support via a tutor, teacher, mentor or manager;
- may be delivered through one or more of the following methods: individual and group teaching, e-learning, distance learning, coaching, mentoring; feedback and assessment; collaborative/networked learning

Off-the-job training

Off-the-job training are those learning activities undertaken away from normal work duties.

The minimum required is 480 hours.

This is made up of:

- Qualification units: 280 hours
- Employee Rights and Responsibilities: 20 hours
- Essential Skills Wales (for apprentices without the required levels): 180 hours

How this requirement will be met

Off-the-job learning will be required for the Apprentice to achieve the designated knowledge units of the combined Diploma qualification. This may involve a combination of day release, block release, web based learning, mentoring and coaching.

Achievement of the designated knowledge units, ERR and Essential Skills (if required) will be evidence of completion of the required number of off the job GLH.

On-the-job training

An apprentice must receive a minimum of 285 hours on the job training.

How this requirement will be met

An Apprenticeship programme is fundamentally designed to be a work-based programme, whereby instructor-led learning can be immediately applied by apprentices in a real work context.

The qualification contained in the framework reflects the overall design of an apprenticeship, containing some units which are designed to be delivered off-the-job and competence based units which are designed to be delivered on-the-job.

Wherever possible, the competences should be assessed holistically in the workplace, ensuring that any knowledge elements in the units are learned in the work and organisational context.

This can be recorded by any suitable means including, for example, portfolios of work, performance reviews and work logs/diaries.

The discrete knowledge units must be taught 'off-the-job' and assessed using assignments or tests in order to ensure the apprentice has gained an appreciation of the wider impact of Data Analytics in business and society and understands the underpinning theory and principles required for their role.

An Apprentice can plan and review their use of predefined or commonly used tools and techniques for complex and non-routine activities. As a result of reviewing their work, they will be able to devise solutions in the use of these in order to improve productivity for themselves and others.

Through coaching on-the-job, they will develop transferable skills and techniques for self-help and in turn be prepared to offer support and advice to others.

Evidence of guided learning hours undertaken should be recorded in the apprentice's Individual Learning Plan, and updated at 12 week reviews throughout the programme. On completion of the Apprenticeship, the total number of guided learning hours can be evidenced through submission of the Combined Qualification, Essential Skills Wales and Employee Rights and Responsibilities.

Wider key skills assessment and recognition (Wales)

Improving own learning and performance

The Wider Key Skill for 'Improving own learning and performance' is not included as an additional requirement in the framework, as the content is embedded in the mandatory unit, titled 'Developing Own Effectiveness and Professionalism' .

Working with others

The Wider Key Skill for 'Working with others' is not included as an additional requirement in the framework, as the content is embedded in the mandatory unit, titled 'Developing Own Effectiveness and Professionalism'.

Problem solving

The Wider Key Skill for 'Problem solving' is not included as an additional requirement in the framework, as the content is embedded in the mandatory units, titled 'Developing Own Effectiveness and Professionalism' and 'Data Analysis Tools'.

Additional employer requirements

There are no additional employer requirements for this framework.

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