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Geographical Distribution of UKRI Spend FY2019-20 and FY2020-21

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Key findings

Geographical Distribution of UKRI Spend presents data on research councils, Innovate UK and Research England funding covering the majority of UKRI's activities. The publication maps the distribution of research and development (R&D) spend across the country and contextualises the concentrations of different types of UKRI funding.

- UKRI continues to support R&D and innovation across all regions and nations, with world-class research and innovation taking place throughout the UK.
- In the 2020-21 financial year the Greater South East¹ received 54% of UKRI funding. The award rate and value of UKRI funding allocations were relatively uniform across regions and nations. However, the Greater South East demonstrated slightly lower success rates than other regions.
- Concentrations of spend from the Strength in Places Fund (SIPF) are in contrast to concentrations observed for the other aspects of UKRI funding, confirming the expected complementarity between this fund and the rest of UKRI's funds.
- The research councils' spend in the current publication, covering the 2019-20 and 2020-21 financial years, includes capital spend on institutes, an addition to the coverage of last year's spend data publication. The research councils spent most in London, the East and the South East of England. This held true when the data was put into the context of population density as well as the number of researchers locally.



- Top regions for Innovate UK's spend were the West Midlands and the South East of England. West Midlands emerged as a clear hot spot when the number of businesses in the region was considered.
- Research England's funding presented here includes competitive funding, which is another improvement to data coverage from last year's report. Total Research England funding shows high concentrations in the Greater South East, which is expected given the volume of researchers in those areas.
- This year's publication is accompanied by an interactive Tableau dashboard.



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Background

As the UK's largest public funder of research, UKRI's mission is to convene, catalyse and invest in close collaboration with others to build a thriving, inclusive research and innovation system.

We are investing more than £8 billion each year on behalf of government across all areas of research and innovation. Our vision is for an outstanding research and innovation system in the UK that gives everyone the opportunity to contribute and to benefit, enriching lives locally, nationally and internationally.

In the *Levelling up the United Kingdom* white paper² published in February 2022, the UK government set out its ambition to tackle geographical disparities in the UK. Research and development (R&D) is one of the key means through which the government seeks to achieve its medium-term mission of boosting productivity, pay, jobs and living standards. *Levelling up the United Kingdom* states that "by 2030 domestic public investment in R&D outside the Greater South East will increase by at least 40%, and over the Spending Review period by at least one third." It also states that the "Department for Business, Energy and Industrial Strategy (BEIS) will aim to invest at least 55% of its total domestic R&D funding outside the Greater South East by 2024-25." This additional government funding will seek to leverage at least twice as much private sector investment over the long term to stimulate innovation and productivity growth.

Geographical Distribution of UKRI Spend is an annual publication mapping UKRI's funding across the UK, to improve transparency and enable further analysis, while strengthening the evidence base for the levelling up agenda. In light of the Levelling up the United Kingdom white paper, our prime objective has been to improve the quality and reach of our data. We have achieved this with the current publication by covering more UKRI activities and presenting two financial years in one report, 2019–20 and 2020–21³).

As we already know well, there is no one-size-fits-all approach to levelling up. The data presented in this publication confirms the diversity of places across the UK with concentrations of R&D activity, university graduates and more mature innovation ecosystems varying across the four nations. Making high quality data transparent and accessible is key to informing tailored R&D interventions which reflect the different levels of innovation maturity. This report captures the spending of UKRI plus the funding of the other funding bodies from the devolved nations. R&D in the UK is funded through a partially devolved and partially reserved system. Project funding from the seven research councils and Innovate UK is distributed on a UK-wide basis, and any organisation that meets the eligibility criteria for R&D funding can apply. Devolved knowledge exchange funding and the block grant for universities based on the Research Excellence Framework (REF) is distributed by Research England, the Scottish Funding Council, the Higher Education Funding Council for Wales and the Department for the Economy (Northern Ireland).

Alongside this, devolved R&D funders have established funding streams which respond to their national priorities, for example Expanding Excellence in England, Enhancing Civic Mission and Public Engagement in Wales, and non-core programmes funding in Scotland and Northern Ireland. The report separately captures the funding providing by the other funding bodies to enable a more comprehensive assessment of R&D funding.

- 2. www.gov.uk/government/publications/levelling-up-the-united-kingdom
- 3. Most academic institutions work on academic years. Adjustments were made to the data and those are explained in the Methodology section.



Considerations for interpreting the data

- The tables and maps provided in this report are on International Territorial Levels⁴ (ITL1). This less granular level of presentation allows for a more general look at the effects of the various contextual economic indicators including local economic output in the form of gross value added (GVA), local population and number of businesses or researchers in an area. Full data including UKRI's spend at smaller geographical levels, ITL2 and ITL3, is provided in the statistical supplement.
- Although this publication shows geographical distribution of UKRI funding, it is important to note that the effects of each fund are UK-wide and go beyond the statistical boundaries used here to present the data.
- This year's publication covers two financial years, 2019–20 and 2020–21. In addition to the data that was presented in the previous report, the data in this report also includes UKRI institutes as defined and listed in Annex C, Research England's competitive data, as explained in the section on Research England, and the Strength in Places Fund.
- As a result of adding more data, we have been able to represent a bigger proportion of UKRI's annual budget. The spend data for 2020–21 represents about 83% of UKRI's budget that year, compared to the published spend data for 2018–19 which was about 70% of UKRI's budget for the same year.⁵
- The data presented in this publication incorporates additional payments made as part of COVID-19 recovery funding. This could mean that if data is compared to previous or future years, there might a spike in the trend of spend. However, we have not separated out COVID-19 spend from other categories of spend.
- While spend data helps us understand how research and innovation money is distributed across the country, it is essential to take into account local context, like the composition of a local economy and number of researchers and businesses in a place
- The number, nature and size of research organisations are equally important to contextualising concentrations of funding. While data on the number of organisations is readily available and it was used in the previous publication, it does not account for the size and type of research organisations. In response to feedback, we have removed the breakdown by number of research organisations. Instead, we are using data for the number of researchers in a place as a proxy for R&D activity and capacity in a place.

- Innovate UK data is subject to the 'headquartering effect', where a company's registered administrative headquarters are in one place but there are other sites where the funded R&D takes place. Although some correction is applied to the Innovate UK spend data itself, the contextual data on the number of businesses in receipt of R&D tax returns has not been given the same treatment.
- Figures given for institutional higher education institutions' funding in Scotland, Wales and Northern Ireland reflect the policies and funding arrangements of the respective devolved administrations, as well as those of UKRI. However they are reflected here to maintain a UK-wide perspective. In addition to differences in funding there are also differences in the tuition fee arrangements in each nation which will also affect resources available to support research activities in higher education institutions.
- This year's publication includes data on research institutes⁶ as part of the research councils' spend. This is a significant improvement on the data presented in the previous publication. It also means that research councils data in the current report is not directly comparable to the same data in last year's report.
- Research England project funding, such as the Research England Development and the UK Research Partnership Investment Fund, was excluded from last year's publication but is included in the current report as part of our data improvement. This also means Research England data in the current report is not directly comparable to the same data in last year's report.
- The breakdowns of spend data provided in this publication do not attempt to establish a causal link between a single local factor and concentrations of funding but to demonstrate there are different ways to look at regional 'hotspots' of funding.
- The financial data presented in this publication depicts amount of funding being spent in the financial years 2019-20 and 2020-21 and not necessarily the amount being allocated in each year. Some grants are subject to a multi-year funding being allocated in a single year but spent during several years. This results in uneven distribution of the funding allocations data with apparent spikes in certain years followed by no funding allocation being recorded in subsequent years. Using spend instead of allocation allows us to correct this effect. For more details, please refer to the Methodology section.
- The tables and maps for the 2019–20 financial year are available in Annex B.

- 4. ITL is the new denomination of the former NUTS definitions of regions. More details are provided in the Methodology section of this report.
- 5. UKRI total budget is based on the outturn for grand total capital allocation plus innovation loans as presented in UKRI's Annual report and accounts 2020-21: www.ukri.org/about-us/what-we-do/annual-report-and-accounts/





Research councils' spend

Research councils provide discipline-specific support for world-class research and training. The research councils fund universities and research institutes and the researchers within those organisations. Because of this, the distribution and size of universities and research organisations as well as the number of researchers in each region and nation influences how funding is spread across the country.

Contextual analysis is less informative and could even be misleading if the number of institutions is considered without understanding the size of those institutions. Since we cannot currently account for the size of research organisations in a place, we are using the number of researchers as a way to contextualise the research councils' spend data⁷.

The research councils' spend data in this publication represents grants awarded to universities and research institutes including research grants, training grants and fellowships⁸. As an improvement from last year's publication, thanks to the incorporation of more internal data sources, the data in this section also includes additional spend on UKRI's institutes, as defined and mapped in Annex C, which was not captured in the previous report. This additional spend is part of the total spend on UKRI institutes and amounts to a total of £1,027 million in the 2020 to 2021 financial year. The distribution of research councils' spend remained fairly similar following the inclusion of this spend category. However, Scotland cedes its third place in terms of research councils' spend to the East of England after the inclusion of research infrastructure capital and upkeep investment spend.

ITL1	Research councils' spend FY2020–21 £M	Research councils' spend per researcher £	Research councils' spend as a proportion of local GVA	Research councils' spend by local population £
East Midlands (England)	178	11,299	0.17%	36
East of England	469	23,912	0.30%	78
London	810	16,057	0.19%	90
North East (England)	104	9,451	0.20%	35
North West (England)	291	11,150	0.17%	42
Northern Ireland	29	5,708	0.07%	14
Scotland	329	11,402	0.24%	66
South East (England)	863	24,391	0.33%	96
South West (England)	196	11,481	0.15%	33
Wales	86	7,955	0.14%	29
West Midlands (England)	165	9,195	0.12%	28
Yorkshire and The Humber	243	11,114	0.21%	41
Total	3,764	153,113	2.3%	586

ITL1	Research councils' spend FY2019–20 £M	Research councils' spend per researcher £	Research councils' spend as a proportion of local GVA	Research councils' spend by local population £
East Midlands (England)	157	9,954	0.15%	31
East of England	487	24,799	0.31%	81
London	622	12,335	0.15%	69
North East (England)	99	9,016	0.19%	33
North West (England)	294	11,275	0.17%	42
Northern Ireland	25	4,950	0.06%	13
Scotland	279	9,644	0.20%	56
South East (England)	764	21,610	0.29%	85
South West (England)	168	9,817	0.13%	28
Wales	66	6,087	0.11%	22
West Midlands (England)	125	6,942	0.09%	21
Yorkshire and The Humber	214	9,799	0.18%	36
Total	3,300	136,229	2.03%	516

7. Detailed data is provided in the statistical supplement accompanying this report.

8. As explained in detail in the Methodology section, some grants are subject to a multi-year funding being allocated in a single year but spent during several years.

Table 1: Research councils' spend by region and nation ITL1 FY2020-21 (top) and FY2019-21 (bottom)



Figure 1 presents research councils' total spend per region or nation and by the number of researchers in each region. The maps make it clear that, even when accounting for the number of researchers in each region or nation, the South East of England remains an area of more intense research funding as is the East of England while London's funding looks less generous.



Figure 1: ITL1 (region and nation) Research councils' spend total (left) and per researcher (right) FY2020-21

The picture shown in Figure 2 does not depart substantially from what we see in Figure 1, with spend being concentrated in the South East and East of England even when accounting for the local economic output and population.



Figure 2: ITL1 (region and nation) Research councils' spend as a proportion of local GVA (left) and by local population (right) FY2020-21

Comparing data for research councils' spend between the two financial years presented in this report indicates that spend grew substantially from £3.3 billion in the 2019–20 financial year to £3.8 billion in 2020–21. Some of this is due to COVID-19-related payments made in 2020 but we have not separated out these funds. The increase in spending has not changed the ordering of ITL regions in terms of total spending by research councils. However, the North West of England dropped from fourth to seventh most concentrated region when the spend per researcher was considered, while the South West's spend per researcher increased, which has moved it higher in the table. In the context of the number of researchers, all regions and nations except the North East of England and the East of England saw an increase in actual spend.





Innovate UK spend

Innovate UK drives productivity and economic growth by supporting businesses to develop and realise the potential of new ideas, including those from the UK's world-class research base. Innovate UK's funding goes to innovative and research-intensive businesses, which means that we would expect the funding distribution to be driven by the location of those businesses across the UK.

Innovate UK data in this report represents what has been spent as opposed to awarded and as such it should not be compared to Innovate UK's transparency data which is published on a regular basis⁹. The data here includes innovation grants as well as funding which is spent on the national network of Catapult centres. Although the Catapults are national resources, they are anchored in specific places, which is reflected in the distribution of funding across different regions. However, the positive impact of the Catapult centres would be felt beyond the International Territorial Level (ITL) 1 or ITL2 boundaries considered in this publication. The data also covers funding for the Knowledge Transfer Network and Enterprise Europe Network through Innovate UK .

Due to the fact that Innovate UK's funding is targeted at innovative businesses, which could have several premises in different parts of the UK, Innovate UK data is subject to the so-called "headquartering effect". The headquartering effect happens when a company's registered administrative headquarters are in one place but there are other sites where the funded R&D takes place. This occurrence can distort the data, wrongly indicating that funding has ended up in the administrative headquarters of companies. As a result, there is a bias towards large cities, such as London, where you typically see a greater density of headquarters of multi-site companies. As was the case for last year's report, in order to mitigate the headquartering effect for the report this year, we have conducted additional data analysis on the Innovate UK data combining two methods, explained in the methodology section.

Table 2 provides a breakdown of Innovate UK's spend across the UK with West Midlands, the South East of England and London emerging as the regions with highest levels of spending. Looking at the South East more closely, the Vaccines Manufacturing and Innovation Centre had a total spend of £112 million in the 2020-21 financial year reflecting its role in supporting development of COVID-19 vaccines, which amounts to 35% of the total Innovate UK funding going to the region.

Comparing Innovate UK's data for 2020–21 with the previous financial year, we observe a substantial increase in the total spend, from £1.2 billion spent in the UK in 2019–20 climbing to £1.5 billion. However, there is no significant change in how regions and nations appear in terms of total spend between years.

To account for the differing economic structures and number of innovative businesses in each region and nation, the data is broken down in several different ways shown as shown in the following tables. This year's publication makes no changes to the way the data is contextualised, using both total number of businesses and number of R&D-active businesses, defined by companies claiming R&D tax credits.

9. Innovate UK funded projects since 2004

www.ukri.org/publications/innovate-uk-funded-projects-since-2004/

ITL1	Innovate UK spend FY2020–21 £M	Innovate UK spend per business £	Innovate UK spend per R&D active business £
East Midlands (England)	128	349	23,245
East of England	117	206	14,461
London	234	224	13,599
North East (England)	57	370	20,673
North West (England)	49	94	5,544
Northern Ireland	19	150	8,165
Scotland	62	181	13,502
South East (England)	315	360	24,744
South West (England)	139	267	21,596
Wales	40	191	13,440
West Midlands (England)	315	707	39,943
Yorkshire and The Humber	51	123	7,928
Total	1.526	3.221	206.840

ITL1	Innovate UK spend FY2019–20 £M	Innovate UK spend per business £	Innovate UK spend per R&D active business £
East Midlands (England)	87	219	15,788
East of England	113	188	13,925
London	164	145	9,523
North East (England)	50	305	18,025
North West (England)	41	73	4,617
Northern Ireland	13	90	5,858
Scotland	49	133	10,771
South East (England)	180	193	14,099
South West (England)	118	210	18,317
Wales	27	128	9,115
West Midlands (England)	294	608	37,251
Yorkshire and The Humber	41	98	6,461
Total	1,177	2,391	163,750

Table 2: Innovate UK spend ITL1 (by region and nation) FY2020-21 (top) and FY2019-20 (bottom)

Innovate UK spend as a proportion of local GVA	Innovate UK spend by local population £
0.12%	26
0.08%	19
0.06%	26
0.11%	19
0.03%	7
0.05%	9
0.04%	12
0.12%	35
0.10%	23
0.06%	13
0.24%	52
0.04%	8
1.0%	251

Innovate UK spend as a proportion of local GVA	Innovate UK spend by local population £
0.08%	17
0.07%	19
0.04%	18
0.09%	17
0.02%	6
0.03%	7
0.04%	10
0.07%	20
0.09%	20
0.04%	9
0.22%	49
0.03%	7
0.84%	198





Contextualising the data by the total number of businesses, as shown in Figure 3, allows for a better understanding of the effect of the overall business population on the distribution of funding for business-led innovation. Not only does the total business population provide a fuller picture of the local business density and industry context, it also captures those businesses which might not be formally classified as innovative.



Figure 3: ITL1 (by region and nation) Innovate UK spend total (left) and per business (right) FY2020-21

The maps in Figure 3 illustrate that once the number of businesses in an area is taken into account, West and East Midlands emerge as an even more intensive area of concentrated funding. This is similar to what is seen in 2019–20 as well as in 2018–19 in the previous report. It is worth noting that, as with previous years, several large grants to a small number of organisations in the Midlands have a substantial effect on the concentration of funding there. The top five regions for spend per number of businesses in the last two reported financial years remain the same, West Midlands, North East of England, South East of England, East Midlands and the South West of England, with minor year-on-year movements.



Figure 4: ITL1 (by region and nation) Innovate UK spend by number of R&D active businesses FY2020-21

On the other hand, data on the number of businesses claiming R&D taxes provides a proxy for the subset of the business population which could be defined as research, development and innovation (R&D&I) intensive. Looking at this specific subset of the business population in Figure 4 allows us to see to what extent the R&D&I intensive businesses drive regional concentrations of Innovate UK funding. An important caveat to consider is the fact that we have not been able to apply the same type of correction of the headquartering effect to this contextual data that we applied to the Innovate UK data.



The trend remains relatively similar with West and East Midlands and South East of England remaining top places for Innovate UK spend in 2020–21.

West Midlands keeps its top position as well when the local economic output and the local population are taken into account. See Figure 5.



Figure 5: ITL1 (by region and nation) **Innovate UK spend as a proportion of local GVA** (left) **and by local population** (right) **FY2020–21**

Considering the data in context suggests some year-on-year changes. For example, when taking into account the number of R&D-active businesses locally, we see the North East has dropped from the top three regions in the 2020–21 financial year. Similarly, looking at the spend per capita, we observe the South West of England going from the third most concentrated region in 2019–20 to the fifth in 2020–21. In both cases, it is important to note that regardless of the change in order the absolute value of the funding received was higher in 2020–21.



Research England

Research England has responsibility for supporting research and knowledge exchange (KE) activities undertaken by higher education providers in England only. In England, it delivers high value, strategic and agile formula funding such as quality-related research funding (QR) underpinned by the Research Excellence Framework (REF) and support for knowledge exchange via the Higher Education Innovation Fund (HEIF). See tables 3, 3.1, 3.2 and 4, 4.1, 4.2. It also delivers some project funding, allocated through competition. The majority of these competitive funds are also available only to England, but for some of those competitive funds, such as the UK Research Partnership Investment Fund (UKRPIF), Research England works in partnership with the devolved funding bodies to deliver a UK-wide programme on behalf of UKRI.

As an improvement from last year's publication, we have included the Research England competitive funding spend data in the current report, including where it is spent on a UK basis on behalf of UKRI or otherwise.

This funding includes the Connecting Capability Fund, Expanding Excellence in England, International Investment Initiative, student engagement in knowledge exchange, Research England Development (RED) Fund, university enterprise zones, UKRPIF and Enhancing Place-based Partnerships in Public Engagement (EPPE).

UKRPIF and EPPE are funds delivered by Research England on behalf of UKRI and as such they are available across the UK, delivered in the devolved nations in partnership with those nations' respective funding bodies. This is reflected in the data shown in this section presenting funding spend in Wales in 2020-21 and all three devolved nations in the previous financial year. See Tables 3.4 and 4.4.

The rest of Research England's funds are only available in England. Strength in Places Fund is another UKRI fund distributed by Research England (and Innovate UK). This fund is detailed in a separate section as it is UKRI's flagship place fund. Some types of funding such as QR have close equivalents in the devolved nations' funding systems. Last year that dataset, of devolved nations' spending similar to England's QR, was depicted in the report together with Research England's data. This year we have worked in partnership with colleagues in the devolved nations to improve the overview of R&D funding distributed there. This is shown in more detail in a separate chapter on devolved nations, see page 34.

As the nature of Research England's formula-based allocation means that funding is mostly spent in the year it has been provided, we can safely assume that for the purposes of this publication in this section allocation of QR and HEIF equals spend, while the competitive funding data has followed the same principle as the previous chapters on research councils and Innovate UK. For more details, refer to the methodology section.

ITL1	Research England funding FY2020-21 £M	Research England funding by local population £	Research England funding as % of local gross value added	Research England funding per researcher £
East Midlands (England)	132	26	0.13%	8,402
East of England	204	34	0.13%	10,375
London	567	63	0.13%	11,251
North East (England)	89	30	0.17%	8,115
North West (England)	188	27	0.11%	7,220
South East (England)	344	38	0.13%	9,719
South West (England)	138	23	0.10%	8,037
West Midlands (England)	130	22	0.10%	7,259
Yorkshire and The Humber	169	28	0.14%	7,705

Table 3: Total Research England spend ITL1 (by region) FY2020-21 Excludes funds that are distributed by RE on behalf of UKRI

ITL 1	Quality-related funding FY2020-21 £M	Quality-related funding by local population £	Quality-related funding as a proportion of local GVA	Quality-related funding per researcher £
London	495	55	0.12%	9,818
South East (England)	302	34	0.11%	8,542
East of England	173	29	0.11%	8,836
North West (England)	155	22	0.09%	5,939
Yorkshire and The Humber	138	23	0.12%	6,311
South West (England)	112	19	0.08%	6,556
West Midlands (England)	103	17	0.08%	5,745
East Midlands (England)	102	20	0.10%	6,496
North East (England)	70	23	0.13%	6,363

Table 3.1: QR Research England spend ITL1 (by region) FY2020-21





ITL 1	Higher Education Innovation Fund FY 2020 to 2021 £M	Higher Education Innovation Fund by local population £	Higher Education Innovation Fund as a proportion of local GVA	Higher Education Innovation Fund per researcher £
London	57	6	0.01%	1,130
South East (England)	32	4	0.01%	892
North West (England)	25	4	0.01%	975
East of England	23	4	0.01%	1,183
Yorkshire and The Humber	21	4	0.02%	978
West Midlands (England)	19	3	0.01%	1,249
East Midlands (England)	20	4	0.02%	1,072
South West (England)	16	3	0.01%	963
North East (England)	10	3	0.02%	936

Table 3.2: HEIF Research England spend ITL1 (by region) FY2020-21

ITL 1	Research England competitive funding FY2020-21 £M	Research England competitive funding by local population £	Research England competitive funding as a proportion of local GVA	Research England competitive funding per researcher £
East Midlands (England)	10	2	0.010%	657
East of England	7	1	0.004%	356
London	15	2	0.004%	303
North East (England)	9	3	0.017%	816
North West (England)	8	1	0.005%	305
South East (England)	10	1	0.004%	285
South West (England)	9	1	0.007%	518
West Midlands (England)	8	1	0.006%	442
Yorkshire and The Humber	9	2	0.008%	415

 Table 3.3: Competitive England-only Research England spend ITL1 (by region)

 FY2020-21

ITL 1	UKRPIF and EPPE FY2020-21 £M	UKRPIF and EPPE by local population £	UKRPIF and EPPE as a proportion of local GVA	UKRPIF and EPPE per researcher £
East Midlands (England)	14	3	0.013%	873
East of England	31	5	0.020%	1,579
London	45	5	0.011%	897
North West (England)	6	1	0.003%	228
South West (England)	18	3	0.014%	1,081
Wales	7	2	0.012%	676
West Midlands (England)	2	0.3	0.001%	96
Yorkshire and The Humber	6	1	0.005%	268

 Table 3.4: Research England, UKRPIF and EPPE spend ITL1 (by region and nation)

 FY2020-21

ITL1	Research England funding FY2019-2020 £M	Research England funding by local population £	Research England funding as a proportion of local GVA	Research England funding per researcher £
East Midlands (England)	128	26	0.12%	8,161
East of England	203	34	0.13%	10,361
London	561	62	0.13%	11,127
North East (England)	88	29	0.16%	7,955
North West (England)	185	26	0.11%	7,089
South East (England)	343	38	0.13%	9,694
South West (England)	136	23	0.10%	7,971
West Midlands (England)	127	21	0.10%	7,091
Yorkshire and The Humber	168	28	0.14%	7,675

 Table 4: Total Research England spend ITL1 (by region) FY2019-20

 Excludes funds that are distributed by RE on behalf of UKRI





ITL 1	Quality-related funding FY2019-20 £M	Quality-related funding by local population	Quality-related funding as a proportion of local GVA	Quality-related funding per researcher £
East Midlands (England)	103	21	0.10%	6,554
East of England	174	29	0.11%	8,876
London	496	55	0.12%	9,836
North East (England)	71	24	0.13%	6,445
North West (England)	155	22	0.09%	5,940
South East (England)	304	34	0.12%	8,596
South West (England)	112	19	0.08%	6,558
West Midlands (England)	103	17	0.08%	5,754
Yorkshire and The Humber	140	23	0.12%	6,400

 Table 4.1: QR Research England spend ITL1 (by region) FY2019-20

ПГL 1	Higher Education Innovation Fund FY2019–20 £M	Higher Education Innovation Fund by local population	Higher Education Innovation Fund as a proportion of local GVA	Higher Education Innovation Fund per researcher £
East Midlands (England)	18	4	0.02%	1,152
East of England	23	4	0.01%	1,167
London	53	6	0.01%	1,052
North East (England)	10	3	0.02%	893
North West (England)	24	3	0.01%	932
South East (England)	29	3	0.01%	828
South West (England)	15	3	0.01%	892
West Midlands (England)	19	3	0.01%	1,050
Yorkshire and The Humber	20	3	0.02%	929

 Table 4.2: HEIF Research England spend ITL1 (by region) FY2019-20

ITL1	Research England Competitive Funding FY 2019–20	Research England Competitive Funding by local population	Research England Competitive Funding as a proportion of local GVA	Research England Competitive Funding per researcher £
East Midlands (England)	7	1.4	0.007%	455
East of England	6	1.0	0.004%	317
London	12	1.3	0.003%	239
North East (England)	7	2.3	0.013%	616
North West (England)	6	0.8	0.003%	217
South East (England)	10	1.1	0.004%	271
South West (England)	9	1.5	0.007%	520
West Midlands (England)	5	0.9	0.004%	287
Yorkshire and The Humber	8	1.3	0.006%	347

 Table 4.3: Competitive England-only Research England spend ITL1 (by region)
 FY2019-20

ITL 1	UKRPIF and EPPE FY2019– 20 £M	UKRPIF and EPPE by local population £	UKRPIF and EPPE as a proportion of local GVA	UKRPIF and EPPE per researcher £
East Midlands (England)	9.40	1.88	0.009%	597
East of England	24.21	4.04	0.016%	1,233
London	13.37	1.49	0.003%	265
North East (England)	0.03	0.01	0.000%	3
North West (England)	0.13	0.02	0.000%	5
Scotland	0.10	0.02	0.000%	4
South East (England)	0.04	0.00	0.000%	1
South West (England)	25.58	4.26	0.019%	1,495
Wales	0.03	0.01	0.000%	2
West Midlands (England)	21.68	3.61	0.016%	1,207
Yorkshire and The Humber	0.05	0.01	0.000%	2

 Table 4.4: Research England, UKRPIF and EPPE spend ITL1 (by region and nation)
 FY2019-20







Figure 6: ITL1 (by region) Research England spend total (left) and by per local population (right) FY2020-21

Figure 6 shows the total Research England spend by region and by each region's population in 2020–21. London and the South East appear as top regions in terms of spend in both cases.



Figure 7: ITL1 (by region) Research England spend per researcher (left) and as a proportion of local GVA (right) FY2020-21

The picture is slightly different when Research England spend is put into the context of local economic output in terms of GVA, see figure 7, with the North East having the biggest spend as proportion of its GVA.

The Greater South East appears as a top beneficiary when we look at the Research England spend per researcher in each region.



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Figure 9: ITL1 (by region) Research England HEIF total (TL), by local population (TR), per researcher (BL), as a proportion of local GVA (BR) FY2020-21

Figure 8: ITL1 (by region) Research England quality-related funding total (TL), by local population (TR), per researcher (BL), as a proportion of local GVA (BR) FY2020-21



0.01%











Figure 11: ITL1 (by region and nation) Research England UKRPIF and EPPE spend total (TL), by local population (TR), per researcher (BL), as a proportion of local GVA (BR) FY2020-21

Similar to what we see in the rest of the report, there is a rise in the funding spent from the 2019–20 financial year (£2.04 billion) to 2020–21 (£2.09 billion). Wales gets a substantial increase from £0.03 million to £7 million due to the UKwide Research Partnership Investment Fund.







0.001%





Strength in Places Fund

The Strength in Places Fund (SIPF) is UKRI's place-focused programme distributed jointly by Research England and Innovate UK. SIPF's mission is to help areas of the UK build on existing strengths in research and innovation to deliver benefits for their local economy. The fund aims to support innovationled regional growth and to enhance local collaborations involving research and innovation. Funding has been awarded in two waves.

SIPF-supported projects are collaborative and led by consortia that include both research organisations and businesses and engagement from local leadership. Importantly, the projects themselves define the areas where successful funding is expected to have an impact. These are not limited by national or regional borders, which means that it is not appropriate to contextualise the SIPF spend in the same way as the data in the other chapters of this report.



Figure 12: Map of SIPF projects and their areas of local impact. Source: The UK Research and Innovation Strength in Places Fund www.discover.ukri.org/strength-in-places-fund/ We are providing a breakdown by region and nation of the SIPF funding spent the 2020–21 financial year for consistency with the other parts of the report.

ITL1	Spend FY2020-21 £M
North West (England)	5.04
Scotland	4.59
Northern Ireland	1.95
Wales	1.69
South East (England)	0.59
London	0.38
West Midlands (England)	0.10
North East (England)	0.05
South West (England)	0.05
East of England	0.05
East Midlands (England)	0.05
Yorkshire and the Humber	0.05
Total	14.59

 Table 5: SIPF spend by ITL1 (by region and nation)

 FY2020-21

SIPF is a relatively new fund with the first payments to projects starting in 2019–20. A list of all the successful projects and their allocated funding to be spent in the coming years, as well as details of how each project is going to make a difference locally, is available on the UKRI website.

The North East of England and Scotland accounted for the biggest funding in 2020–21, followed by the North West of England and Northern Ireland. This is in contrast to the distribution of spend shown in the previous sections, suggesting that SIPF is helping bridge the funding gap for local R&D activities and complement the rest of UKRI's funding.





Devolved nations

Separately from R&D funding allocated by UKRI, each devolved administration is responsible for their equivalent to quality-related research funding allocated by the Scottish Funding Council, Higher Education Funding Council for Wales and the Northern Ireland Department for the Economy respectively. In addition each devolved administration funding body distributes R&D funding tailored to the research base and policy context of each nation. Some of this data also includes COVID-19 recovery funds in the last year.

In this section we are offering an outline of the non-UKRI spend in the devolved nations which is considered equivalent to the Research England type of investment to provide an overview of the R&D landscape across the UK. The different policy context may mean that more or less research, development and innovation funding may come from other sources in each devolved nation, as the extent to which each funding body is the main source of funding in each nation will vary. We are grateful to have worked with our colleagues in the devolved administrations who have provided this data. More details of what the data covers are included in the notes for each data set.

In order to provide similar context as with the previous sections we are breaking down the data by local population, researchers and as proportion of local economic output, or gross value added (GVA).



Figure 13: Map of devolved administration research funding FY2020-21





UKRI total

In this section we are providing an overview of the UKRI spend presented in the previous chapters. This includes research councils, Innovate UK, Research England and the Strength in Places Fund. Devolved administrations' own spend on quality-related research funding and other funding is not included in this overview.

We are aware that since Research England's funding only has a remit for England, the summary in this section will appear skewed. Presenting a UKRI total is important for the purpose of transparency and accountability. To offer a more balanced overview, the next section shows UKRI total with the devolved administrations' equivalent to quality-related research funding, plus other funding which may be specific to either Scotland, Wales or Northern Ireland respectively.

The spend data for the 2020–21 financial year represents about 83% and that of 2019–20 is 84% of UKRI's budget for each respective year, compared to the published spend data for 2019–21 which was about 70% of UKRI's budget for the same year. This improvement is due mainly to the inclusion of more complete data on UKRI's spend on institutes.

Due to the nature of the data being collected for this report, full representation of UKRI's annual budget is not possible. The data excludes any payments without UK postcodes like international subscriptions to large infrastructure or other projects, which means that any overseas payments represented in the budget are automatically excluded. In addition to that administration payments and staff salaries which are difficult to allocate to a subnational geography, are also not represented in the figures in this report.

ITL1	UKRI spend FY2020-21 £M	UKRI spend by local population £	UKRI spend as a proportion of local GVA
East Midlands (England)	452	90	0.4%
East of England	821	137	0.5%
London	1,657	184	0.4%
North East (England)	251	84	0.5%
North West (England)	540	77	0.3%
Northern Ireland	49	25	0.1%
Scotland	396	79	0.3%
South East (England)	1,522	169	0.6%
South West (England)	492	82	0.4%
Wales	134	45	0.2%
West Midlands (England)	612	102	0.5%
Yorkshire and The Humber	468	78	0.4%
Total	7,395	1,152	4.6%

ITL1	UKRI spend FY2019– 20 £M	UKRI spend by local population £
East Midlands (England)	382	76
East of England	827	138
London	1,361	151
North East (England)	237	79
North West (England)	521	74
Northern Ireland	38	19
Scotland	328	66
South East (England)	1,287	143
South West (England)	448	75
Wales	92	31
West Midlands (England)	568	95
Yorkshire and The Humber	424	71
Total	6,513	1,017

Table 6: UKRI Spend ITL1 (by region and nation) FY2020-21 (top) FY2019-20 (bottom)

UKRI spend as a
GVA
0.4%
0.5%
0.3%
0.4%
0.3%
0.1%
0.2%
0.5%
0.3%
0.2%
0.4%
0.4%
4.1%









Figure 14: ITL1 (region and nation) Total UKRI spend (left) and by local population (right) **FY2020–21**

Figure 14 offers an overall view of UKRI's spend by region and nation in the 2020–21 financial year and the Greater South East is the region with the highest spend with West Midlands following in fourth place. This trend holds true when the spend by local population is considered as well. This outcome logically follows from the data presented in the previous sections of this document where we see focused R&D spend in the Greater South East. As this is a region dense in research organisations, researchers and R&D-active businesses the above observation reinforces the understanding that regional and local concentrations of R&D funding are driven by the density and scale of the organisations that draw down UKRI funding, as well as the concentration of skills and also the historical developments that led to the favourable conditions attracting people into those places.

Figure 15: ITL1 (region and nation) Total UKRI spend as percentage of local GVA FY2020-21

In the previous report we estimated that in the 2018–19 financial year 49% of UKRI's spend was in the Greater South East. As a result of including more of the institute's spend and as a result of different funding decisions in the past two financial years the percentage spent in the Greater South East was 53% in 2019–20 and 54% in 2020–21. Including the UKRI institutes' data for 2020–21 moved research councils' spend in the Greater South East from 46% before including the institutes' data to 57% after including the institutes' data. This was to be expected as the data reflects the institutes' head offices and a considerable proportion of those are in the Greater South East. This is depicted in the map provided in Annex C.



Combined UKRI and devolved administration funding bodies R&D spend

This chapter depicts a wider public R&D funding landscape in the UK, combining the UKRI spend data with the data on recurrent block grant R&D distributed by the four UK funding bodies in the devolved nations for equivalent purposes. This provides a wider perspective of funding concentrations and is a vital part of understanding the context of UKRI funding as part of the dual support system.

ITL1	Combined UKRI and devolved administrations R&D spend FY2020-21 £M	Combined UKRI and devolved administrations R&D total as a proportion of local GVA
East Midlands (England)	452	0.4%
East of England	821	0.5%
London	1,657	0.4%
North East (England)	251	0.5%
North West (England)	540	0.3%
Northern Ireland	115	0.3%
Scotland	819	0.6%
South East (England)	1,522	0.6%
South West (England)	492	0.4%
Wales	223	0.4%
West Midlands (England)	612	0.5%
Yorkshire and The Humber	468	0.4%
Total	7,972	5.2%

ITL1	Combined UKRI and devolved administrations R&D spend FY2020-21 £M	Combined UKRI and devolved administrations R&I total as a proportior of local GVA
East Midlands (England)	382	0.4%
East of England	827	0.5%
London	1,361	0.3%
North East (England)	237	0.4%
North West (England)	521	0.3%
Northern Ireland	89	0.2%
Scotland	628	0.5%
South East (England)	1,287	0.5%
South West (England)	448	0.3%
Wales	173	0.3%
West Midlands (England)	568	0.4%
Yorkshire and The Humber	424	0.4%
Total	6.943	4.5%

Table 7: Combined UKRI and DA spend ITL1 (by region and nation) FY2020-21 (top) FY2019-20 (bottom)





Combined UKRI and devolved administrations R&D total by local population
76
138
151
79
74
45
126
143
75
58
95
71
1,129







Figure 16: ITL1 (*region and nation*) **Total combined UKRI and DA spend** (*left*) **and by local population** (*right*) **FY2020–21**



Figure 17: ITL1 (region and nation) Total UKRI and DA spend as a percentage of local GVA FY2020–21





Success rates

Although the current publication is only showing where R&D funding has been spent and is not delving into the specific historical reasons behind this, an important context of spend data is understanding success rates both in terms of number of applications in a region or nation and in terms of the value of those applications. UKRI separately provides data on competitive funding decisions based on funding allocations¹⁰.

The award rate and value of UKRI funding allocations are relatively uniform across regions and nations, ranging between 23% and 31%. The Greater South East of England is towards the lower end of this range, suggesting that even if not always successful, the volume of application those regions manage to produce leads to more R&D funding being spent in total there as a result.

Success rates across UKRI¹¹

ITL1	Award value £M	Awa
East Midlands (England)	95	
East of England	147	
London	392	
North East (England)	72	
North West (England)	213	
Northern Ireland	29	
Scotland	245	
South East (England)	274	
South West (England)	166	
Wales	59	
West Midlands (England)	128	
Yorkshire and The Humber	177	

ITL1	Number of awards	Award
East Midlands (England)	156	
East of England	234	
London	590	
North East (England)	136	
North West (England)	303	
Northern Ireland	53	
Scotland	402	
South East (England)	426	
South West (England)	234	
Wales	90	
West Midlands (England)	222	
Yorkshire and The Humber	283	

 Table 8: ITL1 (by region and nation) success rates across UKRI by award value (top)
 and by number of awards (bottom)

11. Data on competitive funding decisions does not include funding such as block grants, studentships or quality-related research funding from Research England.

rate (value)
24%
28%
26%
29%
31%
23%
27%
27%
30%
27%
29%
31%

rate (number)
23%
28%
27%
30%
29%
23%
29%
26%
27%
25%
31%
30%







The UKRI spend data for financial years 2019–20 and 2020–21 combines the three fundamental perspectives within UKRI to support research, development and innovation – the research councils, Research England (RE) and Innovate UK (IUK), with the addition of the Strength in Places Fund (SIPF), which is UKRI's flagship place-based fund.

Since RE's remit is England only, with some small exceptions for competitive funding RE distributes in partnership with the devolved administrations, we have included some analogous funding data for the devolved administration to provide a level of comparability and enable a more holistic understanding of the funding landscape.

Throughout this publication, the place-based statistics of the UK are presented according to the Office for National Statistics' geocode standard of International Territorial Levels (ITL). The ITLs directly correspond to EU's Nomenclature of Territorial Units for Statistics (NUTS), used between 2003 and 2021. This means that the maps presented in this publication could be compared to the ones in previous reports.

This nomenclature splits the UK into the nine administrative regions of England, and the three devolved nations as labelled in the map. Each region or devolved administration contains a population of between roughly 2 million and 9 million, and boundaries follow established electoral boundaries.





Index to maps

Spend vs awarded funding

Some grants are subject to a multi-year funding being allocated in a single year but spent during several years. This results in uneven distribution of the funding allocations data with apparent spikes in certain years followed by no funding allocation being recorded in subsequent years. Those spikes in the data could be misleading when a single financial year is being considered.

In order to correct for this effect, the current publication presents financial data on the amount of funding being spent in the 2019–20 and 2020–21 financial years. For example, this means that a grant worth £5 million with spend evenly distributed across five years, starting in May 2018, would contribute £1 million to the 2019–20 figure.

Research councils' data

This data includes all research grants, fellowships, training grants and research infrastructure funding where payments have been made in the financial years 2019–20 and 2020–21 and covers the whole of the UK. Each payment is made to an organisation and each organisation's postcode is matched with the corresponding ITL1, ITL2 and ITL3 region to come up with the compiled figure of the total payments by region.

In addition to the geographical breakdown by ITL1 and ITL2, several further breakdowns are provided for the research councils' spend data to account for some of the contextual differences between each region. Those breakdowns are using additional data sets including the number of researchers in each region, the total population and GVA obtained from publicly available sources such as the Higher Education Statistics Agency (HESA) and the Office for National Statistics (ONS). We have used the latest available year for the contextualising data, but in some cases that does not match the financial years presented in this publication. In cases where there has been a consortium of organisations successfully applying for and securing a grant, the data is recorded against the postcode of the lead organisation only. The lead organisation is usually the one receiving the grant and following up with further distribution among the members of the consortium according to their agreement. UKRI recognises that this might represent a small degree of bias of regional data towards the lead organisation's location, meaning that regions with more organisations that are usually leading a consortium might see a more pronounced concentration of funding.

Innovate UK data

Innovate UK data presented in this publication combines innovation grants and Catapult centres funding where payments have been made in financial years 2019–20 and 2020–21. Similar to the methodology used with the research councils' data, each payment is associated with an organisation's postcode, which in turn is matched with the corresponding ITL region.

Due to the fact that it is targeted at innovative businesses, which could have several postcodes, Innovate UK's data is subject to the headquartering effect. The headquartering effect happens when a company's registered administrative headquarters are in one place but there are other sites where the funded R&D takes place. This occurrence can distort the data, wrongly indicating that funding has ended up in the administrative headquarters of companies. As a result, there is a bias towards large cities where businesses tend to be registered, such as London.

To alleviate the headquartering effect, we have combined two methods of checking and improving the location of the businesses in receipt of Innovate UK funding. The first method included applying a work location postcode which was provided in addition to the headquarters postcode in the data Innovate UK collected since May 2018. These postcodes have been approximated for awards that were spent in the 2018–19 financial year. Since a grant could have started before 2019–20 or 2020–21, although part of it would be spent in 2019–20 or 2020–21, we have adjusted the postcodes using the one for the organisation's most frequent work location since May 2018.

The second method involved manually checking each grant allocation. Using the company reference number, organisation name, company size, and postcode, data was examined against information retrieved from Companies House, Google searches and the Fame database. We used hierarchical logic to combine the two methods. First we checked if a work location postcode was provided by first method. If not, we applied the results from the manual check with the second method.

This allowed us to correct the NUTS1 location of approximately 13% of the funding spent in 2020–21. This data correction has had the greatest effect on London and the East Midlands at NUTS 1 level, mostly due to the correction of one large company's location from London to Derby. This resulted in an approximate 7% change in value spent in London and 5% in the East Midlands.

Research England

The data from Research England (RE) included in this publication covers qualityrelated funding (QR) and Higher Education Innovation Fund (HEIF), which are both formula-driven funds and comprise the majority of RE's funding. In addition to that this year's publication also includes RE's competitive project funding.



This includes the Connecting Capability Fund, Expanding Excellence in England, International Investment Initiative, student engagement in knowledge exchange, Research England Development Fund, university enterprise zones, UK Research Partnership Investment Fund and Enhancing Place-based Partnerships in Public Engagement.

The QR and HEIF data sets used in this publication cover the funding allocated by university for the academic years 2018–19, 2019–20 and 2020–21. Due to the type of activities supported through QR and HEIF funding, the allocated funding is usually spent by each institution in the year it has been allocated. This principle allows us to safely assume that for the purposes of this publication the RE funding allocated equals spend and thus is comparable with the rest of the data sets. Since the rest of the publication's data is for the financial years 2019–20 and 2020–21, an additional adjustment of the RE data had to be made in order for all data sets to be comparable. The method used involves taking four months of the previous academic year and eight months of the following academic year to correspond to a financial year. This is possible to do because RE's funding is allocated for the whole year rather than the exact periods when payments are made. This principle was applied to each organisation's funding data calculating the aggregate number using the simple formula $1/3 \times A + 2/3$ x B = C, where A is the funding received in the 2018-19 academic year, B is the funding received in the 2019-20 academic year and C is the estimated funding for the 2019–20 financial year. Then again, the same principle is applied for the 2020-21 financial year.

The distribution of RE's QR and HEIF funding data is contextualised through several breakdowns including the number of researchers in each region. Researchers' data is extracted from HESA and covers staff and student researchers. Staff researchers have been defined as staff who are on an "academic contract that is research only" or an "academic contract that is both teaching and research". Student researchers have been defined as those completing a postgraduate research degree. Due to the complexity of dividing non-financial data between two academic years to establish a financial year equivalent, we are using only the number of researchers for the 2019-20 academic year. It is important to note that at the time of preparing the data for the publication the number of researchers data was only available for the 2019-20 academic years. The difference between the total number of researchers in the previous two academic years is less than 16% and the regional effect of this would be even smaller, which is why we are confident that using the number of researchers for the 2019-20 academic years for the 2019-20 academic year is a workable approximation.

Devolved administrations' QR equivalent and other R&D data

We have worked with the relevant funding bodies in Scotland, Wales and Northern Ireland. Research England works in partnership with the devolved administrations, to ensure, as practicably as possible, system-wide approaches are identified, implemented and represented. This additional data does not represent UKRI funding, but it has been added for the purpose of comparability and offering a more complete picture of the funding landscape. The funding bodies in the devolved administration may use slightly different methods for converting academic years into financial years.

12. More information in *Universities Funding Announcement* 2020-21 www.sfc.ac.uk/publications-statistics/announcements/2020/SFCAN072020.aspx

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Annex B – FY2019–20 maps and tables

Research councils



Figure 1a: ITL1 (region and nation) Research council spend total (left) and per researcher (right) FY2019–20



Figure 2a: ITL1 (region and nation) Research council spend as a proportion of local GVA (left) and by local population (right) FY2019–20

Innovate UK



Figure 3a: ITL1 (region and nation) Innovate UK spend (left) by number of R&D active businesses (centre) and by total number of businesses (right) FY2019-20



Figure 4a: ITL1 (region and nation) Innovate UK spend as a proportion of local GVA (left) and by local population (right) FY2019-20









Research England 7,089 11,127 0.10%

Figure 5a: ITL1 (by region) Research England funding total (TL), by local population (TL), per researcher (BL), as a proportion of local GVA (BR) FY2019-20



Figure 6a: ITL1 (by region) Research England QR funding total (TL), by local population (TR), per researcher (BL), as a proportion of local GVA (BR) FY2019-20







0.013%







Devolved nations



Figure 10a: Map of DA research funding FY2019-20

Figure 9a: ITL1 (by region) **Research England UKRPIF and EPPE spend total** (*TL*), **by local population** (*TR*), **per researcher** (*BL*), **as a proportion of local GVA** (*BR*) **FY2019–20**



The total amount of R&I funding in FY2020-21 amounts to £80M. This amounts to £27 per person, £7,452 per researcher and 0.1% of local GVA in the region.







Figure 11a: ITL1 (by region and nation) **UKRI total spend** (*left*), **as a proportion of local GVA** (*centre*) **and by local population** (*right*) **FY2019–20**

Combined UKRI and Devolved Administrations funding bodies R&D spend



Figure 12a: ITL1 (by region and nation) **Combined UKRI and DA funding bodies R&D spend** (*left*), **as a proportion of local GVA** (*centre*) **and by local population** (*right*) **FY2019–20**





Annex C – UKRI institutes

As of the financial years 2019–20 to 2020–21, UKRI has 51 institutes that are awarded long-term strategic funding through each respective research council, or are of strategic importance to their council, to create a critical mass of expertise, knowledge, and equipment to help fulfil national scientific, research and innovation objectives.

The map below shows the location of the head offices of the 51 UKRI institutes, whose spend has been included in this report. Although there are institutes across the country there is some concentration in the Greater South East.



Annex D – Catapult Network

The Catapult Network brings together nine technology and innovation centres in more than 40 UK locations.

Catapults are physical centres with cutting-edge R&D infrastructures including hubs, laboratories, testbeds, factories and offices, as well as technical specialists who prove and adopt breakthrough products, processes, services and technologies.

Catapults work with thousands of innovative businesses across a wide range of sectors, such as manufacturing, space, health, digital, energy, transport, telecoms, the urban environment and many others¹³.



Cell and Gene Therapy	Digital	Medici
Connected Places	Energy Systems	Offsho
Compound Semiconductor Applications	High Value Manufacturing	Satellit



ines Discovery re Renewable Energy te Applications





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