

# Research Bulletin 22/4 | Job Advertisements in Advanced Manufacturing, Materials & Engineering and Life & Health Sciences

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## Summary

This research bulletin uses Burning Glass<sup>i</sup>, a web scraping tool of online job advertisements, to analyse job market trends in both the Advanced Manufacturing, Materials & Engineering (AMME) and Life & Health Sciences (LHS) clusters, two of the priority clusters identified within the Department for the Economy's 10X Vision<sup>ii</sup>. It does this by using keywords associated with each, informed through discussion with policy leads. It analyses trends from 2019 to 2021, including trends over time; education required of job seekers; and top employers.

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## Introduction

The purpose of this research bulletin is to analyse job market trends of two of the priority clusters set out in the Department for the Economy's 10X Vision<sup>iii</sup>. The 10X Vision embraces innovation to deliver a ten times (10X) better economy with benefits for all the people of Northern Ireland. It states that this will be achieved by identifying the areas in which we have strengths and focusing our efforts on those areas and ensuring the gains received will be beneficial to all in society. The strategic clusters that have been identified within the 10X Vision are:

- Advanced Manufacturing, Materials & Engineering<sup>iv</sup>;
- Agri-Tech<sup>v</sup>;
- Digital, ICT & Creative Industries<sup>vi</sup>;
- Fintech/Financial Services<sup>vii</sup>; and
- Life & Health Sciences<sup>viii</sup>.

Within the research bulletin, the focus is on the Advanced Manufacturing, Materials & Engineering (AMME)<sup>ix</sup> and Life & Health Sciences (LHS)<sup>x</sup> clusters. It uses Burning Glass to analyse online job postings data over the past three years<sup>xi</sup>. Combined, these are strategically important clusters and are estimated to need 18,000 new workers between them over the coming decade<sup>xii</sup>.

## Methodology

Through desk-based research, a list of keywords was identified that were specific to the two selected clusters and this list was shared with respective policy areas for input and agreement. These agreed keywords were added to the

keyword filter on Burning Glass building each of the clusters. Different analyses were then selected from the Burning Glass system. This novel approach was used rather than building each cluster through traditional sector definitions to try to capture all activity in the AMME and LHS clusters throughout the economy.

## Results

### Demand Map

Table 1a and 1b highlight the demand for new workers (based on job advertisement levels) for Travel to Work Areas (TTWA) in Northern Ireland in comparison to the UK average over the one-year period to May 2022. A location quotient greater than one shows the TTWA has proportionally more demand for workers in the specified clusters compared with the UK average and a number below one suggests there is proportionally less demand for workers in the specified clusters compared with the UK average.

**Table 1a: Demand Map for AMME Job Vacancies across Different Travel to Work Areas in Northern Ireland**

Northern Ireland	AMME Postings	Location Quotient	Concentration
Craigavon	320	0.7	Lower demand than average
Coleraine	110	0.7	Lower demand than average
Belfast	3,180	0.6	Much lower demand than average
Cookstown & Magherafelt	80	0.6	Much lower demand than average
Dungannon	80	0.5	Much lower demand than average
Ballymena	80	0.5	Much lower demand than average
Derry	100	0.5	Much lower demand than average
Omagh & Strabane	50	0.4	Much lower demand than average
Enniskillen	30	0.2	Much lower demand than average

**Table 1b: Demand Map for LHS Job Vacancies across Different Travel to Work Areas in Northern Ireland**

Northern Ireland	LHS Postings	Location Quotient	Concentration
Craigavon	960	4.4	Much higher demand than average
Coleraine	80	1.1	Average demand
Belfast	2040	0.8	Lower demand than average
Omagh & Strabane	50	0.8	Lower demand than average
Derry	50	0.6	Much lower demand than average
Enniskillen	30	0.6	Much lower demand than average
Ballymena	30	0.5	Much lower demand than average
Dungannon	40	0.4	Much lower demand than average
Cookstown & Magherafelt	10	0.2	Much lower demand than average

Source: Burning Glass

Note: Rounded to nearest 10. Travel to Work Area (TTWA) calculations are based on areas effective from April 2011 (Office for National Statistics).

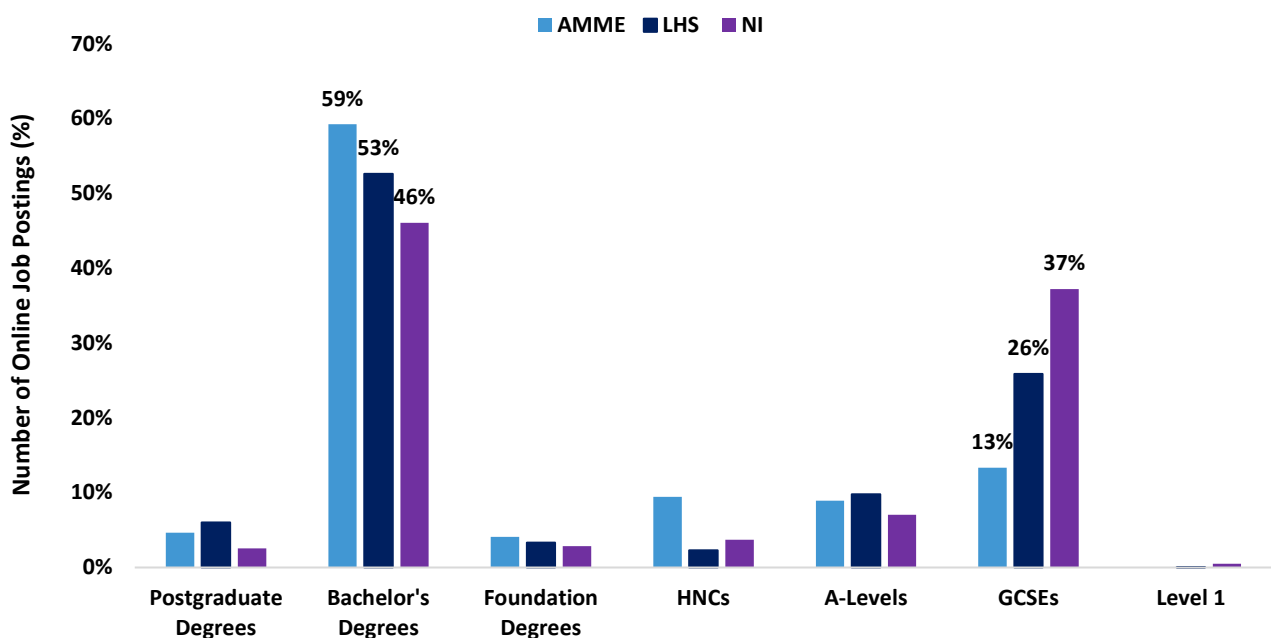
From the data tables, it can be observed that all TTWAs in Northern Ireland experienced lower than average demand for workers in the AMME cluster over the time observed, with Enniskillen performing much lower than average at 0.2.

The LHS clusters experienced a more positive demand for workers, with the Craigavon TTWA witnessing a much higher demand than average which could be a result of ALMAC headquarters being based in Craigavon and accounting for 36% of all LHS online job postings. Only one other TTWA had an average demand which was Coleraine at 1.1 but the rest of NI's TTWAs all experienced relatively low demand.

### Education

Figure 1 highlights the minimum advertised education requirements for both the AMME and LHS clusters relative to each other and the Northern Ireland average for the three-year period to 2021 (where data was available).

**Figure 1: Minimum Advertised Education Requirements for New Workers in AMME and LHS Clusters Compared with Total NI Online Job Postings, 2019 to 2021.**



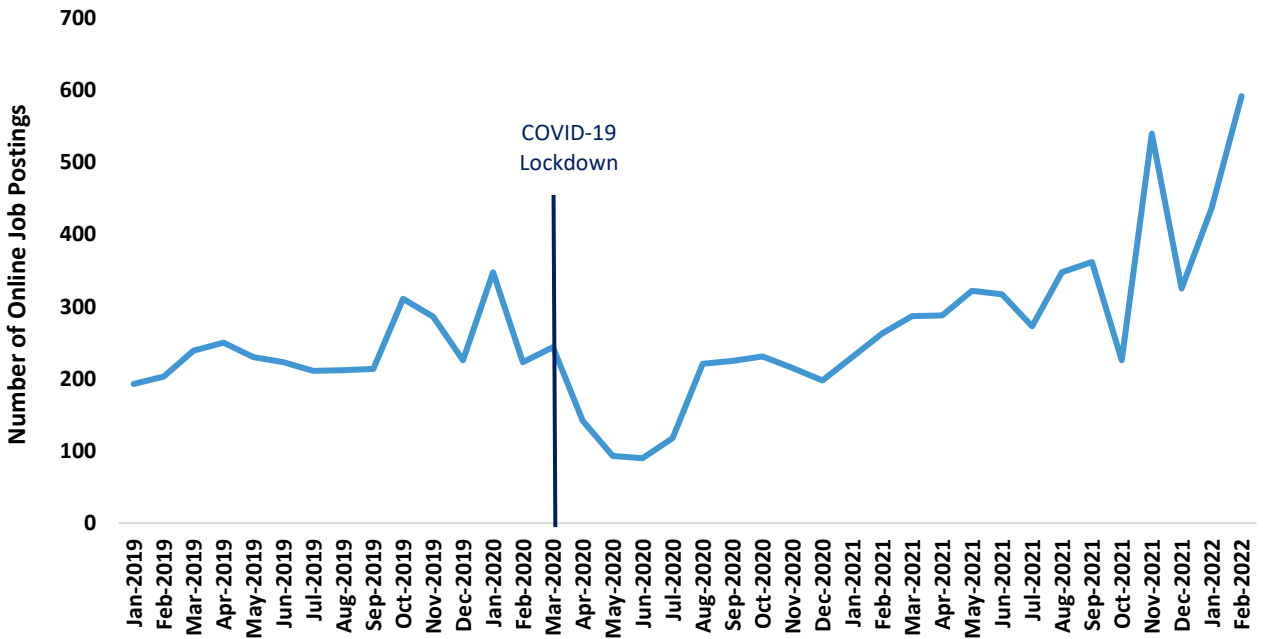
Source: Burning Glass

Of those online job postings that specified a minimum education requirement, 59% of AMME online job postings required a bachelor's degree or equivalent; 13 percentage points higher than the NI average (46%). The LHS cluster also indicated a slightly higher requirement of bachelor's degrees at 53%, seven percentage points higher than the NI average. The second highest level of education required in the two clusters is GCSE or equivalent; 13% of AMME postings were advertised at GCSE or equivalent, 24 percentage points lower than the NI level, whereas 26% of online job postings in the LHS clusters were advertised at GCSE or equivalent, 11 percentage points lower than the NI level (37%).

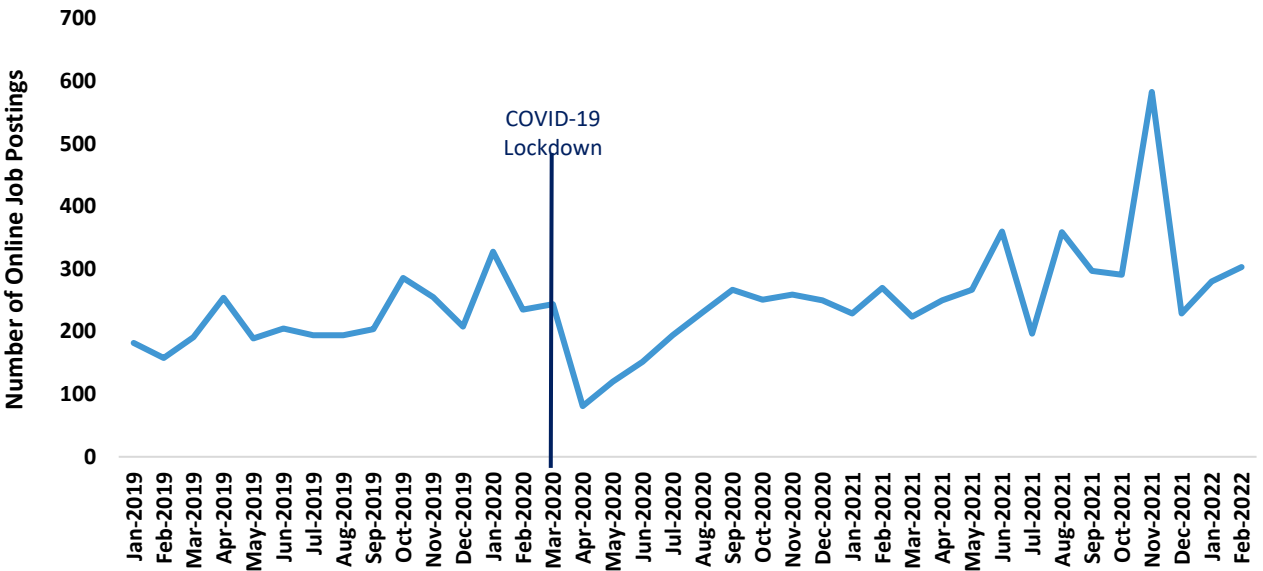
### Time Series Analysis

Figures 2a and 2b provide a time series analysis of monthly online job postings in Northern Ireland for both of the specified clusters from 2019 to 2021, based on the keywords agreed.

**Figure 2a: Number of Online Job Postings in the AMME Clusters in Northern Ireland, 2019 to 2021**



**Figure 2b: Number of Online Job Postings in the LHS Clusters in Northern Ireland, 2019 to 2021**



Source: Burning Glass

Note: Higher than normal postings were recorded in November 2021 which after investigation we were unable to determine the cause. DfE contacted Burning Glass and they provided feedback that majority of the increase in postings in November 2021 was valid, there were observed incidences of recruiters flooding the market in occupations related to Administrative/Clerical roles, Customer Services Representatives and Software related roles, leading to potential duplication of some postings.

Both clusters had a similar journey post-covid as both clusters experienced dips in monthly online job postings with a steep drop followed by a gradual recovery to roughly pre-pandemic levels by mid-2021.

Monthly online job postings within the AMME cluster peaked in January 2020 reaching approximately 350 postings. However, by May 2020 monthly online job postings were at their lowest with only around 90 monthly online job postings, likely due to lockdown restrictions, a decline of 73% in just four months and resulted a slower recovery resulting in a 'U' shaped curve.

The LHS cluster experienced its lowest monthly online job postings in April 2020 with approximately 80 monthly online job postings - a decline of 75% on March 2020. This dip however was relatively short lived as monthly online job postings steadily increased again until September 2020. This may have been due to LHS firms' efforts of fighting the virus, resulting in a 'V' shaped recovery curve.

## Employers

Table 2 below shows the top employers for online job postings for the three-year period to 2021 where the employer is known.

**Table 2: Top 10 Employers in the AMME and LHS Clusters in Northern Ireland, 2019 to 2021**

Employer - AMME clusters	Online Job Postings	Employer - LHS clusters	Online Job Postings
<b>Sensata Technologies Limited</b>	260	<b>Almac Group</b>	1,910
<b>Thales Group</b>	220	<b>Queen's University Belfast</b>	250
<b>Isaac Agnew Group</b>	210	<b>Norbrook Laboratories Limited</b>	220
<b>Queen's University Belfast</b>	170	<b>Randox Laboratories</b>	200
<b>The University of Ulster</b>	130	<b>Clear Group Limited</b>	140
<b>Pricewaterhousecoopers</b>	130	<b>The University of Ulster</b>	130
<b>Halfords</b>	100	<b>Field Fisher Waterhouse</b>	100
<b>Deloitte</b>	80	<b>Celerion</b>	80
<b>Vanrath Engineering &amp; Construction</b>	70	<b>Walgreens Boots Alliance</b>	70
<b>Lookers</b>	60	<b>Agri Food and Biosciences Institute</b>	70

Source: Burning Glass

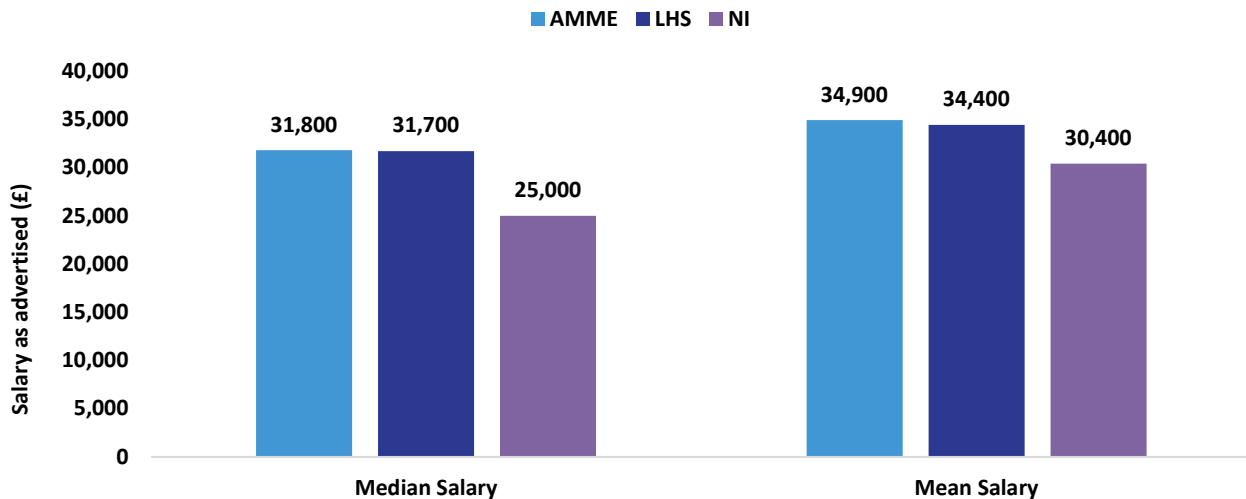
Note: Rounded to nearest 10.

Within the AMME cluster, of those online job postings which specified employer information, Sensata Technologies was the largest employer accounting for 6% of total postings followed by the Thales Group at 5%. The top employers in the LHS Clusters were the ALMAC group<sup>xiii</sup> which accounted for 36% of total postings and was equivalent by number of postings to the next 23 employers combined, followed by Queen's University Belfast with 5%. Queen's University Belfast presented itself within the top five employers in both clusters.

## Salary

Figure 3 highlights the median and mean salaries advertised in online job postings in the AMME and LHS clusters compared to the NI average, where salary was specified.

**Figure 3: Median and Mean Salary as Advertised in AMME and LHS clusters in Northern Ireland, 2019-2021**



Source: Burning Glass

Of those online job postings that specified salary information, both clusters advertised median salaries which were higher than the NI average. The AMME sector had a median salary of £31,800 which is 27% higher than the NI average (£25,000), with the LHS sector being 27% higher at £31,700.

## Titles

Table 3 shows the top titles for online job postings for the three-year period to 2021, where employer information was specified.

**Table 3: Top 10 Titles in the AMME and LHS Clusters in Northern Ireland between Jan 2019-Dec 2021.**

Job Title	AMME Postings	Job Title	LHS Postings
Manufacturing Engineer	90	Laboratory Technician	60
Mechanical Design Engineer	90	Pharmacist	50
Quality Engineer	90	Project Manager	50
Maintenance Engineer	80	Warehouse Operative	50
Vehicle Technician	70	Analytical Chemist	40
Electrical Design Engineer	60	Manufacturing Supervisor	40
Design Engineer	60	Production Operative	40
Electrical Engineer	50	Pharmacy Manager	40
Sales Executive	50	Software Developer	30
Service Advisor	50	Dietitian	30

Source: Burning Glass

Note: Rounded to nearest 10

The most advertised job title in the AMME cluster was Manufacturing Engineer (albeit from a small base) followed by Mechanical Design Engineer and Quality Engineer. The most advertised job title in the LHS clusters was Laboratory Technician (albeit from a small base) followed by Pharmacist and Project Manager.

## Occupations

Table 4a and 4b shows the top occupations advertised for online job postings for the period 2019 to 2021, where employer information was specified to 3-digit SOC code.

**Table 4a: Top 10 Occupations in the AMME Clusters in Northern Ireland, Jan 2019-Dec 2021.**

Occupation	Online Job Postings
Information Technology and Telecommunications Professionals	1,570
Engineering Professionals	1,300
Science, Engineering and Production Technicians	870
Vehicle Trades	340
Business, Research and Administrative Professionals	330
Quality and Regulatory Professionals	310
Sales Related Occupations	310
Sales, Marketing and Related Associate Professionals	300
Customer Service Occupations	280
Functional Managers and Directors	250

Source: Burning Glass

Note: rounded to nearest 10

**Table 4b: Top 10 Occupations in the LHS Clusters in Northern Ireland, Jan 2019-Dec 2021.**

Occupation	Online Job Postings
Science, Engineering and Production Technicians	840
Natural and Social Science Professionals	730
Information Technology and Telecommunications Professionals	720
Business, Research and Administrative Professionals	570
Health Professionals	550
Engineering Professionals	480
Sales, Marketing and Related Associate Professionals	350
Quality and Regulatory Professionals	330
Managers and Proprietors in Other Services	280
Health Associate Professionals	250

Source: Burning Glass

Note: rounded to nearest 10

Of those jobs which specified occupation information, the top occupation advertised in the AMME cluster was Information Technology and Telecommunications Professionals which accounted for 18% of total postings.

The top occupation advertised within the LHS cluster was Science, Engineering and Production Technicians which accounted for 10% of total postings.

When compared with the Northern Ireland average, IT professionals was the top profession accounting for 34% of total postings. The Engineering profession only accounted for 11% of total postings.

## **Conclusion**

The AMME cluster experienced a slower recovery relative to the LHS cluster after the Covid pandemic but since mid-2021, online job posting levels have returned to pre-pandemic levels. Qualification requirements were higher than the NI average and where specified, a median salary of £31,700 is offered, which is 27% above the NI wage. The top occupations in demand for the cluster were IT Professionals; Engineering Professionals; and Science, Engineering and Production Technicians.

The LHS cluster witnessed a steadier recovery after the Covid pandemic and exceeded its pre-pandemic levels by mid-2021. Qualification requirements were also higher than the NI average. A median salary of £31,700 was offered where advertisements specified, 27% above the NI median wage. The top occupations in demand for the cluster were Science, Engineering, and Production technicians; Natural and Social Science Professionals; and IT Professionals.

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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> Burning Glass / Lightcast - [Home \(lightcast.io\)](https://lightcast.io)

<sup>ii</sup> Department for Economy. (2021). *10X Economy - an economic vision for a decade of innovation*. Last accessed 1 June 2022. Available at: [10X Economy - an economic vision for a decade of innovation | Department for the Economy](https://www.gov.uk/government/publications/10x-economy).

<sup>iii</sup> Department for Economy. (2021). *A 10X Economy Summary*. Last accessed 17 February 2022.

Available at: [A 10x Economy - Summary \(economy-ni.gov.uk\)](https://www.economy-ni.gov.uk/a-10x-economy-summary).

<sup>iv</sup> Advanced manufacturing, materials and engineering is defined as the use of innovative or cutting-edge technologies and methodologies for improved competitiveness in the manufacturing sectors. It embraces companies in Aerospace & Defence, Automotive, Construction, Materials Handling, Electronics, Energy, Water and Consumer Products.

<sup>v</sup> Agri-tech is defined as the application of innovation and enabling technologies to build competitive advantage and transition to net zero across the primary and secondary processing sectors, including genomics, traceability of food, advanced packaging, plant and animal health specialists, and the application of AI to new agricultural methods.

<sup>vi</sup> Digital, ICT and Creative Industries are defined as the processing and communication of information by electronic means, including transmission and display, and incorporates Cyber Security; AI & Data Analytics; Telecom, Mobile & Data, Networks; Healthcare IT; Smart Cities; and Sports Tech. Digital and Entertainment Media

<sup>vii</sup> Fintech/Financial Services is defined as services and technological solutions to the international financial services industry including banks, insurance companies, and asset management companies

<sup>viii</sup> Life and Health Sciences is defined as the specialisation in Pharmaceutical, Diagnostics, Connected Health, Medical Devices and Biotechnology with a focus on enhancing wellbeing and providing health care solutions

<sup>ix</sup> Advanced Manufacturing, Materials and Engineering (AMME) was defined in Burning Glass Software using keywords: Advanced Manufacturing; Advanced Engineering; Materials Engineering; Aerospace; Polymers; Automotive; Advanced Composites; Nanotechnology; Advanced Electronics; Mechatronics; Metrology; Manufacturing Automation; Prototyping; Micro-electronics; Microelectronics; nano-electronics; nanoelectronics; Optics and Photonics Technologies; 3D Printing; Additive Manufacturing; Robotics; Advanced Materials; Biomaterials; Sensors; Digital manufacturing; Computational Machining; Aeronautics; Systems Modelling; Simulation; CAD Manufacturing; Computer aided design manufacturing; CAM; computer aided manufacturing; Advanced welding; laser machining.

<sup>x</sup> Life and Health Sciences (LHS) was defined in Burning Glass Software using keywords: digital health; LIMS; laboratory information management system; biomarker; biomarkers; Bio-engineering; bioengineering; biomaterials; Biomonitoring; medical imaging techniques; nanotechnology; biopolymers; Tissue Engineering; Medical technology; Med tech; medtech; Pharmaceutical; Biomedical engineering; Food and nutrition; Scientific Research and Development; Scientific R&D; Dietetics; Human nutrition; optometry; pathology; Pharmaceutical preparations; life health sciences; electromedical; electrotherapeutic; human health; Molecular diagnostics; animal health; plant health; disease surveillance; marine biology; bioeconomy.

<sup>xi</sup> Time period used was January 2019 – December 2021.

<sup>xii</sup> Department for Economy. (2021). *10X Economy - an economic vision for a decade of innovation*. Last accessed 1 June 2022.

Available at: [10X Economy - an economic vision for a decade of innovation | Department for the Economy](https://www.gov.uk/government/publications/10x-economy).

<sup>xiii</sup> Almac Group and Almac Group Limited combined.