Sector profile: Digital Tech and Communications in Leicester and Leicestershire

- Produces **£1.2bn of GVA**...and accounts for **17,800 jobs**
- **Productivity of £70,100** per job...improving **faster than the UK** average
- Underpinned by **3,235 businesses**...93% of which are 'micro'-sized
- Since 2010, has created an **additional 2,400 jobs** and **£330m of growth**
- Leicester has seen the **UK's fastest increase in digital startups**, since 2006
- Has the potential to **deliver 2,300 jobs** and **£270m of growth** by 2030
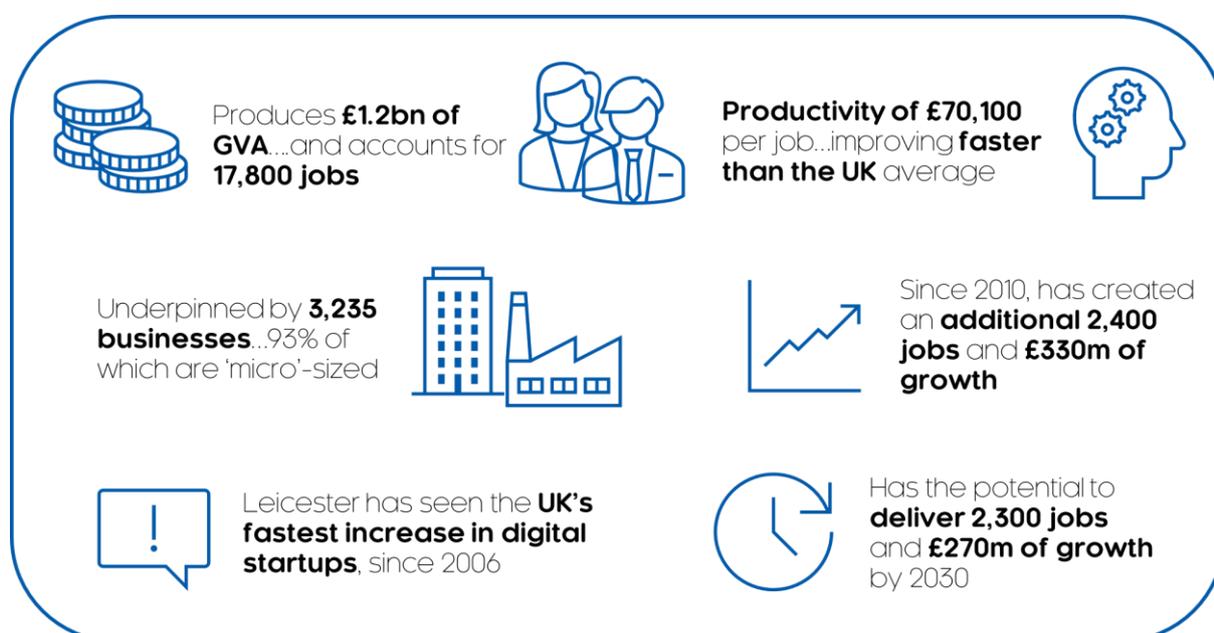
Source(s): See *Economic and growth indicators*

Defining Digital Tech and Communications

Digital technology ('tech') and communications comprises the operations of computers, networks, data communication, storage, manipulation and exchange, and the trading of goods and services over computer networks. Characterised by continuous technological change and development, over recent years, activities have extended to include e-commerce, e-business, cloud computing, media streaming, conference services, and cybersecurity. New market models and services have emerged such the integration of services with telecommunications – e.g. Uber (personal transport), Just Eat (food delivery), online groceries and retail, and financial management.

Digital technology and communications activities are often referred to as the 'tech sector', with 'tech businesses'. Tech Nation – the UK trade body for tech business, defines a 'digital tech business' as a business that provides a digital technical service, product, platform, or hardware, or heavily relies on it, as its primary revenue source.

One of the challenges of defining this sector is that many companies, in a range of sectors, undertake digital technology and communications activities. Most large food retailers in the UK, for example offer deliveries and other services, such as banking, which rely on digital technology and customers access services through computers and mobile devices. This sector profile focuses on businesses and organisations whose primary activity relates to developing, manufacturing, or selling.

Market and economic outlook

Global market

The global market for digital technology and communications is immense, and growing and a high rate. For global big data technology alone, the market size was estimated by Fortune Business Insight to be worth US $41.33 billion in 2019, projected to growth to US $116 billion by 2027 (14% annual growth). Global web hosting alone had a value of US $60.9 billion in 2019. 56% of Earth's population has internet access and in Q1 of 2021, there were 4.88 billion cell phone users and 4.66 billion people had used the internet in that quarter. It is estimated that by 2025 (Statista), there will be 75 billion connected devices in the world.

The UK is amongst the top nations globally for VC investment into the tech sector. While the US and China dominate in terms of sheer amount of venture capital (VC) investment into their tech sectors, year-on-year trends tell a different story about the stability and growth of global tech ecosystems. Among the top 20 countries for VC investment in 2020, only three have seen investment growth every year since 2015: the UK, France and Hong Kong.

[According to Deloitte](#), in 2021, technology organizations should consider three key strategic opportunities both to recover from the COVID-19 crisis and boldly position themselves to thrive in the future:

- Redoubling digital transformation efforts, with an emphasis on improving cloud infrastructure, data and analytics capabilities, cybersecurity, and business model transformation
- Reorienting and reskilling the workforce to optimize remote work capabilities and take full advantage of advanced technologies such as artificial intelligence (AI)
- Re-examining where and how manufacturing happens, with a focus on improving transparency, flexibility, and resiliency

UK market

[According to Tech Nation UK](#), the UK has been historically strong in deep digital technology, including: R&D intensive, innovative digital technology developments. Digital technology is becoming more important for the UK economy. The rate of digital technology GVA contribution to the UK economy has grown on average by 7% per year since 2016. Jobs in the digital economy have risen by nearly 50% over the last fifteen years. Since 2017, the rate of digital technology job creation has picked up and in 2019 represented almost three million jobs, or 10% of the employed population.

The UK is more attractive to international investors than ever: 63% of investment into UK digital technology came from overseas in 2020, up from 50% in 2016. The UK digital technology start-up and scale-up ecosystem is valued at $585bn - 120% more than in 2017, and more than double the next most valuable ecosystem, Germany, at $291bn. The number of UK unicorns (companies that are valued at US $1 billion or more) is increasing with seven more added to the UK herd in 2020 – including Hopin, Gousto, Arrival, Cazoo, Gymshark, Infobip and Octopus Energy. In 2021 by early March 2021, there have been six additional unicorns.

Emerging technologies and market subsectors in the digital technology and communications sector include:

- **UK Fintech** (financial services and digital technology): has grown markedly since 2018, particularly in terms of venture capital investment, although investment interest has cooled off in 2021 due to the Greensill scandal.

- **Healthtech** investment in the UK has climbed from just under $500m to over $1.5bn in 2020 – including $100m invested in Babylon Health, a digital healthcare platform, and $104m to Cera Care, a platform which connects healthcare professionals and patients.

- **Climate tech**, enabling access to low and zero carbon energy supplies.

- **Mobility tech** companies, using innovative technology to develop new transport and travel solutions, have seen record investment in 2020 – with future developments that will include autonomous industrial vehicles, people-shuttles and goods vehicles.

- **Food tech** companies have grown over the last year, with new unicorns emerging such as Gousto and Karma Kitchen.

- **Insurtech** firms bucked the trend of declining investment in fintech more broadly, raising a record high $361m in venture capital last year. According to the Association of British Insurers, the UK insurance market is the fourth largest in the world, behind only the US, China and Japan, with an estimated total premium volume of just under $220bn. The outlook for emerging insurtechs within the UK market remains vibrant.

Business impacts of Covid-19 and Brexit

2020 was a year of unprecedented seismic shifts in both the role and usage of technology as everyday activities were interrupted by the Covid-19 pandemic. Overall, consumers reported using technology more for communication, for work or school activities, and for entertainment. According to Tech Nation UK, the UK witnessed another record year for VC investment in tech in 2020. UK tech VC investment is third in the world, hitting a record high of $15bn in 2020 in the face of challenging condition, behind only China and the US.

[KPMG found](#) **that eighty-nine percent of global technology company CEOs say the progress of their digital transformation has accelerated** by months and even years. Further, they found that only 24 percent of technology company executives have a roadmap to close the gaps in their supply chain that COVID-19 has exposed, and that access to talent was now cited as a significant obstacle to growth, after barely registering as a threat at the beginning of 2020.

Activities and key organisations in Leicester and Leicestershire

Leicester's Cultural Quarter is being transformed into a hub for creative and digital tech start-ups – in workspaces such as LCB Depot and Phoenix Workspace. Beyond the city centre, The Dock acts as a hub for more than 50 high-tech businesses. Global Payments UK, the payment technology service, is based in Leicester.

Leicester Tech Startups supports the digital tech community beyond the universities. A group created by entrepreneurs for entrepreneurs, it signposts the various lectures, hackathons and meetups going on in the area. Tech start-up firms have included CloudCall and LoyalFree.

In 2015, the IBM Client Innovation Centre UK was established in Leicester. The IBM Client Innovation Centre is an entrepreneurial start-up with the support of the world's largest IT and consulting services company. The centre has been established to deliver a wide range of the latest technical services to clients and operates from over 16 locations spread across Europe.

University and R&D expertise

The **University of Leicester** has an award-winning data centre, a high-performance computing research lab and offers support for spinout companies. It's School of Informatics conducts research in, and offers courses in knowledge discovery, machine learning, algorithms complexity and engineering, interaction design, software modelling evolution, validation and verification.

De Montfort University's Innovation Centre is also central to Leicester's digital tech scene. Home to a range of tech and retail start-ups, it hosts support services, seminars and events as well as its start-up society, established in 2015. De Montfort University has research expertise, and runs courses in computer science, artificial intelligence, software engineering, cyber security and digital forensics.

Loughborough University's Department of Computer Science has research specialisms in Vision, AI, Autonomous and Human Centred Systems; Networks and Systems (NetSys); and Theoretical Computer Science (TCS) – and works in collaboration with organisations including BAE Systems, Toyota, Apical, Jennic, Arqiva, Sure, Sensinode and Rolls-Royce. In April 2021, a new £1.1m high-performance computer was activated at Loughborough University. Named after the English mathematician Ada Lovelace, the mainframe boasts 58 nodes and 2,230 cores – the equivalent of 58 computers each with 40 processors – 800TB of storage and is housed in a secure room on campus. It replaces Hydra, which was introduced in 2010.

Economic and growth indicators

Table 1: Summary of key economic and growth indicators for the Digital Tech and Communications sector in Leicester and Leicestershire

	Value, 2019	% of economy total	*% of economy total (UK average)*
GVA (£m)	1,247	5.1%	*7.8%*
Jobs	17,800	3.2%	*4.6%*
Businesses	3,235	6.5%	*7.9%*
Productivity (£)	70,100	157.4%	*169.0%*
	Value, 2010-19	**% change p.a.**	***% change p.a. (UK average)***
Real GVA growth (£m)	325	3.4%	*3.4%*
Jobs created	2,400	1.6%	*2.2%*
New businesses	1,000	44.7%	*41.8%*
Productivity growth	-	1.8%	*1.2%*

Source: ONS, Cambridge Econometrics.

Worth £1.3bn and accounting for 17,800 high-value jobs (according to official statistics – see Table 1 above), Leicester and Leicestershire is home to a small but vibrant digital tech and communications sector, with significant entrepreneurial and start-up activity.

The sector is fast growing, with 1,000 surviving start-ups supporting the creation of 2,400 additional jobs since 2010. This has enabled £330m of accompanying GVA growth, equivalent to growth of 3.4% p.a., faster than the UK sector average (3.3%).

Productivity is also fast improving, outpacing the UK average since 2010. This is from a low base though, with local activity some 20% less productive than the UK sector average. The sector is still some two-thirds more productive than the LLEP average though.

The sector is underpinned by over 3,200 local businesses, of which the overwhelming majority (93%) are 'micro'-sized (employing <9 people), highlighting the start-up-driven nature of the sector locally.

Additional evidence and research

Additional indicators and research on the sector in Leicester and Leicestershire shows:

- Tech Nation research shows the Leicester digital tech cluster directly supports 6,900 jobs and £900m of GVA, with the city also seeing the fastest increase in digital start-ups in the UK, since 2006
- The same research estimated the presence of a further 28,100 digital tech jobs in the city, capturing people working in tech jobs across the wider economy e.g. in finance, health, retail etc.

- [Ofcom estimates](#) that in 2019, 57% of premises in Leicester and Leicestershire had access to ultra-fast broadband (>300Mbit/s), and 7% had access to full-fibre broadband, both at rates above the national average (51% and 6% respectively)
- Analysis of tech meetups in Leicester and Leicestershire [by Tech Nation](#) found there were 5,300 members across 24 active groups

Spatial structure and clusters

Digital activity within Leicestershire is largely focussed on the city of Leicester, as **Figure 1** below shows. The city is regarded by Tech Nation as one of only two 'Tech hubs' in the East Midlands (alongside Nottingham), and on a per worker basis is the most productive.

Figure 1: Digital Tech and Communications clusters in Leicester and Leicestershire
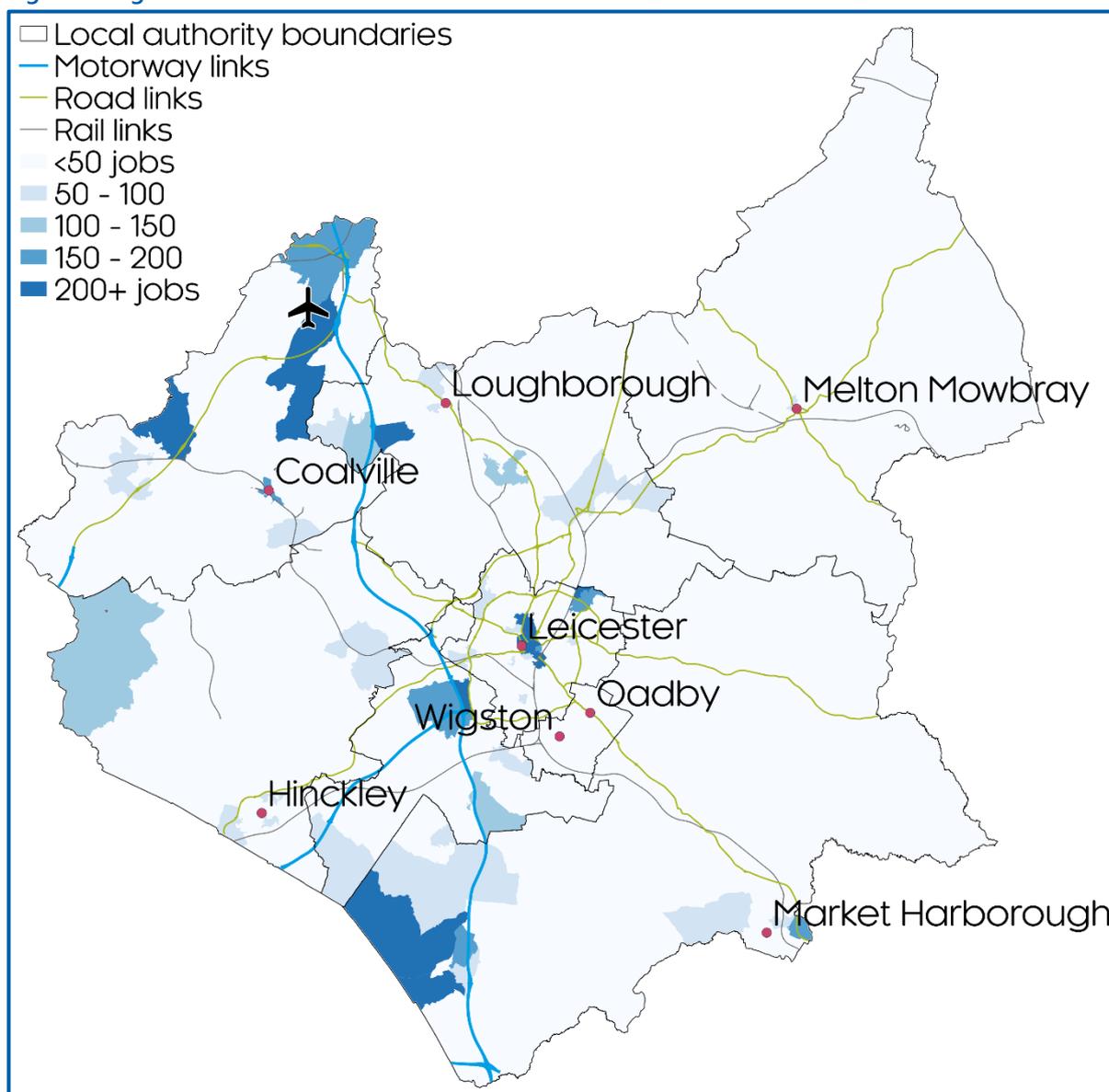
Source: ONS, Cambridge Econometrics.

Clustered in and around the city centre, there are strong links with the city's two universities and its talented graduate pool, as well as enterprise assets such as Leicester Coworking Space, and Leicester Innovation Hub.

Activity is also evident elsewhere in the county, particularly on business and science parks along the M1 corridor, including Magna Park to the south, and Pegasus Business Park and Loughborough Science and Enterprise Park to the north.

Industry structure and specialisms

Given the relative size and nascency of Leicester and Leicestershire's digital sector, there are only a handful of highly specialised activities, though growth has been consistently strong within the sector, and further specialisms are beginning to emerge, as **Figure 2** below shows:

- **Manufacture of computers, hardware and digital goods** – 700 jobs; is the most specialised activity within LLEP's digital tech sector
- **Data processing, programming and hosting** – 800 jobs; has more than doubled its workforce over the past decade, and is the only other highly-specialised activity
- **Tech consultancy and support (incl. cybersecurity)** – 6,600 jobs, £440m GVA; the largest and fastest growing activity, accounting for half of all new jobs in the sector
- **Development of commercial and domestic-use software** - 2,200 jobs, £135m GVA; has doubled in size over the past decade
- **Digital design, advertising, media and publishing** - 2,300 combined jobs

Figure 2: Local specialisms and growth within Digital Tech and Communications
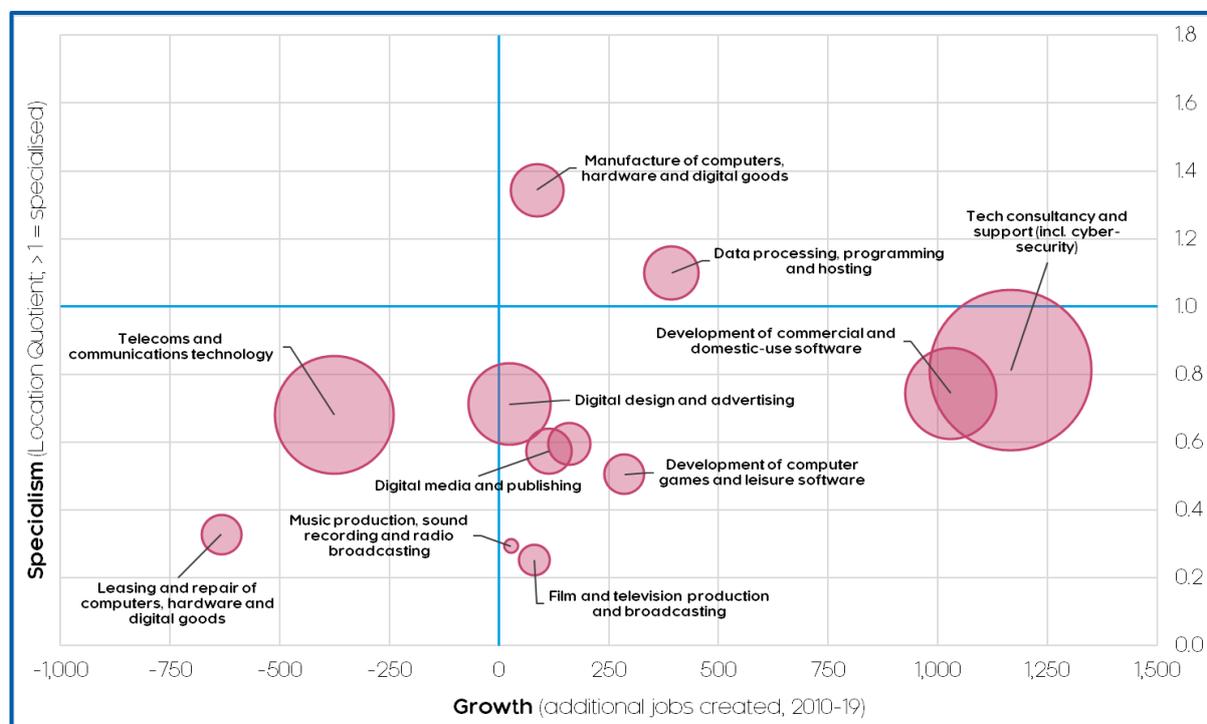
Source: ONS, Cambridge Econometrics. Note: Size of bubbles relate to size of activity (in jobs terms). Bubbles above the blue horizontal indicate a specialism. Bubbles to the right of the blue vertical indicate growth (in jobs terms).

Sector prospects in Leicester and Leicestershire

Economic impact and recovery from Covid-19 and Brexit

The Covid-19 pandemic and the end of the EU transition present significant challenges but also some opportunities for the sector. During the pandemic, the sector is expected to be one of the most resilient within Leicester and Leicestershire, with a 3.4% (-£40m) contraction in GVA through 2020 - only life sciences and biotech has contracted less. As **Table 2** below shows, the sector is expected to be much more resilient in in Leicestershire compared to the UK average.

Table 2: Covid-19 impacts and recovery prospects for the Digital Tech and Communications sector in Leicester and Leicestershire

Forecasted Covid-19 impact (2020)			
	Value, 2020	**% change**	**% change (UK average)**
GVA impact (£m)	-42	-3.4%	-5.1%
Jobs impact	-1,200	-6.9%	-0.7%
Productivity impact	-	3.8%	-4.3%
Forecasted Covid-19 recovery (2021-30)			
	Value, 2021-30	**% change p.a.**	**% change p.a. (UK average)**
Real GVA growth (£m)	267	2.0%	2.1%
Jobs created	2,300	1.3%	1.3%
Productivity growth	-	0.7%	0.8%

Source: Cambridge Econometrics Spring 2021 Forecasts.

The sector's resilience can be attributed to the pandemic-induced demand for innovative digital services and infrastructure e.g. around cloud computing, e-commerce, streaming, fintech, and meeting/conference services. During this time, the digital workforce has also been resilient and adaptable, aided by high homeworking uptake (with the share of digital workers working from home exceeding 80%).

This additional demand and ongoing digitisation throughout the economy could fuel a strong recovery through the 2020's, with the potential for £270m of additional growth by 2030 – more than offsetting the losses of 2020. Leicestershire's digital workforce is also expected to rebound during this time, with 2,300 additional roles by 2030.

Skills needs and challenges

Characterised by ongoing technological change and development, the sector's skill needs are changing rapidly, according to research by UCKES. Cybersecurity skills are increasingly desired, as are softer and interpersonal skills and management aptitude, to oversee technical teams and complex supply chains. On the creative side, increasingly technical skills are needed for greater multiple-platform content and work.

Already one of Leicestershire's most skilled sectors, UKCES expects that by 2024 over two-thirds (67%) of the digital workforce across the East Midlands region will require high-level (QCF4+, typically STEM-based) qualifications, up from just under half a decade ago.

With strong links to the local universities – with almost a third (27%) of local graduates staying in Leicestershire for work - UKCES also notes the positive uptake and impact of vocational learning and training in the sector.

If the supply for such skills and qualifications are not forthcoming, already high skills shortages and gaps could be exacerbated in the sector; according to the 2019 UK Employer Skills Survey, a third (30%) of local vacancies in the sector were hard-to-fill.

Appendix A: Sector definition and sources

Data has primarily been sourced from Cambridge Econometrics LEFM. For a full and detailed overview of definitions, sources and forecasting methodology, please refer to the Technical Summary report accompanying this profile.

The sector has been defined using 5-digit Standard Industrial Classifications (SICs), detailed as follows. These have been informed by government and/or industry recommended definitions, and aim to capture as much of the sectors value chain as possible:

18110: Printing of newspapers (18.4% of SIC code only)

18130: Pre-press and pre-media services (44.7% of SIC code only)

18201: Reproduction of sound recording (33.2% of SIC code only)

18202: Reproduction of video recording (33.2% of SIC code only)

18203: Reproduction of computer media

26110: Manufacture of electronic components

26120: Manufacture of loaded electronic boards

26200: Manufacture of computers and peripheral equipment

26301: Manufacture of telegraph and telephone apparatus and equipment

26309: Manufacture of communication equipment (other than telegraph and telephone apparatus and equipment)

26400: Manufacture of consumer electronics

26800: Manufacture of magnetic and optical media

27310: Manufacture of fibre optic cables

46510: Wholesale of computers, computer peripheral equipment and software

46520: Wholesale of electronic and telecommunications equipment and parts

47410: Retail sale of computers, peripheral units and software in specialised stores

47421: Retail sale of mobile telephones in specialised stores

47429: Retail sale of telecommunications equipment (other than mobile telephones) nec, in specialised stores

58110: Book publishing (18.4% of SIC code only)

58120: Publishing of directories and mailing lists (18.4% of SIC code only)

58130: Publishing of newspapers (18.4% of SIC code only)

58141: Publishing of learned journals (18.4% of SIC code only)

58142: Publishing of consumer, business and professional journals and periodicals (18.4% of SIC code only)

58190: Other publishing activities (18.4% of SIC code only)

58210: Publishing of computer games

58290: Other software publishing

59111: Motion picture production activities (33.2% of SIC code only)

59112: Video production activities (33.2% of SIC code only)

59113: Television programme production activities (33.2% of SIC code only)

59120: Motion picture, video and television programme post-production activities (33.2% of SIC code only)

59131: Motion picture distribution activities (33.2% of SIC code only)

59132: Video distribution activities (33.2% of SIC code only)

59133: Television programme distribution activities (33.2% of SIC code only)

59140: Motion picture projection activities (33.2% of SIC code only)

59200: Sound recording and music publishing activities (33.2% of SIC code only)

60100: Radio broadcasting (33.2% of SIC code only)

60200: Television programming and broadcasting activities (33.2% of SIC code only)

61100: Wired telecommunications activities

61200: Wireless telecommunications activities

61300: Satellite telecommunications activities

61900: Other telecommunications activities

62011: Ready-made interactive leisure and entertainment software development

62012: Business and domestic software development

62020: Computer consultancy activities

62030: Computer facilities management activities

62090: Other information technology and computer service activities

63110: Data processing, hosting and related activities

63120: Web portals

63910: News agency activities

63990: Other information service activities nec

70210: Public relations and communication activities (44.7% of SIC code only)

73110: Advertising agencies (44.7% of SIC code only)

73120: Media representation (44.7% of SIC code only)

73200: Market research and public opinion polling (44.7% of SIC code only)

74100: Specialised design activities (44.7% of SIC code only)

74201: Portrait photographic activities (44.7% of SIC code only)

74202: Other specialist photography (not including portrait photography) (44.7% of SIC code only)

74203: Film processing (44.7% of SIC code only)

74209: Other photographic activities (not including portrait and other specialist photography and film processing) nec (44.7% of SIC code only)

77330: Renting and leasing of office machinery and equipment (including computers)

95110: Repair of computers and peripheral equipment

95120: Repair of communication equipment

95210: Repair of consumer electronics