Technology (ICT) Sector Report

1. This is a report for the House of Commons Committee on Exiting the European Union following the motion passed at the Opposition Day debate on 1 November, which called on the Government to provide the Committee with impact assessments arising from the sectoral analysis it has conducted with regards to the list of 58 sectors referred to in the answer of 26 June 2017 to Question 239.

2. As the Government has already made clear, it is not the case that 58 sectoral impact assessments exist. The Government's sectoral analysis is a wide mix of qualitative and quantitative analysis contained in a range of documents developed at different times since the referendum. This report brings together information about the sector in a way that is accessible and informative. Some reports aggregate some sectors in order to either avoid repetition of information or because of the strong interlinkages between some of these sectors.

3. This report covers: a description of the sector, the current EU regulatory regime, existing frameworks for how trade is facilitated between countries in this sector, and sector views. It does not contain commercially-, market- or negotiation-sensitive information.

Description of sector

Sector overview

4. The UK digital sector covers digital goods, digital services and digitally-enabled transactions of goods and services, whether digitally or physically delivered, involving consumers, business or government, all of which are underpinned by movement of data across borders. The digital sector includes: audio-visual (AV); e-commerce; telecommunications; data; and a raft of emerging sectors, such as artificial intelligence (AI), FinTech (which is dealt with in a separate report), the internet of things, and cyber security.

5. Separate sector reports address the UK broadcasting and telecoms sectors, as well as professional and business services. The UK video games industry is included in a separate report for the creative industries sector.

6. As highlighted in the *Tech Nation 2017*[1] review, digital companies are spread throughout the UK, with thriving digital clusters in Edinburgh, Glasgow, Dundee, Belfast, Cardiff and Swansea, and across England. London is currently ranked first in Nesta's *European Digital City Index*[2] - designed to describe how well different cities across Europe support digital entrepreneurs. Cambridge, Bristol, Oxford,

[1] Tech Nation 2017, Tech City UK 2017
[2] European Digital City Index 2016

Manchester, Edinburgh and Birmingham also all rank highly in comparison with other European digital hubs.

7. Digital sector employment is spread throughout the UK, with almost three quarters (74.3%) of digital sector employment situated outside London. The percentage of total UK digital sector employment in the Devolved Administrations stands at more than 10% (10.6%), with Scotland, Wales and Northern Ireland at 6.8%, 2.6% and 1.2%, respectively.[3]

8. The UK is the leading destination in Europe for inward investment into the digital sector, attracting £6.7 billion in 2016 (50% higher than any other European country[4]). Global tech companies have announced significant investments in the UK since the referendum to leave the EU.[5]

Headline statistics

9. Headline statistics for the UK digital sector:[6]

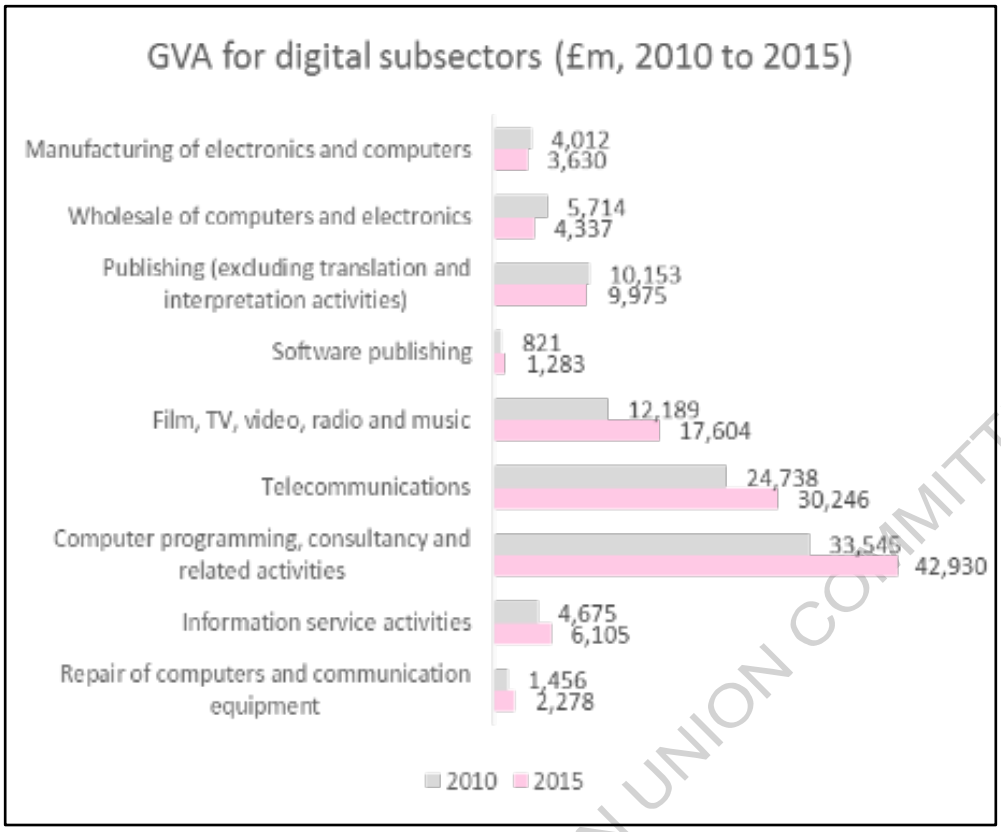
GVA contribution

- The UK digital sector contributed £118.4 billion to the UK economy in 2015, accounting for over 7% of UK GVA.

- From 2010 to 2015, the UK digital sector's contribution to GVA increased by 21.7%, compared with total UK GVA, which increased by 17.4%.

[3] https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade
[4] UK tech sector leads European investment in 2016, London & Partners 12th January 2017
[5] Announcements include:
- Facebook – Facebook announced they will be increasing their UK presence by 50% this year to 1,500 staff with their new London Office opening in 2017, BBC News 21st November 2016
- Google - Google confirmed their new London Office, housing 7,000 staff, set to open in 2018 - an estimated £1bn investment Guardian, 16th November 2016
- Apple - Apple announce new London HQ at Battersea Power Station as part of a £9 billion project - Evening Standard, 28th September 2016
- Amazon - Amazon's new London office with space for over 5,000 staff highlighting continued commitment to the UK -, Business Insider UK 22nd July 2017

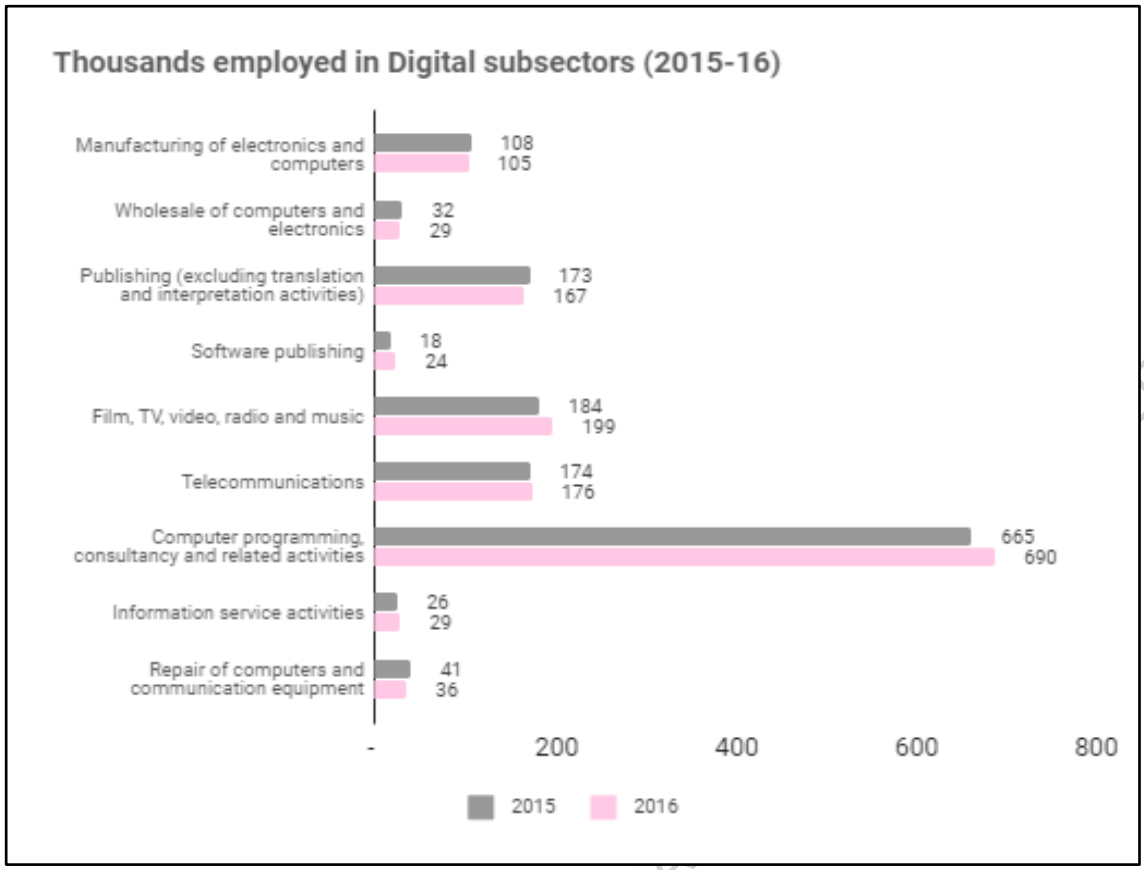
[6] These are sourced from DCMS' economic estimates series, unless otherwise stated. GVA data is from the August 2016 publication, while employment and trade data is from the July 2017 publication.



Employment:

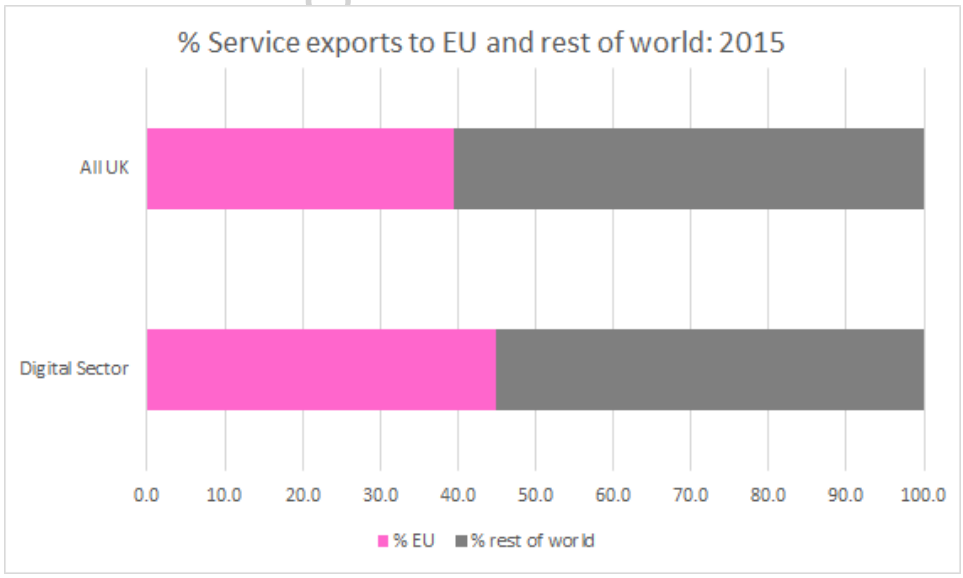
- There were almost 1.5 million jobs in the UK digital sector (by Standard Industrial Classification code) in 2016 - and almost 2.2 million in the wider digital economy;[7]
- Just over half of tech specialists work outside the tech sector;[8]
- The digital sector accounts for 4.5% of all UK jobs;
- The number of jobs in the UK digital sector grew 2.4% between 2015 and 2016 (around twice the rate of UK jobs overall at 1.2%); and
- Nearly 1.5 million UK digital sector jobs, approximately 6.7% of digital sector employees (98,000) were EU nationals; a further 6.5% (95,000) were non-EU nationals.

[7] For statistical purposes, the government defines the Digital Economy as "all jobs in the Digital Sector, as well as all those working in Digital Occupations in non-Digital Sectors." This includes 700,000 digital occupations outside the digital sector in addition to the 1.5 million jobs in the digital sector - statistics are sourced from DCMS' economic estimates series; employment and trade data is from the July 2017 publication.
[8] Factsheet: tech specialists, Tech Partnership February 2016



Imports and exports:

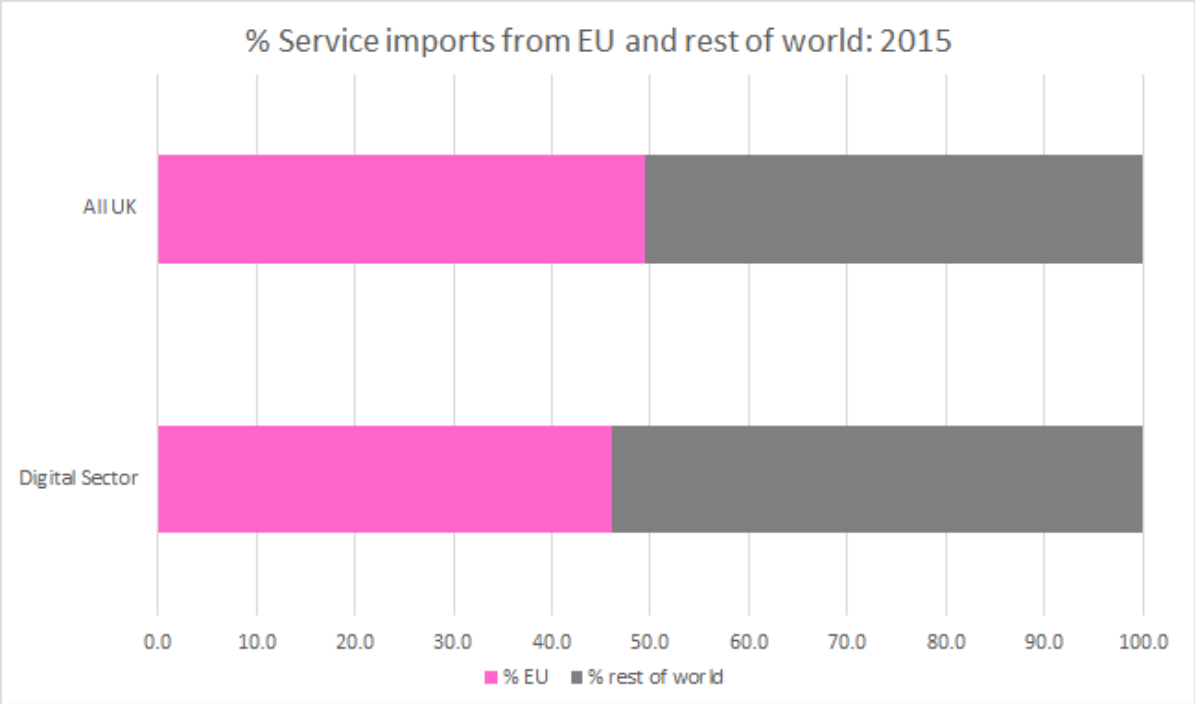
- The UK digital sector exported £32.1 billion of services in 2015, accounting for 14.2% of total UK service exports in 2015; and
- In 2015, the UK digital sector exported £14.5 billion worth of services to the EU, and £17.7 billion worth of services to rest of the world[9].



[9] DCMS economic estimates series, July 2017.

- Imports of services by the UK digital sector were almost £18.5 billion in 2015, accounting for 13.4% of total UK service imports in 2015.

- In 2015, the UK digital sector imported £8.5 billion worth of services from the EU, and £10.0 billion from the rest of the world.



- Businesses in the UK digital sector are more likely to trade internationally than
  UK businesses overall[10].

    - In 2014, 15.2% of businesses in the GB digital sector exported goods and/or services compared with 10.8% of GB non-financial businesses overall.
    - In 2014, 12.9% of businesses in the GB digital sector imported goods and/or services compared with 10.7% of GB non-financial businesses overall.

10. The following sections set out more detailed statistics covering:

- the UK subsector: IT, software and computer services; and
- the UK digital sector overall.

[10] User defined sectors of exporters and importers of goods and/or services - Annual business survey: 2011 to 2014, ONS March 2016

IT, software and computer services

11. 'IT, software and computer services' is a sub-sector including the following SIC (Standard Industrial Classification) codes:
    - 58.21 Publishing of computer games;
    - 58.29 Other software publishing;
    - 62.01 Computer programming activities; and
    - 62.02 Computer consultancy activities

GVA of the IT, software and computer services sub-sector[11]

	GVA (£bn)						
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**5 year growth**
IT, software and computer services	25.4	27.9	28.9	30.6	33.1	34.7	36.8%
% of UK total	1.8%	1.9%	1.9%	2.0%	2.0%	2.1%	
UK Total	1,414.6	1,452.1	1,495.6	1,551.6	1,624.3	1,661.1	17.4%

Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/543710/DCMS_Sectors_Economic_Estimates_-_August_2016.pdf

[11] Official Estimates are available for GVA (in current prices), employment, number of businesses and trade. Number of businesses in the IT, software and computer services sub-sector are not currently published.

GVA in the IT, software and computer services sub-sector by NUTS1 classification (2015)

Region (England)	**GVA (£bn)**	**% of GVA in the UK**
North East	0.45	1.3%
North West	2.58	7.4%
Yorkshire and the Humber	1.28	3.7%
East Midlands	1.28	3.7%
West Midlands	2.08	6.0%
East of England	2.86	8.2%
London	9.60	27.6%
South East	10.07	29.0%
South West	1.71	4.9%
Devolved Administration	**GVA (£bn)**	**% of GVA in the UK**
Wales	0.35	1.0%
Scotland	1.90	5.5%
Northern Ireland	0.55	1.6%
Total (UK)	**34.73**	**100.0%**

Source: https://www.ons.gov.uk/economy/grossvalueaddedgva/adhocs/006815constrainedregionalgrossvalueaddedgvaestimatesfordepartmentforculturemediaandsportdcmscreativeindustriessubsectors

- IT, software and computer services sub-sector GVA was £34.7 billion in 2015, an increase of 36.8% compared with 2010. By comparison, GVA for the UK economy as a whole grew by 17.4% from 2010 to 2015.
- The IT, software and computer services sub-sector accounted for 2.1% of the UK economy in 2015, up from 1.8% in 2010.
- Over half of GVA in this sub-sector was in London and the South East. 91.8% was in England.

Employment in the IT, software and computer services sub-sector (000's)

	2011	2012	2013	2014	2015	2016	% change 2015-2016	% change 2011-2016
IT, software and computer services	483	558	574	607	640	674	4.9%	39.4%
% of UK	1.6%	1.8%	1.9%	1.9%	2.0%	2.1%		
UK	30,129	30,334	30,760	31,410	32,037	32,422	1.2%	7.6%

Employment by nationality (2016, 000's)

	UK	% UK	EU	% EU	Non-EU	% non-EU	Total
IT, software and computer services	562	83.4%	52	7.7%	60	8.9%	674
All UK industries	28,918	89.2%	2,258	7.0%	1,241	3.8%	32,422

Source: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade

Employment by NUTS1 classification (2016)

Region	**Total employment (000s)**	**% of UK jobs**
North East	-	-
North West	47	7.0%
Yorkshire and the Humber	33	4.9%
East Midlands	37	5.5%
West Midlands	52	7.7%
East of England	56	8.3%
London	173	25.7%
South East	143	21.2%
South West	50	7.4%
Devolved Administrations	**GVA (£bn)**	**% of GVA in the UK**
Wales	-	-
Scotland	44	6.5%
Northern Ireland	-	-
Total (UK)	**674**	**100%**

"-" means figures suppressed due to ONS statistical disclosure control to safeguard confidentiality given the small sample sizes.

Source: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade

- In 2016, there were 674,000 jobs in the IT, software and computer services sub-sector, 2.1% of total jobs in the UK, up from 483,000 in 2011.
- 7.7% of employees in the IT, software and computer services sub-sector were EU nationals, compared with 7.0% for the UK economy as a whole.
- Nearly half (46.9%) of jobs are in London and the South East.

- In 2016, there were also 23,000 jobs in the Computer Games sector[12] (discussed in a separate *Creative Industries* report).

Exports of goods and services in the IT, software and computer services sub-sector

	Exports of Services (£bn)						
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**5 year growth**
IT, software and computer services	6.3	7.2	8.0	8.6	8.8	9.8	56.6%
% UK total	3.6%	3.8%	4.1%	4.0%	4.0%	4.4%	
UK Total	174.1	188.8	197.5	214.5	218.8	225.5	29.5%

	Exports of goods (£bn)						
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**5 year growth**
IT, software and computer services	0.5	0.3	0.3	0.2	0.2	0.2	-60.2%
% UK total	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	
UK Total	270.2	308.2	301.6	303.1	292.9	284.9	5.4%

Source: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade

- The value of services exported by the IT, software and computer services sub-sector in 2015 was £9.8bn. This is a 56.6% increase on 2010, compared to growth of 29.5% in wider services exports over the same period. The services exports by the IT, software and computer services sub-sector in 2015 comprised 4.4% of total UK services exports.
- The IT, software and computer services sub-sector exported £0.2bn worth of goods in 2015 - 60.2% less than in 2010 and 0.1% of total UK goods exports.

12 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/632085/DCMS_Sectors_Economic_Estimates_Employment_Computer_Games.xlsx

Imports of goods and services in the IT, software and computer services sub-sector

	Imports of Services (£bn) (2015)
IT, software and computer services	5.1
% UK total	3.7
UK Total	137.7

	Imports of goods (£bn)						
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**5 year growth**
IT, software and computer services	0.7	0.6	0.6	0.5	0.5	0.5	-29.7%
% UK total	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	
UK Total	367.6	403.1	412.5	423.8	415.5	411.2	11.9%

Source: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade

- The value of services imported by the IT, software and computer services sub-sector in 2015 was £5.1bn, 3.7% of the total UK services imports.
- The IT, software and computer services sub-sector imported £0.5bn worth of goods in 2015 - 29.7% less than in 2010 and 0.1% of total UK goods imports.

Digital - technology (ICT)

12. Unless otherwise stated, the definition of "digital sector" used for the statistics provided below refer to the definition developed by the OECD using the UN Standard Industrial Classifications (SICs) used by DCMS in its publications[13] and, therefore is comparable internationally.

13. The OECD identifies digital sector industries (including Information, Communication and Technology (ICT)) activities as follows: "The production (goods and services) of a candidate industry must primarily be intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display."[14]

[13] See DCMS Sectors Economic Estimates methodology for SIC codes at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/632194/DCMS_Sectors_Economic_Estimates_-_Methodology.pdf

[14] 'OECD definitions of the ICT sector', World Bank Group, March 2009.

14. However, there are many people working in digital jobs (digital occupations) which are not part of the digital sector. This is what the concept of the digital economy encompasses. For statistical purposes, the government defines the digital economy as "all jobs in the digital sector, as well as all those working in digital occupations in non-digital sectors." However, there is not an internationally accepted definition of the digital economy.

15. By and large, the majority of statistics used in this template refer to the digital sector.[15] The main reason for this is data availability. The availability of data for the wider digital economy is limited (for instance, data on the GVA impact of the wider digital economy is not currently available).

[15] Official Estimates for the digital sector are available for GVA (in current prices), employment, number of businesses and trade. Note that the definition of 'tech' used in these statistics is the same as 'digital sector' in the official estimates.

Number of businesses in the digital sector

	Number of businesses (000's)							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**% of UK (2014)**	**5 year growth**
Digital	156.2	157.3	168.5	175.0	188.4	199.2	9.5%	27.5%
UK Total	1,903.7	1,885.8	1,941.0	1,945.2	2,029.6	2,094.1		10.0%

Percentage of enterprises in digital sector by size (2014)

	% of firms in each size band (by number of employees)				
	Micro		**Small**	**Medium**	**Large**
	0-4	**5-9**	**10-49**	**50-249**	**250+**
Digital	87.9%	5.7%	5.2%	1.0%	0.2%
UK Total	75.7%	12.6%	9.6%	1.7%	0.4%

Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/543710/DCMS_Sectors_Economic_Estimates_-_August_2016.pdf

- The digital (tech) sector is characterised by a large number of very small firms (with fewer than 5 employees) compared with the UK economy as a whole.
- In 2014, there were 199,200 businesses in the digital sector, 27.5% greater than in 2009. The digital sector accounted for 9.5% of the total number of firms in the UK in 2014.
- Of the 199,200 businesses in the digital sector in 2014, 93.6% were micro firms (fewer than 10 employees), and 99.8% were SMEs (fewer than 250 employees).

16. GVA of the digital sector

	GVA (£bn)						
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**5 year growth**
Digital	97.3	103.0	105.2	110.0	111.6	118.4	21.7%
% of UK total	6.9%	7.1%	7.0%	7.1%	6.9%	7.1%	
UK Total	1,414.6	1,452.1	1,495.6	1,551.6	1,624.3	1,661.1	17.4%

Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/543710/DCMS_Sectors_Economic_Estimates_-_August_2016.pdf

- Digital sector GVA was £118.4bn in 2015, an increase of 21.7% compared with 2010. By comparison, GVA for the UK economy as a whole grew by 17.4% from 2010 to 2015.
- The digital sector accounted for 7.1% of the UK economy in 2015, up from 6.9% in 2010.
- There are no disaggregated digital sector GVA figures separately for England, Wales, Scotland and Northern Ireland.

Employment in the digital sector (000's)

	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**% change 2015-2016**	**% change 2011-2016**
Digital	1,292	1,378	1,376	1,394	1,421	1,455	2.4%	12.6%
% of UK	4.3%	4.5%	4.5%	4.4%	4.4%	4.5%		
UK	30,129	30,334	30,760	31,410	32,037	32,422	1.2%	7.6%

Employment by nationality (2016, 000's)

	UK	**% UK**	**EU**	**% EU**	**Non-EU**	**% non-EU**	**Total**
Digital Sector	1,262	86.7%	98	6.7%	95	6.5%	1,455
All UK industries	28,918	89.2%	2,258	7.0%	1,241	3.8%	32,422

Source: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade

17. Employment in the digital sector by NUTS1 classification (2016)

Region (England)	**Total employment (000's)**	**% of jobs in the UK**
North East	36	2.5%
North West	113	7.8%
Yorkshire and the Humber	77	5.3%
East Midlands	74	5.1%
West Midlands	95	6.6%
East of England	115	7.9%
London	401	27.5%
South East	264	18.1%
South West	118	8.1%
Devolved Administration	**Total employment (000s)**	**% of jobs in the UK**
Wales	37	2.6%
Scotland	98	6.8%
Northern Ireland	17	1.2%
Total (UK)	**1,455**	**100%**

Source: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade

- In 2016, there were 1.5 million jobs in the digital sector, 4.5% of total jobs in the UK, up from 1.3 million in 2011.
- 6.7% of employees in the digital sector were EU nationals, compared with 7.0% for the UK economy as a whole.
- 88.9% of digital sector jobs are in England, with 45.7% in London and the South East. 2.5% are in Wales, 6.7% in Scotland, and 1.2% in Northern Ireland.

18. Exports of goods and services in the digital sector

	Exports of Services (£bn)							Exports by region (2015)	
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**5 year growth**	**% to EU**	**% to non-EU**
Digital	23.0	23.6	26.1	27.6	31.8	32.1	39.6%	45.0%	55.0%
% UK total	13.2%	12.5%	13.2%	12.8%	14.5%	14.2%			
UK Total	174.1	188.8	197.5	214.5	218.8	225.5	29.5%	39.4%	60.6%

Source: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade

	Exports of goods (£bn)							Exports by region (2015)	
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**5 year growth**	**% to EU**	**% to non-EU**
Digital	18.9	17.4	15.6	15.7	15.1	14.8	-22.0%	55.7%	44.3%
% UK total	7.0%	5.6%	5.2%	5.2%	5.1%	5.2%			
UK Total	270.2	308.2	301.6	303.1	292.9	284.9	5.4%	46.9%	53.1%

Source: Time series available at: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade
EU/non-EU breakdown to be published in a forthcoming Economic Estimates ad hoc publication: https://www.gov.uk/government/collections/ad-hoc-statistical-publications-list--2

- Total exports for the digital sector in 2015 were worth £46.9bn, 9.2% of all UK exports (goods and services).
- The value of services exported by the digital sector in 2015 was £32.1bn. This is a 39.6% increase on 2010. The value of services exports by the digital sector in 2015 was worth 14.2% of the total UK services exports, which by comparison grew by 29.5% from 2010 to 2015.
- Services exports to the EU accounted for 45.0% of all digital sector services exports, compared with 39.4% for all UK services exports.
- The digital sector exported £14.8bn worth of goods in 2015 - 5.2% of total UK goods exports.
- Goods exports to the EU accounted for 55.7% of all digital sector goods exports, compared with 46.9% for all UK goods exports.

19. Imports of goods and services in the digital sector

	Imports of Services (£bn)							Imports by region (2015)	
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**5 year growth**	**% to EU**	**% to non-EU**
Digital	14.0	13.9	14.9	15.7	17.0	18.5	32.4%	46.1%	53.9%
% UK total	11.7%	11.5%	12.0%	11.8%	12.8%	13.4%			
UK Total	119.3	120.9	123.9	133.1	132.4	137.7	15.4%	49.4%	50.6%

Source: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade

	Imports of goods (£bn)							Imports by region (2015)	
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**5 year growth**	**% to EU**	**% to non-EU**
Digital	35.5	32.4	31.7	32.8	32.2	33.5	-5.7%	48.4%	51.6%
% UK total	9.7%	8.0%	7.7%	7.7%	7.8%	8.1%			
UK Total	367.6	403.1	412.5	423.8	415.5	411.2	11.9%	54.2%	45.8%

Source: Time series available at: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment-and-trade
EU/non-EU breakdown to be published in a forthcoming Economic Estimates ad hoc: https://www.gov.uk/government/collections/ad-hoc-statistical-publications-list--2

- Total imports for the digital sector in 2015 were worth £52.0bn, 9.5% of all UK imports (goods and services).
- The value of services imported by the digital sector in 2015 was £18.5bn. This is a 32.4% increase on 2010. By comparison, UK total imports grew by 15.4% from 2010 to 2015.
- The value of services imports by the digital sector in 2015 was worth 13.4% of the total UK services imports.
- Services imports from the EU accounted for 46.1% of all digital sector services imports, compared with 49.4% for all UK services imports.
- The digital sector imported £33.5 billion worth of goods in 2015 - 5.7% less than in 2010 and 8.1% of total UK goods imports.

- Goods imports from the EU accounted for 48.4% of all digital sector goods imports, compared with 54.2% for all UK goods imports.[16]

The current EU regulatory regime

20. Existing regulatory arrangements for the digital sector are largely driven by the European Commission's Digital Single Market (DSM) Strategy,[17] published in May 2015. This outlined 16 initiatives to update the Single Market for the digital age, promote digital trade and encourage the growth of the digital economy. These consist of a mix of regulatory and non-regulatory measures, covering digital, broadcasting and telecoms. The DSM includes initiatives on:

    - free flow of data;
    - cyber security;
    - e-Privacy;
    - setting ICT standards; and
    - intellectual property.

21. While a number of these initiatives have been agreed and are being or have been implemented (e.g. the cessation of mobile roaming charges in the EU, or the Portability Regulation), the majority are currently under negotiation, or are awaiting concrete proposals from the European Commission.

22. Key DSM files or associated regulatory regimes (not covered in separate telecoms and broadcasting reports) which have importance to the wider UK economy, not just the digital sector itself, include: data protection; the ePrivacy Directive; the free flow of data; the eCommerce Directive; the Network and Information Security Directive; and wider technical standards and regulation.

Data Protection

23. Everyone responsible for processing personal data has to abide by rigorous data protection standards. The Commission and Member States regard data protection reform as a key enabler of the Digital Single Market - not just for the digital sector, but also underpinning the whole economy. From 25 May 2018, the EU General Data Protection Regulation (GDPR) will replace the 1995 Data Protection Directive as the EU standard on general data processing. The UK Government has introduced a new Data Protection Bill to repeal and replace the Data Protection Act 1998 with a new law that provides a comprehensive and modern framework for data protection in the UK. This will introduce stronger sanctions for malpractice and set new standards for protecting general data - in accordance with the GDPR - giving people more control

[16] To be published in a forthcoming Economic Estimates ad hoc: https://www.gov.uk/government/collections/ad-hoc-statistical-publications-list--2

[17] Communication on the Mid-Term Review on the implementation of the Digital Single Market Strategy, European Commission 10th May 2017

over use of their personal data, and providing new rights to move or delete personal data.

The ePrivacy Directive

24. The ePrivacy Directive gives people specific privacy rights in relation to electronic communications. It has been implemented by the UK through the Privacy and Electronic Communications Regulations. The Commission recently proposed a revision of the Directive. The Directive has specific rules on: marketing calls, emails, texts and faxes; cookies (and similar technologies); keeping communications services secure; and customer privacy as regards traffic and location data, itemised billing, line identification, and directory listings.

Free Flow of Data

25. The Commission's Free Flow of Data proposal aims to address barriers to the efficient access, storage and use of non-personal data across EU borders, in order to unlock economic growth. It currently proposes a regulation which majors on data localisation (e.g. limiting member states from mandating that data must be stored in their own jurisdictions). The wider initiative is looking at other data related issues, such as access, re-use, ownership, liability, interoperability and portability. The Commission is expected to bring forward action in some or all of these areas during 2018.

The eCommerce Directive

26. The Electronic Commerce (eCommerce) Directive seeks to contribute to the proper functioning of the internal market by ensuring the free movement of 'information society services' between Member States. Information society services are any services normally provided for remuneration, at a distance, by electronic means and at the individual request of a recipient of services. It covers online services normally provided for remuneration. This also covers services which are not remunerated by those who receive them, such as those offering on-line information or commercial communications, or those providing tools allowing for search, access and retrieval of data. One of the key parts of the Directive is its limited liability regime. This provides information society services with liability protection from hosting, caching or transmitting illegal/unlawful content, provided certain conditions are met.

Network and Information Security (NIS) Directive

27. The NIS Directive, which comes into effect in May 2018, affects providers of certain key digital services (search engines, online marketplaces and cloud computing services). Its provisions aim to make the online environment more trustworthy and hence to support the smooth functioning of the EU DSM. These digital service providers will be required to implement appropriate security measures and report incidents to a national authority. The directive aims more generally to improve cyber security capabilities in Member States and to improve Member States' cooperation

on cyber security. It also requires security and incident reporting requirements for operators of essential services in certain critical sectors (including the energy, transport, banking and healthcare sectors).

Wider technical standards and regulations

28. **European Standardisation Regulation - 2012/1025** - describes how the EU works with standardisation and a legal hierarchy of standards and how they relate to each other.

29. Information and communications technology (ICT) and digital technical standards are driven by industry and commercial needs. Standards bodies formally recognised by governments predominate on telecoms-related issues, but newer commercially-led standards organisations (sometimes called 'ad hoc' or 'de facto' organisations) are widely used in newer digital technologies. The current digital ecosystem uses standards from a complex mix of both sources. The major formal organisations include the International Telecommunication Union (ITU) and the European Telecommunications Standards Institute (ETSI). Amongst major 'de facto' organisations are the Institute of Electrical and Electronics Engineers (IEEE), the World Wide Web Consortium (W3C) and the Internet Engineering Task Force (IETF). The commercial nature of most of these bodies means the UK's relationship with them is unlikely to change as a result of the its exit from the EU. The UK's British Standards Institution (BSI) participates in European institutions CEN and CENELEC, which provide platforms for the development of European Standards and other technical specifications. The BSI's future membership of CEN and CENELEC is primarily a matter for the BSI.

Existing frameworks for how trade is facilitated between countries in this sector

30. The arrangements described in this section are examples of existing arrangements between countries. They should not be taken to represent the options being considered by the Government for the future economic relationship between the UK and the EU. The Government has been clear that it is seeking pragmatic and innovative solutions to issues related to the future deep and special partnership that we want with the EU.

31. There are a number of existing arrangements governing the way in which non-EU Member States trade with the EU in this sector.

32. World Trade Organisation (WTO) rules set out the basis for trade globally, through agreements such as the General Agreement on Tariffs and Trade (GATT), the General Agreement on Trade in Services (GATS) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreements..

33. Signatories are also able to enter into further economic integration arrangements through bilateral (country to country) or plurilateral (regional) trading relationships. These build on WTO rules and seek to liberalise trade commitments for relevant sectors further.

34. In the case of trade in services, such agreements seek to identify and remove non-tariff barriers to trade, such as nationality requirements or limitations on the number of service suppliers across four modes of supply - cross border trade; consumption abroad; commercial presence; and presence of natural persons.

35. From a digital goods perspective, the Information Technology Agreement (ITA), signed in 1996, lowers all taxes and tariffs on information technology products by signatories to zero. At the Nairobi Ministerial Conference in December 2015, over 50 members concluded the expansion of the Agreement, which now covers an additional 201 products valued at over US$1.3 trillion per year. These products include video games and consoles, home hi-fi systems, headphones, blue-ray/DVD players, semi-conductors, and GPS devices.

36. The digital sub-sector is dynamic and changes quickly, which has posed some challenges in reaching a widely accepted definition of what it encompasses and, therefore, securing deep trading commitments. As outlined above, the main framework for trade in services is rooted in the 1996 WTO General Agreement on Trade in Services (GATS), which pre-dates the large majority of modern digital transformation. This means that the most relevant part of GATS provisions cover access to telecommunications markets and infrastructure, without a broader emphasis on digital trade.

37. However, there are increasing precedents for provisions which enable digital trade in a range of agreements, which go further than the GATS provisions. For example, recent free trade agreements have sought to address mobile network issues, including network access, mobile roaming, and trade issues related to cross-border data flows.

Devolution issues and Gibraltar, the Crown Dependencies and Overseas Territories

38. Digital policy is a UK-wide issue. However, emerging technologies impact on policy areas of the wider economy, including devolved areas such as health and skills. With digital clusters and successful digital industries based across the UK, as highlighted in the *Tech Nation 2017* review,[18] Government will continue to engage with Scotland, Wales and Northern Ireland to ensure that implementing the 2017 *UK Digital Strategy*[19] benefits UK citizens as a whole.

39. Gibraltar is in the EU and regulatory arrangements for the digital sector apply. The Crown Dependencies are not in the EU, but have data adequacy decisions from the EU, and have started taking steps to implement the EU General Data Protection

[18] Tech Nation 2017, Tech City UK 2017
[19] The UK Digital Strategy, 2017

Regulation (GDPR). The other Overseas Territories are also not in the EU, but Article 37 of the Overseas Association Decision entitles co-produced audiovisual works to benefit from any scheme for the promotion of local or regional cultural content set up in the EU, the Overseas Territories and the Member States to which they are linked.

Sector views

[This information was provided by the Government to the Committee, but the Committee has decided not to publish this section]