

# Research Bulletin 21/2 | Skills Demanded by the Digital IT Sector

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## Summary

This research article examines the growth of the Digital sector and the demand for IT workers more broadly within Northern Ireland. It considers the latest statistics on jobs and economic output for the Digital sector as well as examining the number of IT workers across all sectors. It also uses results from Burning Glass, an unofficial source for online job advertisements, to discuss what companies are demanding for IT workers.

Overall, the data indicates that the Digital sector has continued to grow at a faster rate than the broader economy, with the number of workers in the Computer Programming and Consultancy sector in Q2 2021 registering the highest quarterly figure on record. The importance of IT workers across other economic sectors (outside of ICT and Digital) is also noted with more IT workers working across other economic sectors compared with ICT alone. Analysis of online job advertisements reveals that the skills increasingly being demanded for IT workers are in Java; Javascript; Microsoft C#; and Python.

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## Introduction

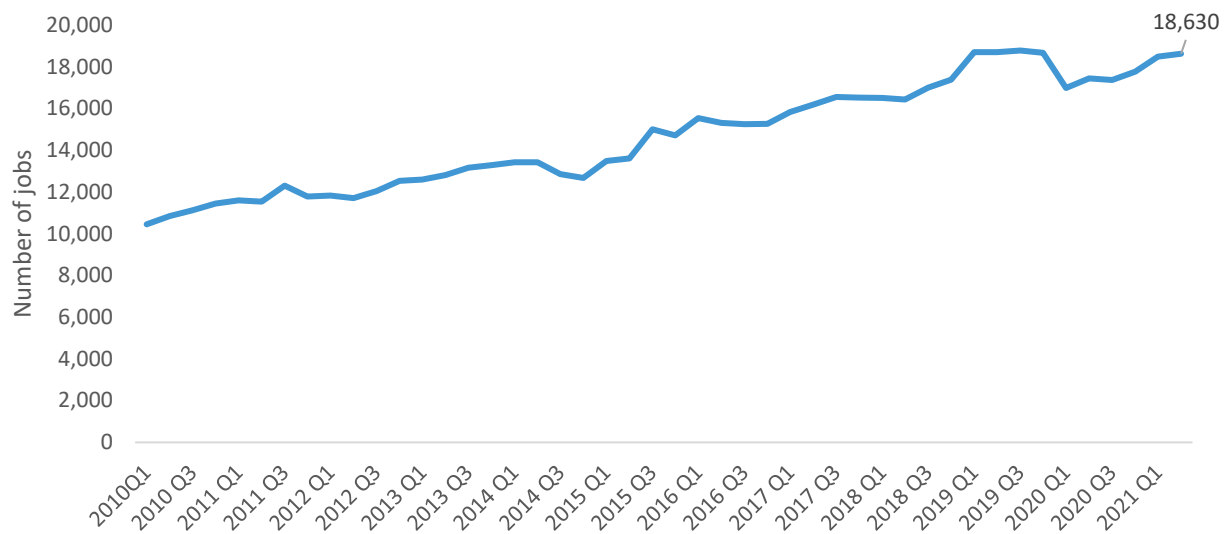
This bulletin considers a range of data and statistics for the Digital sector as well as for IT workers more widely across the economy. It examines a range of official data from NISRA as well as considering data from Burning Glass, a web-scraping tool of online job advertisements.

## Demand for IT Workers

According to a bespoke data request from NISRA's Labour Force Survey<sup>i</sup> there were an estimated 31,000 IT<sup>ii</sup> workers in NI in 2020. Of this total, it is estimated that 12,000 worked within the ICT sector, with the remaining 19,000 or so working across a wide variety of economic sectors, with the highest numbers in Finance and Insurance activities (c4,000), Manufacturing (c3,000) and Professional, Scientific and Technical activities (c2,000).

There are currently over 22,000 jobs in the Digital sector<sup>iii</sup> in Northern Ireland, growing by approximately 7,000 (50%) between the start of 2010 and 2021<sup>iv</sup>. This is a much higher rate of job creation compared with the whole economy which witnessed 9% growth in jobs over the same period. Out of all jobs created over the period examined in Northern Ireland, roughly 12% were in the Digital sector.

**Figure 1: Jobs in the Digital Sector**



Source: Quarterly Employment Survey, NISRA, Q2 2021

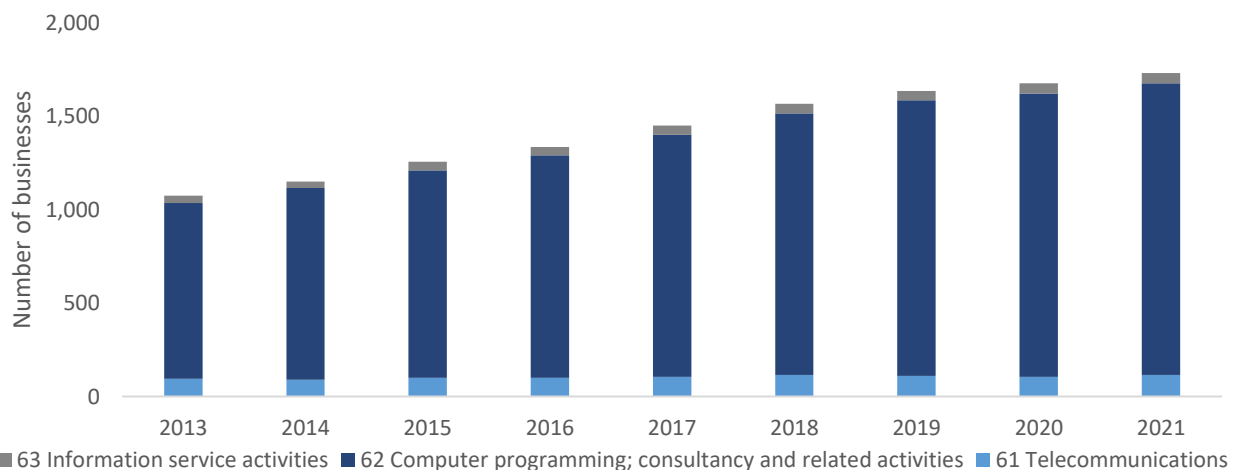
### Sub-sector Jobs

Job growth in the Digital sector has been concentrated in Computer Programming, Consultancy and Related Activities. This sub-sector alone witnessed growth of 124%, equivalent to 8,600 additional jobs, between the start of 2010 and Q2 2021, with Telecommunications decreasing by 25% and Information Service activities increasing by 440% (albeit from a low base) respectively.

### Number of Businesses

In 2021, there were 1,730 VAT and/or PAYE registered businesses in the Digital sector in Northern Ireland, increasing by 61% since 2013<sup>9</sup>. This was driven by a 66% increase in the number of ‘Computer programming; consultancy and related activities’ businesses, which make up 90% of businesses in the sector. This is illustrated in Figure 3.

**Figure 3: Number of Digital Sector Businesses by Sub-Sector**

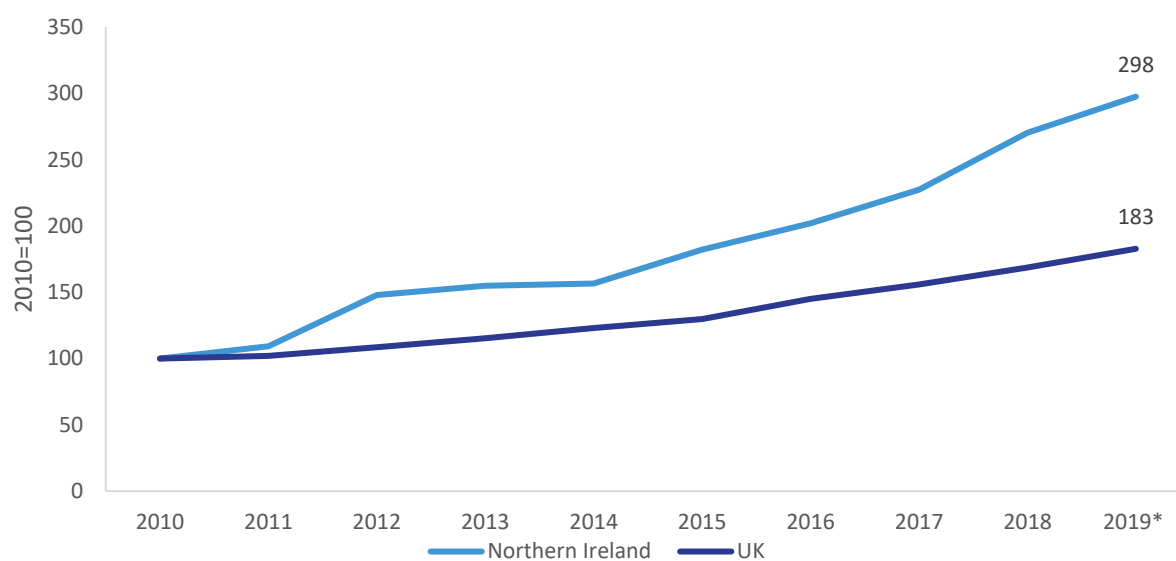


Source: Inter Departmental Business Register, NISRA, 2021

## Economic Output

Economic output in the Digital Sector was worth £1.3 billion in 2019, more than doubling since 2010 and faster than that seen by the whole economy over the period (34%) (as measured by Regional Gross Value Added (GVA) per industry).<sup>vi</sup> The Digital sector made up 3% of all economic output in Northern Ireland. In terms of growth in economic output, Northern Ireland's Computer Programming and Consultancy sector output was 300% larger in 2019 than in 2010 and is growing at a faster rate than the UK average, which increased by 180% over the same period, as shown by Figure 2.

**Figure 1: Economic Output Growth in Computer Programming & Consultancy, NI & UK (2010 = 100)**



Source: Regional GVA (balanced), ONS

\*Provisional figure

Within Northern Ireland, the Computer Programming and Consultancy sector is continuing to grow in terms of its contribution to total economic output, rising from 1% of all output in 2010 to 2.1% of all output in 2019. Whilst the gap with the UK is narrowing, the sector still accounted for a lower proportion of economic output when compared to the UK as a whole, where the Computer Programming and Consultancy sector accounted for 2.8% of total economic output in 2019.

## Job Market – Headline Findings

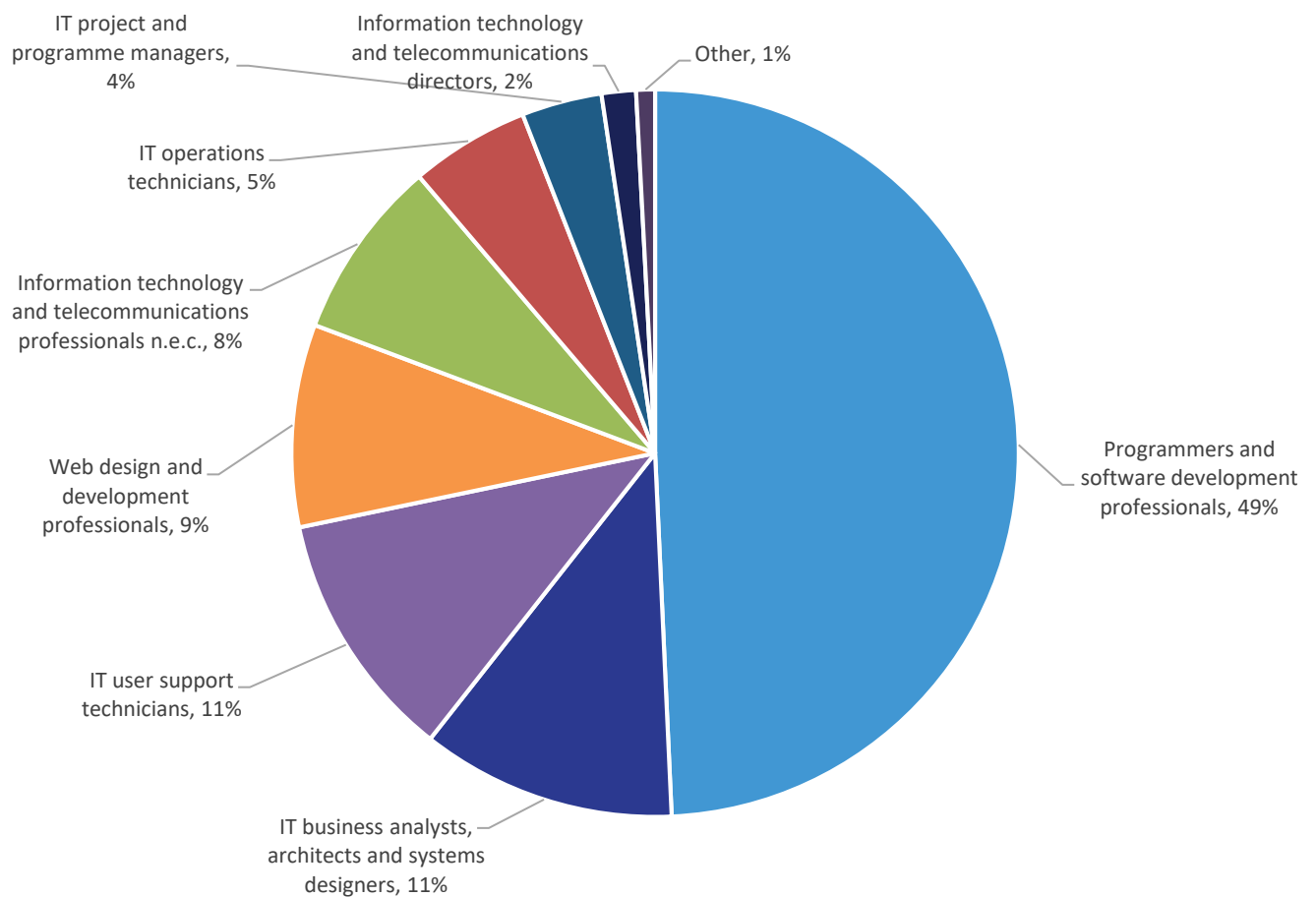
This section examines what has been happening in the jobs market for IT workers<sup>vii</sup> and the skills demanded using Burning Glass Technologies<sup>viii</sup>, a web-scraping tool of online job advertisements.

In 2020, there were approximately 13,100 job adverts for IT workers<sup>ii</sup> in Northern Ireland; this accounted for 13% of job postings in 2020 and was similar to the number seen in 2019. However, the Northern Ireland

market only accounted for 2% of all IT job postings in the UK, the same proportion as seen in 2019. Roughly nine of every ten IT job postings in Northern Ireland were located in Belfast.

Figure 5 shows the job postings by IT occupation with almost half of IT job postings being for programmers and software development professionals. IT business analysts and IT user support technicians come in second and third for job postings respectively, with the top three accounting for 72% of all IT job postings during 2020.

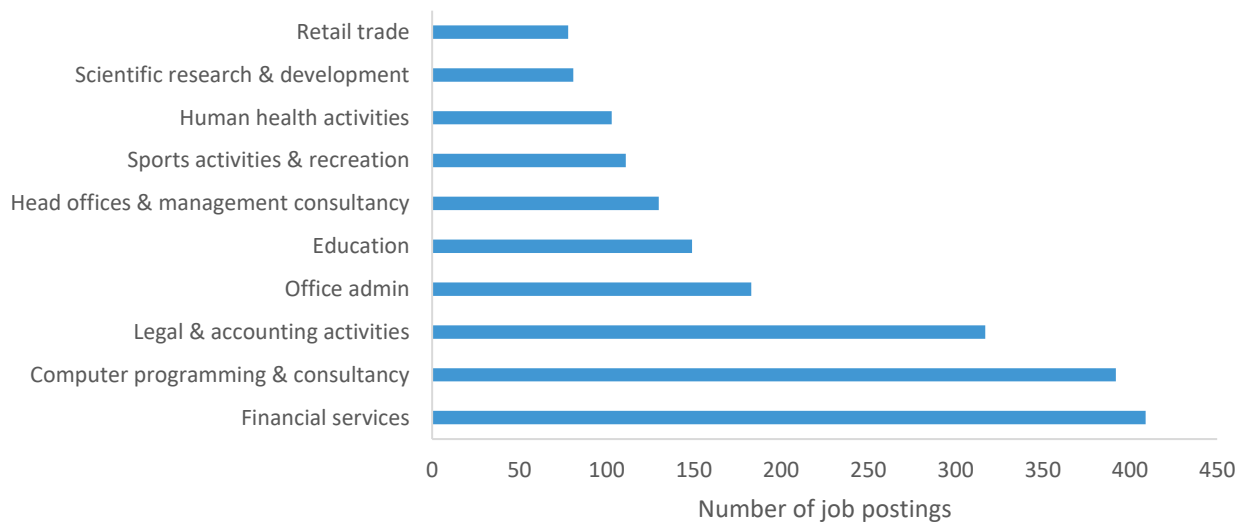
**Figure 2: Job Postings by Occupation**



*Source: Labour Insight Jobs (Burning Glass Technologies)*

Only 22% of IT job postings specified an economic sector. Of those where one was specified, Financial Services (14%); Computer Programming and Consultancy (14%); and Legal & accounting activities (11%) topped the list. However, it should be noted that there was a relatively large spread of economic sectors represented. The top 10 sectors are indicated in Figure 6.

**Figure 3: Online Job Postings by Economic Sector**



Source: *Labour Insight Jobs (Burning Glass Technologies)*

Of those IT job postings that specified an employer (27% of job postings), the most active in 2020 were Citi, Deloitte, Allstate, CME and Version Limited. These accounted for around 22% of online job postings where an employer was identified.

### **Job Market – Skills**

The Department for the Economy published its '10x Economy' vision in 2021 which outlines its strategic framework and objectives for the coming decade<sup>ix</sup>. This vision proposes a decade of innovation with the end goal of creating a ten times better economy with benefits for all citizens in Northern Ireland. This vision identifies five priority clusters in which Northern Ireland is already a global leader and which have further high growth potential: Life and Health Sciences; Advanced Manufacturing and Engineering; Agri-Tech, Fintech and Financial Services; and Digital, ICT and Creative Industries. Whilst IT workers will be required in all of these priority clusters to ensure growth can be supported, they will be fundamental to the 'Digital, ICT and Creative Industries' cluster, which includes areas such as Cyber Security, Artificial Intelligence and Data Analytics and Smart Cities. If Northern Ireland does not sufficiently supply or attract enough people for this sector, it could limit its possible growth. It is therefore imperative that the supply of people matches with the demands from businesses.

The demand for IT workers has increased but the skills demanded of those workers has changed, even from 2018 to 2020. Table 1 provides an indication of the skills that have been increasing in demand (more than 100 additional job postings with stated skill between 2018 and 2020), those that have remained steady (job postings with stated skill have increased up to 99 or reduced by less than 100), those decreasing in demand

(over 100 fewer job postings with stated skill or no longer in top 25 in 2020) and those that are new to the list (top 25 in 2020 but not in 2018). It only considers the top 25 skills demanded in both 2018 and 2020.

**Table 1: Skills in Demand for IT Workers**

Increasing	Decreasing	Neutral	New
Software Development	SQL	.NET	Microsoft Azure
Java	LINUX	C++	Docker Software
Software Engineering	Oracle	Active Server Pages (ASP)	Atlassian JIRA
JavaScript	HTML5	Microsoft Office	
Microsoft C#	UNIX	ASP.NET	
Python	jQuery	Git	
Scrum	MySQL	SQL Server	
Microsoft Azure		Microsoft Excel	
Docker Software		AngularJS	
Atlassian JIRA		Agile Development	
		Hypertext Preprocessor (PHP)	

Source: Labour Insight Jobs (Burning Glass Technologies)

The top programming languages demanded as indicated through job postings in 2020 included Java, SQL, JavaScript, Microsoft C#, .NET, LINUX and Python.

Only 3,300 job postings for IT workers in Northern Ireland during 2020 stated a minimum level of education needed. Of those that did, 79% required degree level qualifications and 2% required post-graduate degrees. This is much higher than across all Northern Ireland job postings where roughly half (49%) of online job postings required degree level qualifications. There were approximately 2,400 online job postings that stated the subject area required by the company. Those highest in demand were: Computer Science; Engineering; Computer Software Engineering; Mathematics; and Computer Engineering.

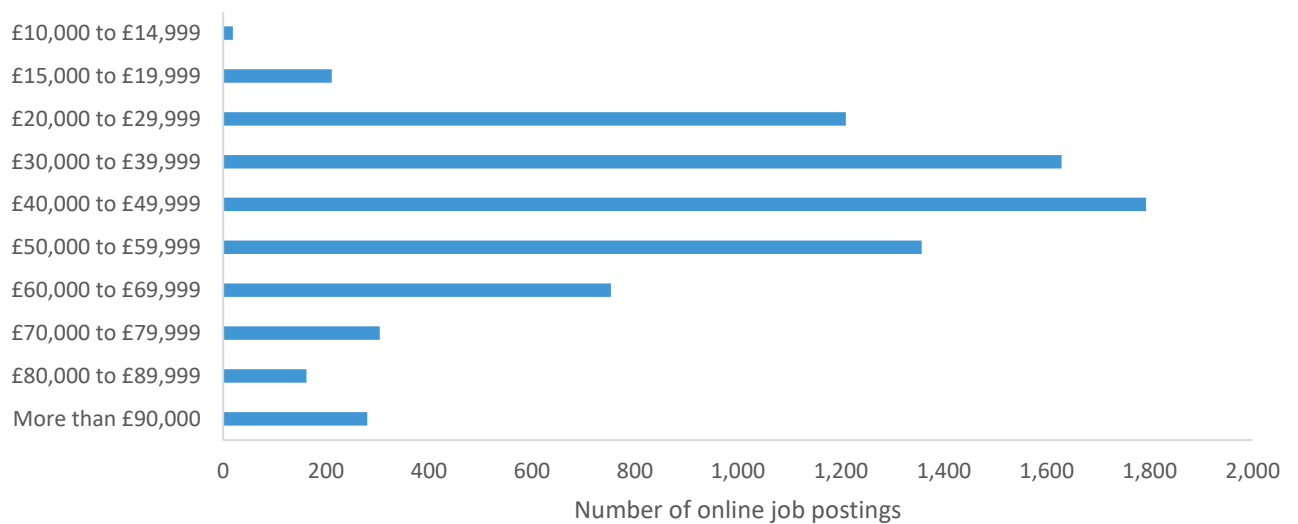
Of the 5,000 job postings for IT workers in Northern Ireland that stated a required level of experience during 2020, just over two fifths (42%) asked for two years or less experience with the remainder (58%) requiring workers with at least three years' experience.

### Job Market – Wage premium for ICT Sector

NISRA's Annual Survey of Hours and Earnings (ASHE)<sup>x</sup> provides official wage data on Northern Ireland's ICT sector for 2021. It estimates the median gross annual salary for all workers in the ICT sector to be £34,826, over 45% higher than the Northern Ireland average. It should be noted that ASHE only provides information on employees who have been in their job for more than one year so provides less insight into the latest job market conditions.

This section examines salary information from online job adverts from Burning Glass Technologies. Almost three-fifths (59%) of job postings for IT workers<sup>ii</sup> in Northern Ireland during 2020 contained information on salary. Similar to the ASHE data, it indicated that the median real-time salary for IT workers was £42,500, well above the Northern Ireland average (£27,500 median for postings across all occupations in Northern Ireland during 2020). The salary distribution for IT workers is shown in Figure 7.

**Figure 4: Salary Distribution for IT Workers, 2020**



Source: Labour Insight Jobs (Burning Glass Technologies)

The figure shows that 37% of reported salaries for IT workers were £50,000 or more; this compares with around 12% across all occupations in Northern Ireland during 2020. Only 1% of all online job postings in Northern Ireland had reported salaries greater than £90,000 but this increased to 4% for IT workers.

The median salary of £42,500 for IT workers was the joint fourth highest of the UK regions, alongside the North West and behind London, the South East and Scotland. London reported a higher salary than Northern Ireland at £60,000, and was the only region to report a median salary in excess of the UK median (£45,000).

## Conclusion

The number of jobs in the Digital sector in Northern Ireland has steadily increased since 2010, with the number recorded in Q2 2021 the highest quarterly figure on record. The economic output of the Digital sector has grown at a faster rate in Northern Ireland than in the UK as a whole, increasing by 300% from 2010 to 2019, compared with a 180% increase in output in the UK over this period.

In terms of number of businesses, 2021 counted 1,730 VAT and/or PAYE registered businesses in the Digital sector in Northern Ireland, this highest figure on record and a 61% increase since 2013. Within the Digital sector, 'Computer Programming; Consultancy and Related Activities' make up 90% of all businesses.

Over 1 in 10 job postings in Northern Ireland were for IT workers in 2020, with over 90% of postings based in Belfast. IT postings were available across a diverse range of economic sectors, the most popular of which were: Financial Services; Computer Programming and Consultancy; and Legal and Accounting Activities. The most common skills requested for IT workers were Software Development, Java, Software Engineering, JavaScript and SQL. The median real-time salary for IT workers in 2020 according to online job postings was £42,500, well above the Northern Ireland median of £27,500 across all job postings.

### **Owen Duly**

For further information or queries please contact [analyticalservices@economy-ni.gov.uk](mailto:analyticalservices@economy-ni.gov.uk)



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<sup>i</sup> [Labour Force Survey](#)

<sup>ii</sup> Defined as the following occupations: SOC 1136 (IT and Telecommunication directors), SOC 2133 (IT specialist managers), SOC 2134 (IT project and programme managers), SOC 2135 (IT business analysts, architects and systems designers), SOC 2136 (Programmers and software development professionals), SOC 2137 (Web design and development professionals), SOC 2139 (IT and telecommunications professionals), SOC 3131 (IT operations technicians), SOC 3132 (IT user support technicians) and SOC 5245 (IT engineers).

<sup>iii</sup> Defined as the following sectors: SIC 61 - Telecommunications; SIC 62 – Computer Programming, Consultancy and Related Activities; and SIC 63 – Information Service Activities.

<sup>iv</sup> [NISRA – Quarterly Employment Survey Historical Tables June 2021](#)

<sup>v</sup> [NISRA – Inter Departmental Business Register June 2021](#)

<sup>vi</sup> [Regional gross value added \(balanced\) by industry: all ITL regions](#)

<sup>vii</sup> Online job postings for IT workers have been filtered by the following occupations: SOC 5245 (IT Engineers), SOC 213 (Information Technology and Telecommunications), SOC 1136 (Information technology and telecommunication directors) and SOC 313 (Information Technology Technicians).

<sup>viii</sup> Burning Glass Labour Insight ([Burning Glass](#)) is a software package which scans job postings from more than 40,000 sources posted online (through recruiters, job websites or company sites) and pulls data together in a standard format describing the specific skills, education, experience and work activities required, allowing users to interrogate the results. It should be noted that Burning Glass provides a valuable source of data on the jobs market but should be used as complementary to official data. The data from Burning Glass comes from job adverts and is therefore dependent on what employers put in those adverts. It is also worth noting that a job posting may not always indicate an actual vacancy as some postings can refer to posts yet to be created. Other limitations in the data include the actual level of detail in job adverts (which can vary for different postings) and the fact that most postings tend to be from larger companies, as smaller businesses tend not to use online adverts.

<sup>ix</sup> [10X Economy – an economic vision for a decade of innovation](#)

<sup>x</sup> NISRA, Annual Survey of Hours and Earnings: [Annual Survey of Hours and Earnings](#)