



enterprise**m3**
Delivering prosperity through innovation

Sectors & Innovation

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EXECUTIVE SUMMARY

EM3: A diverse economy with niche specialisms, high value industry and business led innovation at its core

The Enterprise M3 economy is extremely diverse. Understanding the complexities and the relationships that operate within it is key to interpreting how the LEP functions not only economically, but innovatively.

On a surface level the economy can be dissected into broad sector strengths: Science, Professional and Technical activities and Health both have a 12% share of employment and are growing. Information and Communication is not far behind with 7% share but has experienced job losses in recent years.

Innovative businesses in sub-sectors like Space, Digital and the industry are drawn here to reap the benefits of the region's knowledge-based economy. Proximity to London provides ample opportunity for businesses to locate themselves in a strategic position to access skilled labour through well-connected infrastructure and other services.

EM3 has one of the highest number of scale-up businesses outside of London but the economy is also dominated by micro businesses, making up 90% of all businesses. The success of the games industry and the Digital sector correlate to the

presence of strong smaller businesses whilst scale-ups are thriving in association with research institutes and universities.

Yet dig a little deeper and there are signs of concern. Overall job growth has been slow and many of EM3's most productive and specialised sectors have seen job losses at a time when they are growing rapidly in other parts of the country.

EM3 is preparing its local industrial strategy at an opportune moment to ensure the economy remains on its historically successful path. Key to ensuring future success is making the most of EM3's distinctive offering as a diverse economy where high value innovation occurs across sectors and place.

A private sector powerhouse of R&D with the commercialisation of innovation central to industry success

Business investment is the primary source of R&D (80% of total expenditure). EM3's businesses spend 1.8 times more on R&D than businesses in the UK, with notable high-value innovation occurring in priority sectors such as Space, Digital Services and Materials & Manufacturing. Farnborough is a huge contributor towards this, home to an internationally important cluster of Aerospace companies, hosting their main UK R&D research facilities.

Commercialisation and sales of innovative products is a stand-out strength of EM3's businesses. The region attracts an average of £13.5m of Innovate UK funding each year and has supported more than 1,200 projects in the region since 2003/04 – the 4th highest number among all LEPs. This has been invaluable to many businesses looking to undertake R&D.

This type of funding has enabled Surrey Research Park to develop an international reputation for its expertise in the Space industry, with businesses like Surrey Satellite Technology and Earth-i well established. Southampton Science Park meanwhile thrives in technological solutions for Transport and Health.

However, the success seen in these research parks may not have been possible without the universities acting as a beacon of innovation, providing the infrastructure that not only attracts business but supports and retains them. It is the provision of the 'right space' and the business support that has resulted in a thriving innovative environment in these areas.

Industry is clearly driving R&D, particularly in business parks in Farnborough and Basingstoke, but the university association with Surrey and Southampton research park have provided a strong support network for innovation.

EXECUTIVE SUMMARY

Scaleups are thriving in innovative spaces and are a green economic asset

EM3 is ranked as the 7th highest LEP in terms of number of scale-ups, increasing by 1,200 scale-up businesses since 2011. University spaces, business incubators and organisations like the EM3 Growth Hub provide the perfect environment for their continued success.

Southampton Science Park and the University of Surrey work closely with SETSquared, the world's number 1 ranked business incubator, advising scale-ups on how to specialise and obtain large funding.

Royal Holloway has invested into the creation of a cyber security data centre that will aim to grow 25 businesses, creating 500 new jobs over the course of 5 years. In addition, the creative spaces offered by companies like Rocketdesk ensure businesses have the spaces to work, innovate and thrive.

As a consequence of the support for the scale-up industry across numerous platforms, key sectors including Creative, Digital and Health have produced exciting companies, utilising new and emerging technologies. The Story Futures Academy lead by Royal Holloway is a primary driver in this, using immersive technologies, such as virtual and augmented reality, to push forward innovation in the creative sector.

It is within these companies that emerging sectors and technologies develop. The nature of work within these industries is vital to the innovation ecosystem and will be key to future-proofing EM3's economy.

High entrepreneurship but collaborative innovation falls short

There is a substantial amount of entrepreneurship within the LEP. The number of innovation active firms in EM3 is 1.13 times greater than the LEP-wide average. Telecommunications and Digital communication are particular stand out performers, drawing activity from a high number of firms. Consequently, EM3 is ranked as the 5th highest LEP in terms of sales of innovative products, indicating a high success in transitioning patents to market ready products.

Despite the success on many fronts, more can be done to support the innovation ecosystem. EM3 underperforms in terms of collaborative innovation, ranked 18th amongst all LEPs. There are a wealth of innovative businesses and despite the nature of the scaleup industry, collaboration is surprisingly low.

Currently there is work being done to spur further innovative activity by developing closer ties between businesses and Higher Education institutions. Academia provides key spaces for innovation while industry leads R&D investment.

Whilst smaller, more flexible businesses have the means to share workspaces, engaging with larger businesses to foster collaboration can be the key to unlocking the potential of innovation across EM3.

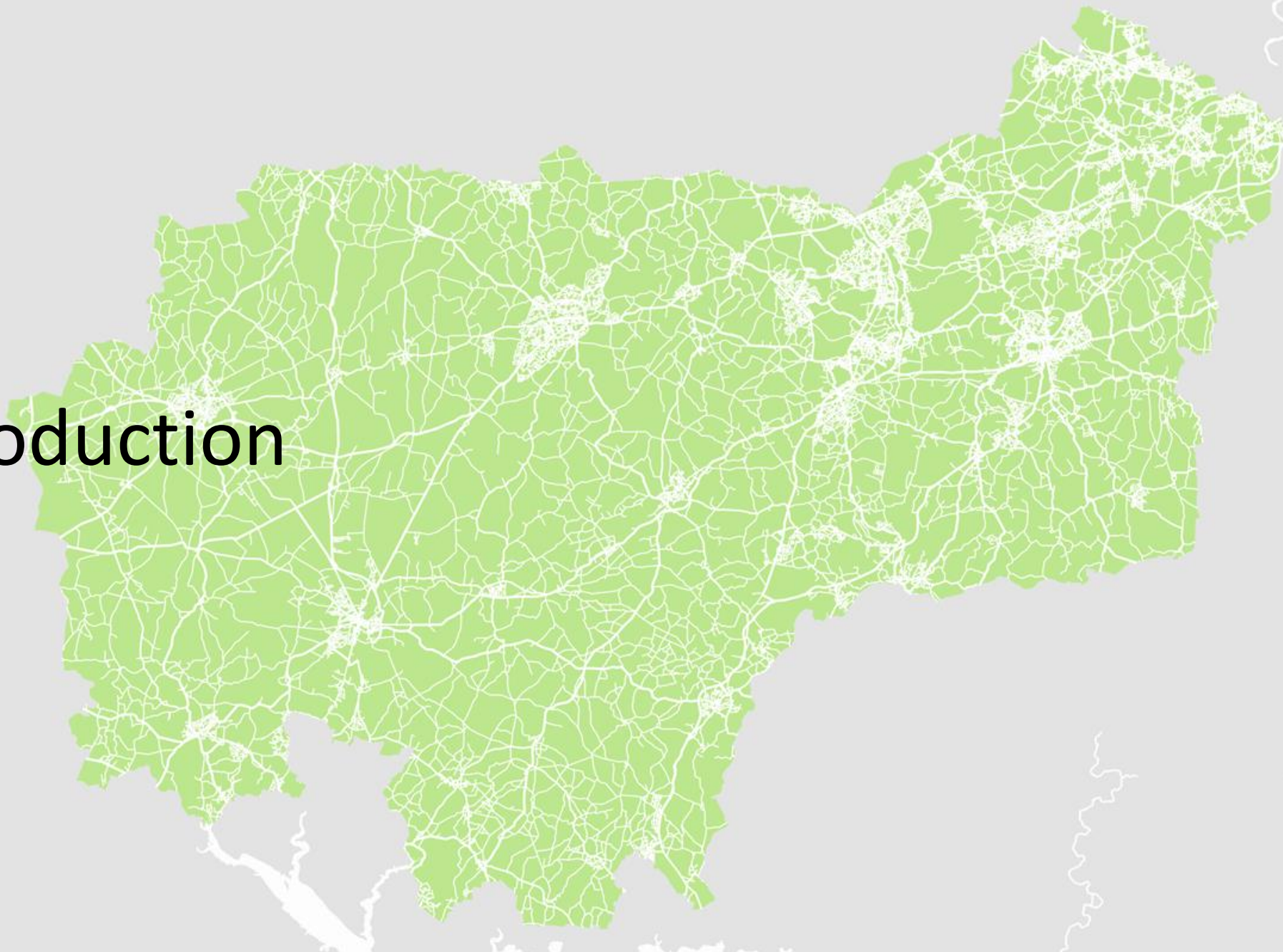
Understanding innovation networks and the importance of infrastructure will ensure continued success

EM3 hosts a variety of globally successful businesses, specifically in the aerospace industry, that are crucial to the national economy, whilst also providing the means for smaller, innovative businesses to grow. Universities have a strong presence, with a strong history of success, but the linkages between both areas is lacking.

EM3 has the right ingredients for a powerful innovation ecosystem but needs to spur innovative activity further by developing closer ties between big businesses, scale-ups and higher education. Crucially, the interventions designed to achieve this must draw from the success seen in dedicated spaces on science and research parks, alongside targeted support of standalone creative clusters.

EM3 is a successful economy with many global businesses undertaking high value work. This foundation can be built on to establish the area as one of the primary innovation ecosystems of the UK.

Introduction



INTRODUCTION

Metro Dynamics has been commissioned by the Enterprise M3 LEP (EM3 or Enterprise M3 in this document) to develop an analysis of the existing science and innovation assets and identification of the priority sectors within the EM3 economy.

This data pack consolidates a range of reports commissioned to feed into the Local Industrial Strategy and technical reports, propositions and strategies that specifically relate to innovation and priority sectors. These have been coupled with specialist analysis undertaken by Metro Dynamics to ensure a complete picture of the innovation ecosystem and sector strength is presented.

The analysis has considered EM3 as a whole, but also variation within the LEP area. This involves looking at differences between the local authorities, each of which make unique contributions to the regional economy, specialising in activities ranging from Digital to Space.

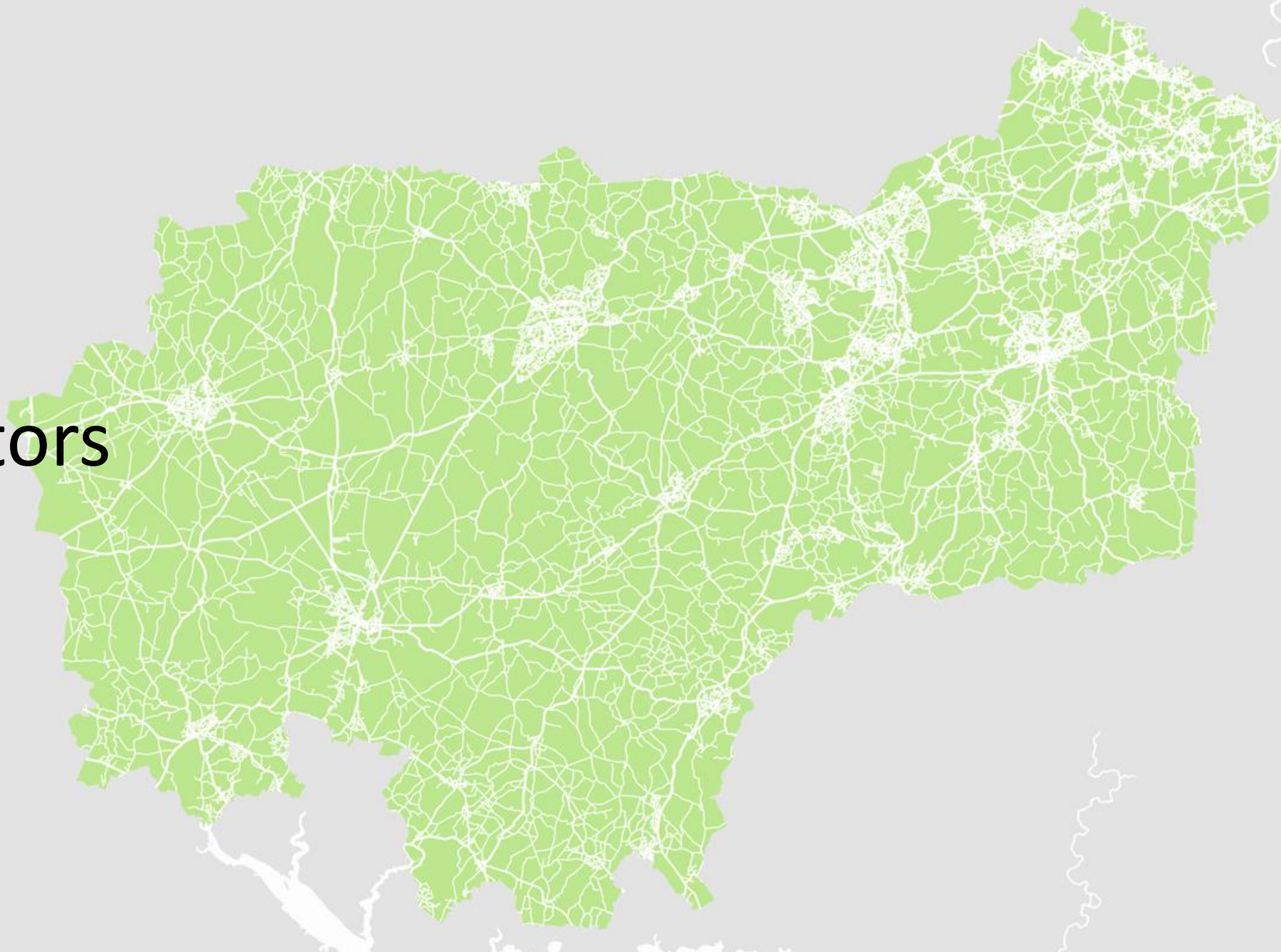
EM3 is a polycentric place without a single major city within its own boundaries (though it borders London to the north and Southampton to the south), therefore various case studies have been included assessing specific research activity at a local level, in order to identify the areas of key innovation across the LEP. This includes Surrey research park, Southampton Science Park and Royal Holloway.

Comparators have been used to provide context for EM3's performance, data permitting. Comparators range from neighbouring LEPs, benchmarking against the LEPs of England to compare trends, the South East and Great Britain where appropriate. Where possible, temporal data and change over time has been used to contextualise current performance and show trends.

This pack is organised into three sections. The first two sections give an overarching summary of the sector specialisms and the innovation assets within EM3 whilst the third summaries EM3 as a place:

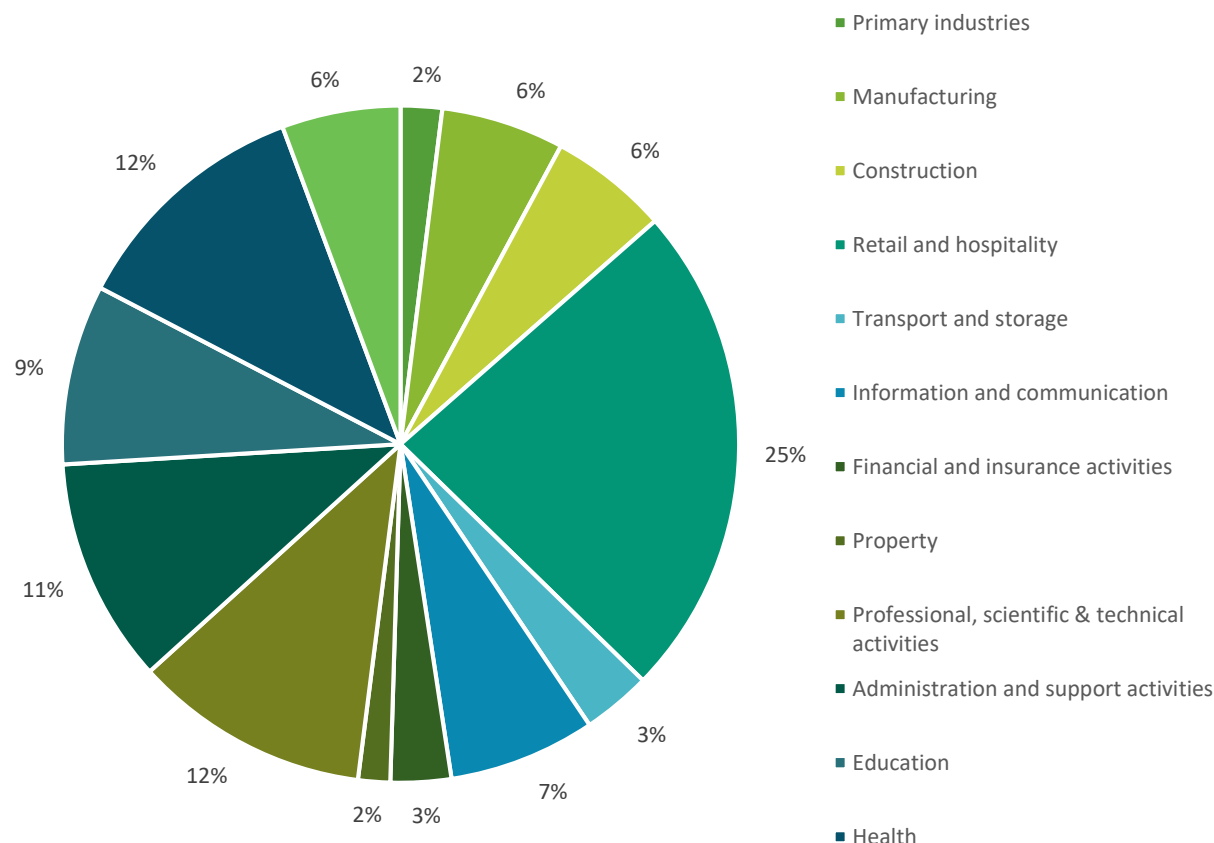
- **Sectors** – provides detailed analysis of EM3's sector specialisms, looking in detail at specialist sub-sectors within the economy and identifying niche drivers of the economy.
- **Innovation** – covers R&D and innovation, focusing on innovation assets and assessing whether this activity ties in with sector specialisms.
- **Place** – presents population trends, house affordability, natural capital and a towns breakdown analysis.

Sectors



SECTOR COMPOSITION: A VARIED ECONOMY

Employment by broad sector (2018)



EM3 has an extremely varied economic makeup, with a greater proportion of high-skilled jobs than the national average.

12% and 7% of employment is within **Professional, Scientific & Technical** activities and **Information & Communications** compared to 9% and 4% nationally. On par with these is **Health**, consisting of 12% employment within the economy. Other high-skilled professions reflect proportional employment levels similar to the national average: Education and Financial professions.

Retail employment is high across the country, and the story is no different within EM3. Employment in Retail & Hospitality represents 25% of the LEP-wide employment, providing jobs to an estimated 182,000 individuals. Deeper analysis shows that the LEP specialises in the **food service and public houses and bars** sectors. Given its proximity to London and the south coast, the local authorities comprising EM3 provide a strong evening economy offer.

The proportion of those employed in production is lower than the national average. **Primary Industries** and **Manufacturing** comprise of only 2% and 6% of employment in EM3 respectively; nationally they comprise of 3% and 8%. While the sector-wide employment is low, the LEP does hold a number of specialisations in the Primary Industries.

CHANGE IN COMPOSITION FROM 2013

Change in broad sector employment (2013-2018)

Industry	Employment 2013	Employment 2018	Employment Change	% Change EM3	% Change GB
Professional, scientific & technical activities	75,750	86,500	10,750	14.2%	18.9%
Health	79,000	89,750	10,750	13.6%	6.1%
Retail and hospitality	173,425	182,325	8,900	5.1%	8.0%
Construction	37,625	43,625	6,000	15.9%	15.8%
Transport and storage	21,175	25,175	4,000	18.9%	17.5%
Manufacturing	42,250	45,125	2,875	6.8%	4.2%
Education	64,500	66,000	1,500	2.3%	2.7%
Administration and support activities	81,475	82,625	1,150	1.4%	11.1%
Property	10,850	11,750	900	8.3%	10.4%
Arts, entertainment, recreation & other services	42,750	43,500	750	1.8%	8.6%
Primary industries	14,490	15,200	710	4.9%	11.4%
Financial and insurance activities	22,150	22,200	50	0.2%	0.9%
Information and communication	56,750	53,875	-2,875	-5.1%	15.3%
Total	722,190	767,500	45,460	6.3%	9.2%

The picture across EM3 is one of employment growth within specific sectors, however as a whole the growth rate is below the national average.

The **Professional, Scientific and Technical** sector has the largest growth in absolute terms. This is a sign that EM3 can deliver the conditions and skills necessary for high-value growth, attractive for business. However, employment growth is below the national average for the industry.

The **Transport & Storage** sector has seen the largest growth in employment over the last five years as a proportion of total employment. That is to say: Transport & Storage has become a proportionally more significant part of EM3's total employment.

In many high-skilled industries, activities are high-value and are high in productivity, driving local growth but sometimes mask declines in employment. Employment in **Information & Communications** and **Financial & Insurance** has declined across EM3 despite growing nationally. The growth in employment in **Education** has been positive but also lags behind the national average.

Employment in the **Health** sector is high and growing at more than double the national rate, observing employment growth in excess of 10,000. Such a large growth in employment is positive in a sector that struggles to recruit and retain staff..

With such substantial growth, it is worth investigating this sector further. Employment growth in Health is spread across three subsectors: Human Health Activities, Residential Care Activities and Social Work activities. Human Health Activities e.g. Hospital Practices & Medical nursing home activities, account for over half of employment growth creating 6,200 out of the 10,750 new jobs in the Health Sector. However, it is difficult to determine whether this has been driven by the public or private health care sector.

TOP 10 SPECIALIST SUB-SECTORS

Most specialised SIC2 sectors (2018)

Sector	Sub-sector	LQ	Employment Change	Employment (2013-18)
Professional, scientific and technical activities	Scientific research and development	2.27	1,190	17.7%
Information and communication	Computer programming, consultancy and related activities	2.23	2,375	6.2%
Manufacturing	Repair and installation of machinery and equipment	2.02	2,410	65.3%
Manufacturing	Manufacture of computer, electronic and optical products	1.80	-815	-13.8%
Professional, scientific and technical activities	Activities of head offices; management consultancy activities	1.57	6,050	23.7%
Professional, scientific and technical activities	Veterinary activities	1.53	920	54.1%
Arts, entertainment and recreation	Sports activities and amusement and recreation activities	1.49	1,250	7.8%
Agriculture, Forestry and Fishing	Forestry and logging	1.48	175	43.8%
Information and communication	Telecommunications	1.43	-3,065	-30.4%
Professional, scientific and technical activities	Architectural and engineering activities; technical testing and analysis	1.40	1,025	5.6%

This table shows the sectors that EM3 specialises in by using Location Quotients (LQs). LQs show the proportion of the local workforce employed in a sub-sector compared to Great Britain. For example, in scientific research and development, the proportion of employees working in EM3 is 2.27 times as large as in Great Britain.

Science and industry feature strongly in EM3's specialist sub-sectors. Six of the specialist sectors fall within the Hi-Tech industry (Information and Communications and Professional, Scientific and Technical), and two within the Manufacturing Sector.

The majority of these professions require specific training and skills, adding to the complexity of the activities. The two largest employing specialist sectors fall within the Hi-Tech industry, but they're not necessarily the most specialist – nor have they grown considerably over time. In fact, **four of the six Hi-Tech sectors have become less specialist since 2013.**

Of the top four specialist sub-sectors, two are within the Production Sector in **Manufacturing**. The repair and installation of machinery and equipment has grown relatively more specialised compared to other sub-sectors since 2013 (see the following slide). Furthermore, the growth in employment has outpaced many others.

The overall picture however is perhaps a consequence of such a varied economy; there are limited stand out specialisms within EM3. Clear strengths are within scientific R&D, computer programming and manufacturing but as a whole, there is a lack of headlining sub sector specialisms.

10 FASTEST GROWING SUB-SECTORS

*The ten fastest growing SIC2 sectors **by LQ growth** (2018)*

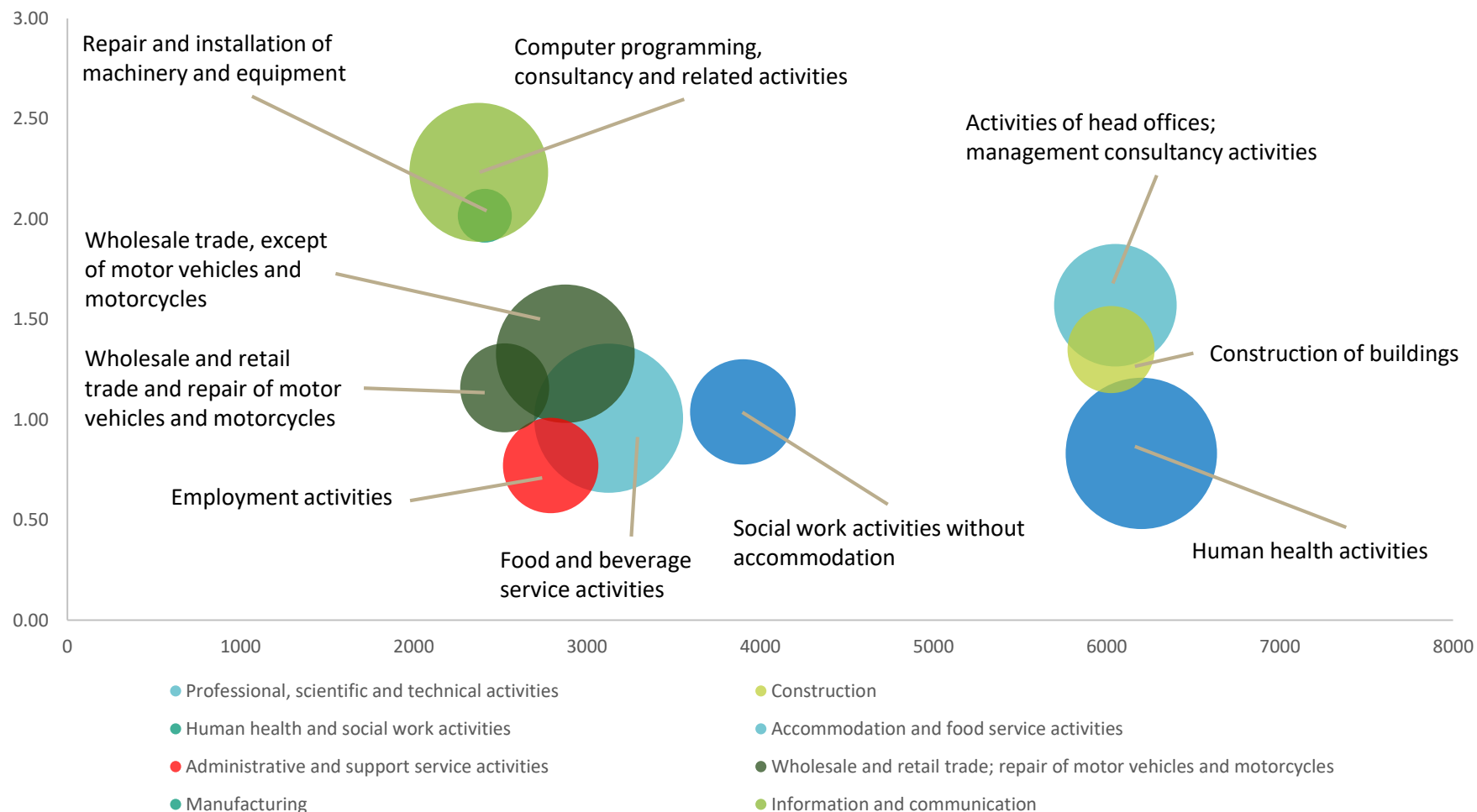
Sector	Sub-sector	LQ 2018	LQ Growth	Employment 2018
Manufacturing	Repair and installation of machinery and equipment	2.02	0.76	6,100
Manufacturing	Manufacture of paper and paper products	0.60	0.37	860
Agriculture, Forestry and Fishing	Forestry and logging	1.48	0.33	575
Manufacturing	Manufacture of motor vehicles, trailers and semi-trailers	0.84	0.31	3,490
Construction	Construction of buildings	1.35	0.29	15,925
Professional, scientific and technical activities	Veterinary activities	1.53	0.25	2,620
Professional, scientific and technical activities	Other professional, scientific and technical activities	1.18	0.20	6,425
Manufacturing	Manufacture of other non-metallic mineral products	0.52	0.20	1,110
Human health and social work activities	Social work activities without accommodation	1.04	0.20	23,375
Transportation and storage	Postal and courier activities	0.82	0.18	5,005

*The ten fastest growing SIC2 sectors **by employment growth** (2013 - 2018)*

Sector	Sub-sector	LQ 2018	Employment 2018	Employment Growth
Human health and social work activities	Human health activities	0.83	48,125	6,200
Professional, scientific and technical activities	Activities of head offices; management consultancy activities	1.57	31,525	6,050
Construction	Construction of buildings	1.35	15,925	6,025
Human health and social work activities	Social work activities without accommodation	1.04	23,375	3,900
Accommodation and food service activities	Food and beverage service activities	1.01	46,625	3,125
Wholesale and retail trade; repair of motor vehicles and motorcycles	Wholesale trade, except of motor vehicles and motorcycles	1.33	40,250	2,875
Administrative and support service activities	Employment activities	0.77	19,100	2,790
Wholesale and retail trade; repair of motor vehicles and motorcycles	Wholesale and retail trade and repair of motor vehicles and motorcycles	1.16	16,575	2,525
Manufacturing	Repair and installation of machinery and equipment	2.02	6,100	2,410
Information and communication	Computer programming, consultancy and related activities	2.23	40,500	2,375

FASTEST GROWING SECTORS

The fastest growing SIC2 sub-sectors by Employment growth (2013-18)



This graph shows the change in absolute employment between 2013 and 2018 along the x-axis, the 2018 LQ value along the y-axis, and the relative size of employment in the sub-sector (as the size of the bubble). Those sub-sectors with high LQs are highly specialised (have considerably higher employment than the national average).

The activities of head offices; management and consultancy services sector alongside the human health sector demonstrates a high level of specialisation and employment has grown significantly – reflected in its location far right.

What should be noted is the distribution across the LQ axis. Whilst some sectors are experiencing significant employment growth, specialisms remain low.

EMPLOYMENT OF FIRST DEGREE GRADUATES BY SECTOR

Employment of first degree graduates



*Information relates to the old EM3 boundary – including the New Forest and isolating areas of Test Valley, Winchester and East Hampshire

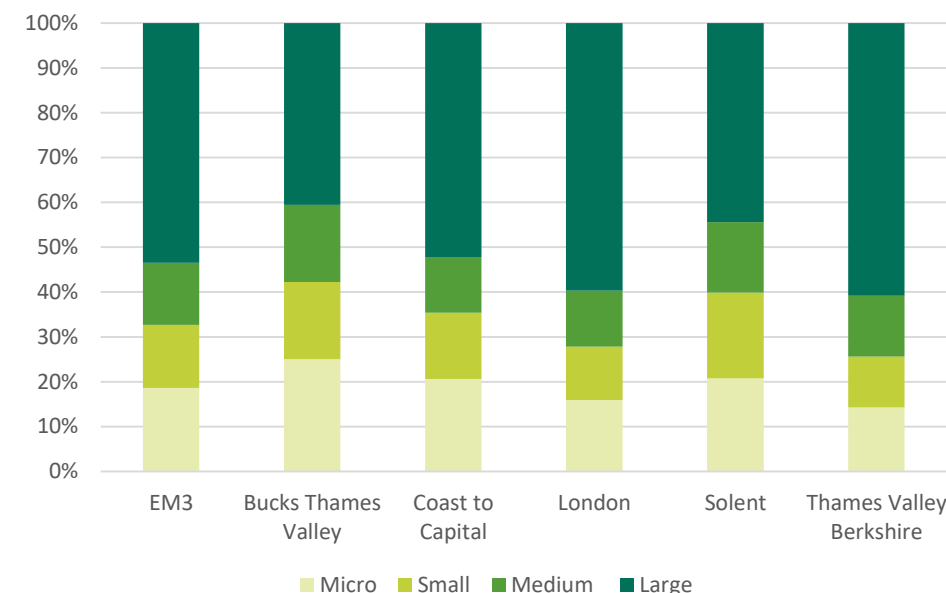
Just shy of a quarter of first degree graduates enter into employment in the Professional, Scientific & Technical sector – one of Enterprise M3's most specialist and fastest growing sectors. It is also one of the most high-value, highly innovative sectors within the LEP. Enterprise M3 appears to have little trouble recruiting to this industry, reflecting its strength and performance. Health & Social Work and Education are the next two largest graduate employing sectors. These are similarly high-skilled areas. Social work activities (without accommodation) is one of the fastest growing specialties in the LEP by employment, growing by 3,900 since 2013.

BUSINESS COUNT BY SIZE AND EMPLOYMENT

VAT-Registered Business count by size (2017)

Area	Total businesses	Micro (0 to 9)		Small (10 to 49)		Medium (50 to 249)		Large (250+)	
		Total	%	No.	%	No.	%	No.	%
Enterprise M3	79,265	71,715	90.5	6,095	7.7	1,160	1.5	295	0.4
Bucks Thames Valley	31,080	28,375	91.3	2,185	7	425	1.4	90	0.3
Coast to Capital	90,335	82,075	90.9	6,875	7.6	1,120	1.2	265	0.3
Solent	41,635	36,670	88.1	4,155	10	670	1.6	140	0.3
Thames Valley Berkshire	44,680	40,290	90.2	3,390	7.6	755	1.7	245	0.5
London	505,655	459,440	90.9	37,035	7.3	7,185	1.4	1,995	0.4

Employment by business size (2017)



Source: SQW Headlines Productivity Report (2019) based on ONS Business Count data

Source: Metro Dynamics analysis of ONS employment by Enterprise Size data

- The table to the left shows EM3 and comparator's business count broken down by size and share of the total business stock. The chart to the right shows the share of people employed by businesses of different sizes
- **Micro-businesses comprise roughly 90% of the business base in EM3**, similar to many of the comparator LEPs, employing 18%-25% of workers. This highlights the fact that smaller businesses are dominating the economy. Whilst this is a common trait in many economies, this value cannot be underestimated. Within EM3 micro businesses, particularly scaleups, are of great value to the economy, undertaking research and innovative, specialised work.
- Small and medium businesses account for roughly 8%-12% of the total

business base and employs 25%-35% of workers. Large companies with over 250 employees account for 40%-60% of employment and less than 0.5% of the business base.

- **52% of EM3's workers are employed in large businesses.** Coast to Capital, London and Thames Valley Berkshire all have over 50% of workers employed in large businesses
- Buckinghamshire Thames Valley has the lowest share of workers employed in large businesses at only 40%. It also has the highest share of workers employed in micro businesses at roughly 25%.

BUSINESS COUNT BY SECTOR

Summary table: Business count by sector (2019)

	Production		Wholesale & retail; Transport; Accommodation		Professional Services		IT & Finance		Public sector, Education, Health		Arts, recreation & other services	
	No.	Share	No.	Share	No.	Share	No.	Share	No.	Share	No.	Share
EM3	15,130	19%	15,410	19%	28,655	35%	12,620	16%	4,175	5%	5,025	6%
Buckinghamshire Thames Valley	6,460	21%	5,595	18%	11,015	35%	4,370	14%	1,695	5%	2,010	6%
Coast to Capital	19,065	21%	19,950	22%	29,895	32%	12,035	13%	5,410	6%	6,325	7%
London	73,010	14%	101,895	20%	197,075	38%	87,665	17%	26,905	5%	35,695	7%
Solent	10,650	24%	13,380	30%	11,345	26%	3,905	9%	2,565	6%	2,640	6%
Thames Valley Berkshire	7,245	16%	8,650	19%	15,480	34%	9,110	20%	2,295	5%	2,620	6%
United Kingdom	645,270	24%	657,500	24%	800,805	29%	286,845	11%	153,995	6%	174,020	6%

Source: ONS Business Count Data (2019)

- The table above shows the sector composition of EM3's business base. **Professional Services is the largest sector by business count at over 35% of the business base.** Only London has a higher share of Professional Services firm at 38%.
- The next two largest sectors by business count are the Production sector – which includes Agriculture; Mining & Utilities; Manufacturing and Construction – and Wholesale & retail; Transport; Accommodation sector. Both of these broad sectors account for 19% of EM3's business base respectively.
- Within the Production sector, Construction has the largest number of businesses with over 9,565 businesses equating roughly 63% of the 15,130 businesses within the sector.
- Within IT & Finance, **8,340 businesses are within Computer Programming, Consultancy and related activities equating to roughly 2/3 of the 12,620 businesses within the sector.**
- Within the Professional Services firms, Activities of Head Offices; Management Consultancy activities account for 9,045 businesses, or roughly 1/3 of the total 28,655 businesses.

BUSINESS AND EMPLOYMENT CONCENTRATION

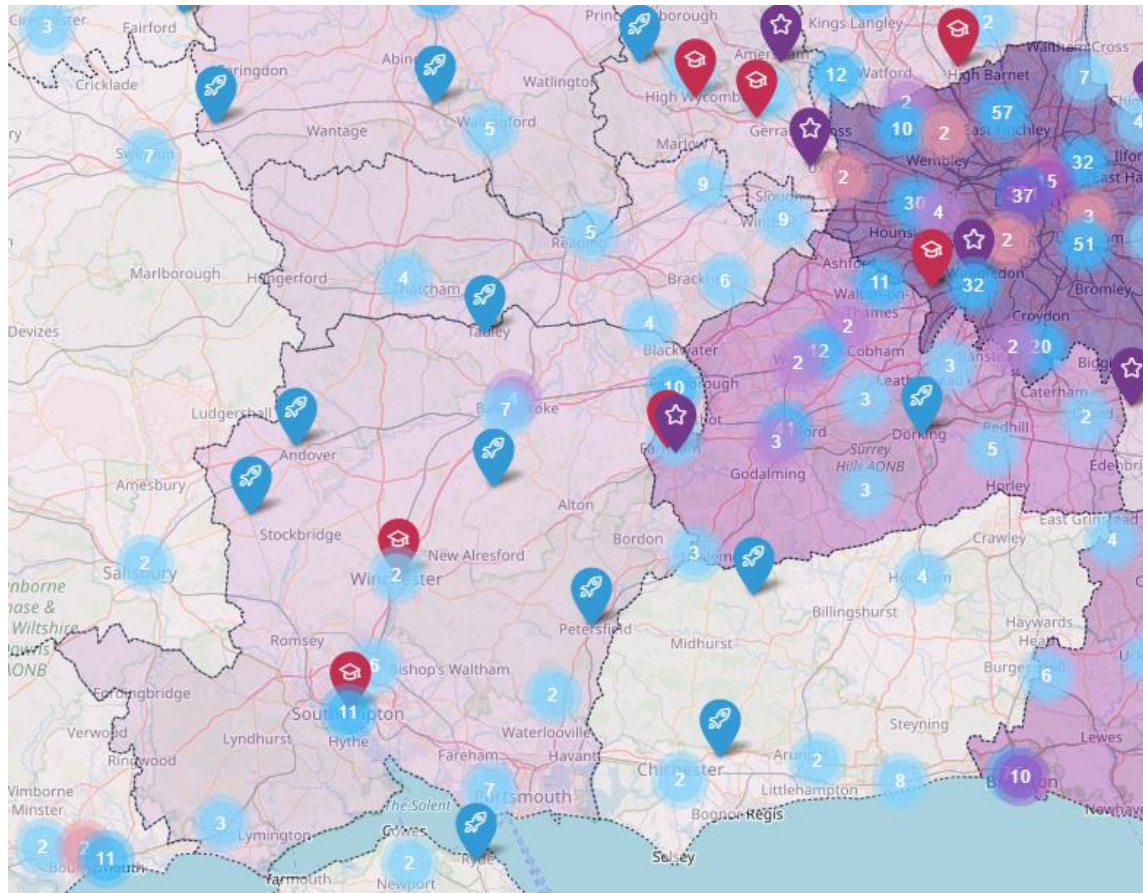
- Given that over 90% of businesses in EM3 are microbusinesses and that the economy is home to niche sectors such as Space and Gaming, it is helpful to supplement LQ analysis at the SIC4 level with a business concentration analysis. SIC codes can be limiting when analysing specific sectors therefore additional analysis can help to assess local economies.
- The table overleaf shows the employment figures and business count alongside LQs and business concentration for EM3, compared to the UK average. The rows in light green show the total employment and company count for the whole sector. Sub-specialisms of note are also listed in the white rows.
- Experian MarketIQ has been supplemented with official UK Business Count data **for the games sector only** to capture companies that are not on the Interdepartmental Business Register (IDBR). Please note that Experian MarketIQ and IDBR data is self-reported and non-exhaustive. It is intended to provide a snapshot of how the share of companies in specialist sectors within EM3 compare to the UK, rather than a definitive value.
- **With the exception of Gaming**, strategic sectors such as Aerospace/Defence/Space; Digital; Telecommunications have seen stagnant or even decreases in jobs across multiple sub-sectors.
- **More encouragingly, some subsectors maintain a high LQ despite job losses** indicating that while EM3 maintains a high specialism, further support is needed to ensure future success.
- **In the Aerospace/Space/Defence sector** there has been a 10% decrease in jobs between 2013-18. Some specialised sub-sectors include the Repair and Maintenance of Aircraft and Spacecraft which has seen employment increase by 23%. Its LQ of 2.40 indicates it is twice as specialised as the UK average and a clear strength. An additional specialism is in the Manufacture of Air and Spacecraft and Related Machinery, with a business concentration of 1.95, indicating there are almost twice the number of businesses within EM3 than there are nationally.
- Due to confidentiality issues with Business Count data, the number of Defence Activities companies has been rounded to 0. In reality, there are likely between 1-5 companies engaged in Defence Activities, employing 2,835 workers and have an LQ of 2.27.
- **In the Digital Sector, there has been an 1% increase in the number of jobs.** There are 9,160 digital companies in EM3 employing 47,630 workers, both of which are twice the UK average. However it is within the sub sectors where greater context is found. Despite many sub-sectors experiencing job losses, accounting for the overall subdued employment growth between 2013-18, there are strengths in computer consultancy and computer programming, both having high business density and are more specialised than GB.
- **Telecommunications employment decreased by 29% between 2013-18.** Overall, the sector is 1.5x as specialised as GB, with particular business concentration strengths in wholesale of electronic and communication equipment and, more substantially, the manufacturing of fibre optic cables by 5x the national density. All telecommunications sub-sectors have experienced decreases in employment with the exception of manufacture of fibre optic cables.
- **The games industry emerges as a strong sector in terms of companies and jobs concentration.** It is the only sector showing strong employment growth between 2013-18. This uses Experian data and highlights the publishing of computer games as almost 5 times as specialised as GB. There is a high concentration of software development and video games companies. However, SIC code classification in is inconsistent and these figures should be viewed with caution.
- **It is difficult to determine the cause of job losses.** For some sub-sectors, such as Manufacture of Electronic Equipment, the jobs and companies count have both decreased, as expected. However in other cases, such as Data Processing, job losses have been accompanied by an increase in the number of companies (+10) where there were 1,200 jobs lost between 2013-18. Due to the rounding methodology that is applied, it is possible that there were one or two large companies responsible for job losses, which is not offset by the increase in the number of companies that have since opened. Unfortunately the raw data does not provide visibility of the size of businesses.
- There are some clear strengths throughout these sectors that contribute to the economy of EM3, however niche sectors remain difficult to draw definitive conclusions due to limitations of SIC codes. Sectors are understood more when assessed in conjunction with further analysis, something this evidence base will explore when looking into innovative activity.

SIC4 LQs and Companies Concentration Analysis

Sector/Sub-sector	Companies Count (2019)	Jobs Count (2018)	Jobs change (2013-18)	Companies change (2013-19)	Business Concentration (2019)	LQ employment (2018)
Aerospace/Space/Defence	120	5,510	-600	40	1.62	1.23
2540 : Manufacture of weapons and ammunition	5	35	-165	0	1.90	0.11
3030 : Manufacture of air and spacecraft and related machinery	40	1,260	-490	10	1.95	0.61
3040 : Manufacture of military fighting vehicles	0	110	10	0	0.00	1.60
3316 : Repair and maintenance of aircraft and spacecraft	70	1,230	230	30	1.52	2.40
6130 : Satellite telecommunications activities	5	40	-20	0	1.29	0.15
8422 : Defence activities	0	2,835	-165	0	0.00	2.27
Digital	9,160	47,630	415	1,705	1.93	2.05
2611 : Manufacture of electronic components	25	110	-215	5	1.74	0.31
2612 : Manufacture of loaded electronic boards	15	260	-690	-5	1.97	1.30
2620 : Manufacture of computers and peripheral equipment	30	395	145	-10	1.49	2.26
2640 : Manufacture of consumer electronics	25	70	-90	-10	1.98	0.70
4651 : Wholesale of computers, computer peripheral equipment and software	105	2,830	830	-15	2.04	2.83
5829 : Other software publishing	100	485	135	5	1.70	1.62
6201 : Computer programming activities	1,480	11,110	610	-5	1.77	2.34
6202 : Computer consultancy activities	5,955	24,000	2,000	1,750	2.08	2.42
6203 : Computer facilities management activities	30	45	-65	10	1.43	0.65
6209 : Other information technology and computer service activities	870	5,580	-420	-70	1.82	1.63
6311 : Data processing, hosting and related activities	110	970	-1,280	10	1.38	0.89
6312 : Web portals	65	140	-30	-5	1.87	0.40
6399 : Other information service activities n.e.c.	130	205	-220	40	1.44	0.63
8020 : Security systems service activities	75	390	210	20	1.20	1.04
9511 : Repair of computers and peripheral equipment	120	890	-485	-20	1.07	1.19
9521 : Repair of consumer electronics	25	150	-20	5	1.54	2.00
Games industry	179	1,100	195	N/A	7.19	6.28
3240 : Manufacture of games and toys	20	15	0		1.18	0.13
5821 : Publishing of computer games	15	85	-5		1.87	1.5
62011 Ready-made interactive leisure and entertainment software development	144	1,000	200		3.56	3.08
Telecoms	630	10,890	-4,475	40	1.64	1.55
2630 : Manufacture of communication equipment	50	490	-635	-20	1.67	1.40
2731 : Manufacture of fibre optic cables	5	110	60	5	5.71	3.52
2732 : Manufacture of other electronic and electric wires and cables	5	55	-45	5	0.89	0.31
2733 : Manufacture of wiring devices	0	0	-75	-5	0.00	0.00
4652 : Wholesale of electronic and telecommunications equipment and parts	150	2,760	-490	10	2.03	2.94
4742 : Retail sale of telecommunications equipment in specialised stores	10	305	-120	0	0.31	0.53
4743 : Retail sale of audio and video equipment in specialised stores	30	45	-95	0	1.78	0.51
6110 : Wired telecommunications activities	85	315	-435	35	1.99	1.33
6120 : Wireless telecommunications activities	80	605	-145	35	2.10	0.90
6190 : Other telecommunications activities	195	6,110	-2,390	-35	1.55	1.64
9512 : Repair of communication equipment	20	95	-105	10	1.19	0.63

SPOTLIGHT ON THE GAMES INDUSTRY

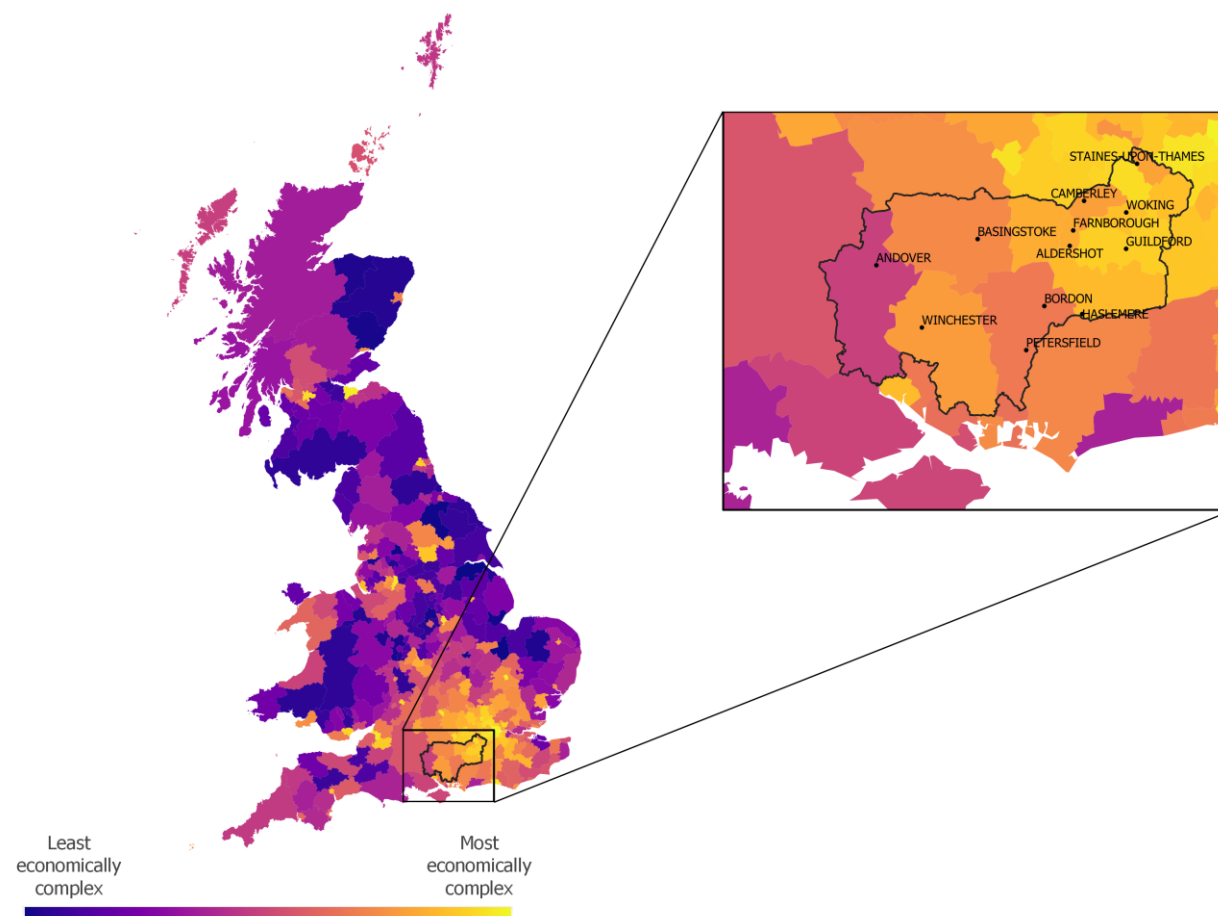
Map of Game Developers, Service Companies and Universities (2019)



- The map to the left was developed by UKIE and Nesta following a report in 2014 and has since been updated.
- This sector is difficult to capture with SIC codes, therefore will be under-represented using standard LQ methodologies.
- **The Nesta report identifies Guildford and Aldershot as one of 12 games sector hubs nationwide, representing a key asset within EM3.** Both areas have a high number concentration of games companies and a high number of games developed. In Surrey and Hampshire counties there were:
 - **146 game developers and publishers**
 - **4,362 games published**
 - **9 games related courses on offer**
- The most popular platforms for published games were Windows PC games; mobile games, primarily on iOS and Android to a lesser extent; and console games on Xbox and PlayStation.
- The Winchester School of Art and University of Creative Arts Farnham offers undergraduate course such as a BA in Games Design and a BSc in Computer Games Technology
- **Some notable companies include Hello Games and EA games.** Hello Games has a reported turnover of over £25 million and resides in Guildford. Its latest release is No Man's Sky in 2016; EA Games, the 2nd largest company in Europe and North America, also has a game development studio in Onslow House, Guildford.

ECONOMIC COMPLEXITY

Economic Complexity ranking by local authority



An Introduction to Economic Complexity

The Economic Complexity Index (ECI) measures economic specialisms and how diverse a local authority is relative to other local authorities. To calculate it, we first ask, for each place, how many sector specialisms are there? A specialism is defined as an industry that has a Location Quotient (LQ) which is greater than 1. We then ask: how specialist are these activities i.e. Across GB how many local authorities are performing such activities?

This may be misleading as not all specialisms which are held by a few places are high-value. We again ask the diversity question – how many of these places have diverse industries?

Economic Complexity can then rank a Local Authority on the number of diverse, high value sectors, compared to the rest of the country. **A local authority with a higher complexity rank seemingly has a greater knowledge base within its economy to cater for the diverse industry.**

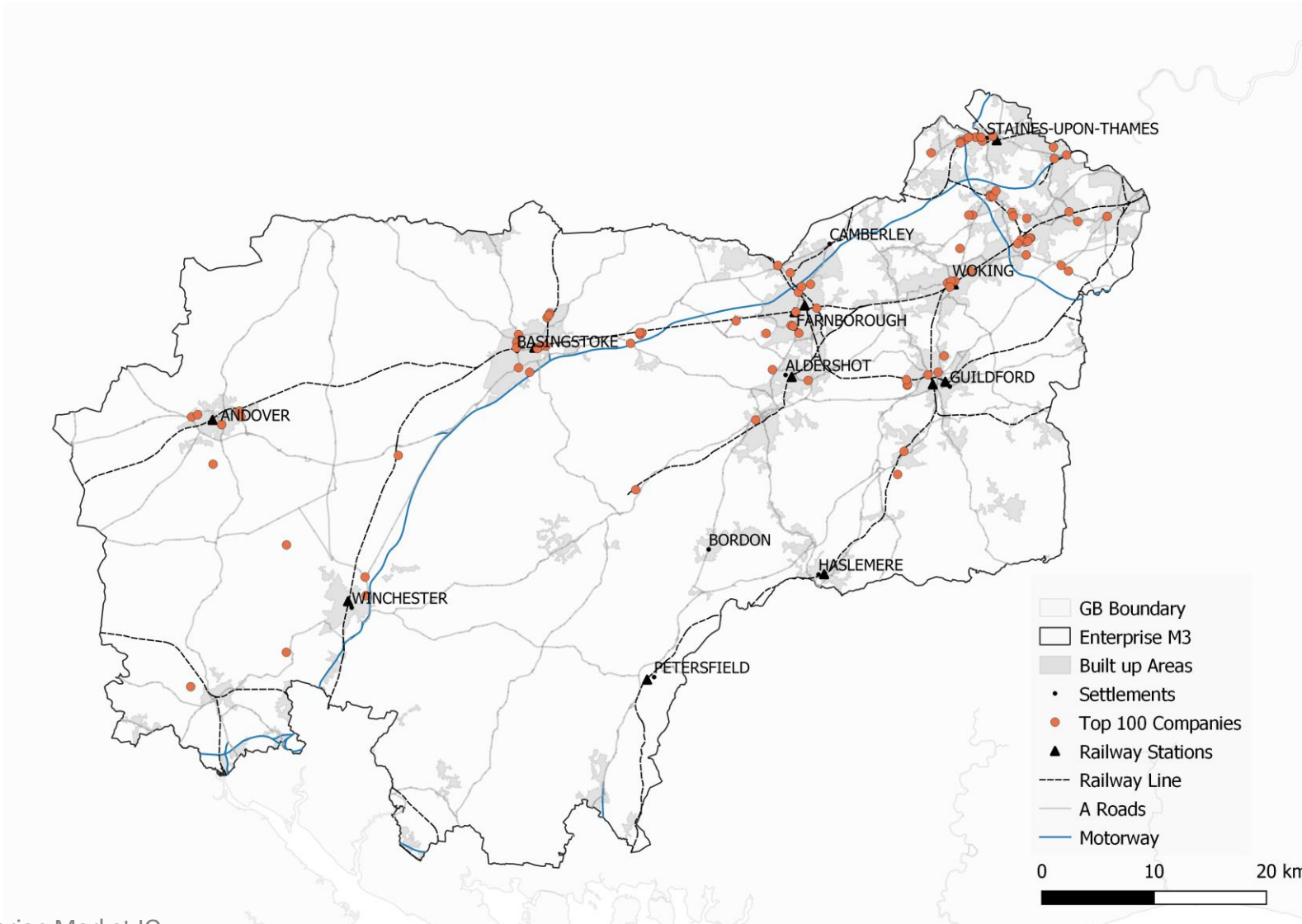
Enterprise M3 – A highly complex economy

Enterprise M3 is the sixth most complex LEP and has the fifth highest GVA per head (measured against the previous LEP boundary). Excluding the majority of core cities, the more complex economies are located close to London or contiguous to such economies. Runnymede and Guildford are the 26th and 38th most complex local authorities in the UK, respectively. Both contain towns with direct rail links to London. Conversely, Winchester and Andover are further away from London and have less complex economies (86th and 193rd most complex). Southampton is nearby, however, which will add to the economic complexity of both places.

The map shows a relationship between the proximity of a place to London and their complexity, but complexity also depends on other characteristics such as skill levels and the attractiveness of a location. Elmbridge and Spelthorne are closer to London but have a lower complexity rank than Runnymede, Woking and Guildford, for example.

TOP 100 COMPANIES

The top 100 companies by revenue within the LEP boundary (2018)



This map shows the registered address location of EM3's largest 100 companies by revenue.

Most large companies are located in the north-east of the LEP's geography, in proximity to London.

This aligns with the trends identified in the economic complexity; there is a clear 'London Effect', not only in terms of economic complexity of Local Authorities, but where the top 100 and the corporate businesses tend to be located.

JOB VACANCIES



256,000 job postings
in the last 12 months

Ranked **8/38** among LEPs
23% **above England's**
job posting level



6.9% postings growth
from 2017-19

Ranked **21/39**
among LEPs for growth
Below England's
posting growth of 8.4%



21% skills shortage
vacancies in 2017

Ranked **27/38**
among LEPs for share
Below England's skills
shortage of 22%



120 skills diversity
index in 2019

Ranked **3/38**
for skills diversity
Above LEP index of 100

HIGH DEMAND FOR JOBS IN



6,753 Programmer postings
in the last 12 month

25.6% increase in
programmer postings



25,000 Customer Service
postings in the last 12 months



24,000 Information Security
postings in the last 12 month



14,000 Nursing postings
in the last 12 months



Financial Services will
experience skills shortages

SECTOR CONCLUSIONS

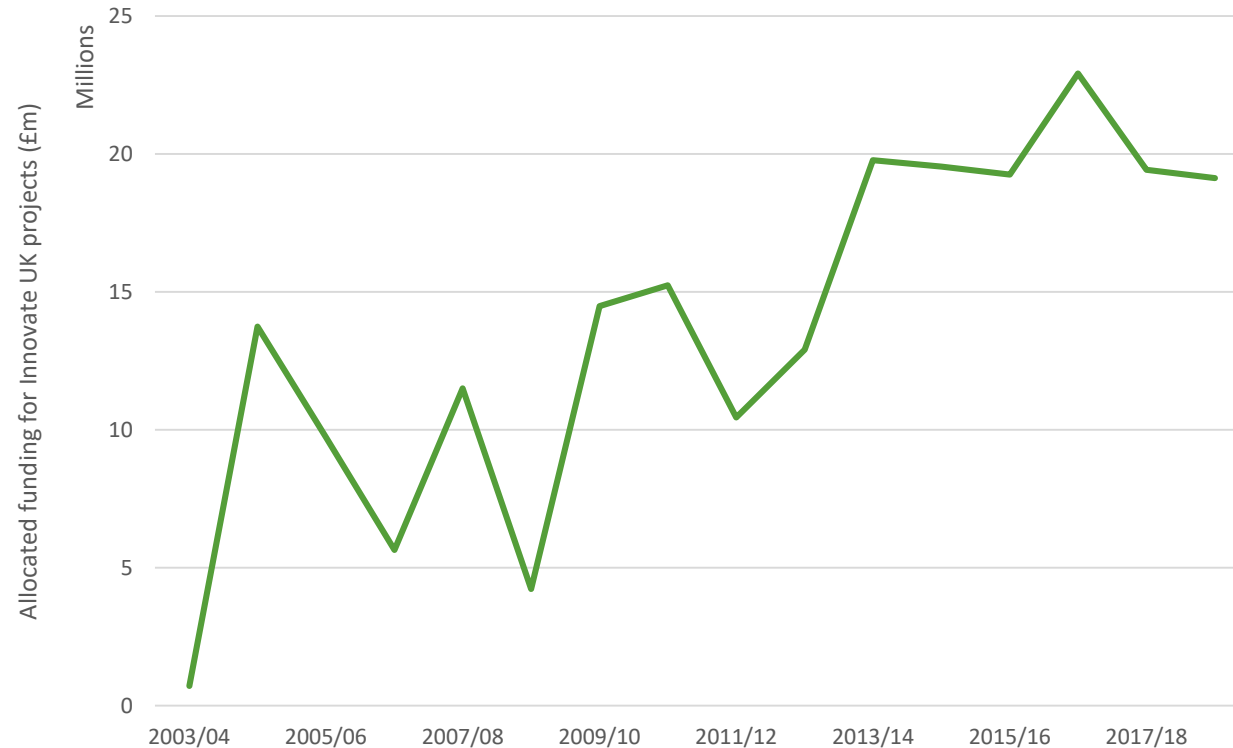
- A varied, successful economy but growing slower than national rates.
- The 6th most economically complex LEP in the country, with a clear West to East divide driven by the draw of London, supported by the distribution of top companies.
- Primary broad sectors are Professional, Scientific and Technical Activities, Information & Communication, Retail & Health.
- With scientific R&D, computer programming & consultancy and the manufacture and installation of machinery as the most specialised sub sectors.
- Business concentration analysis brings out more niche strengths in Space (aircraft and spacecraft), the success in Gaming, Digital (computer programming and computer consultancy) and Telecommunications (wired and wireless telecommunication activities and the manufacture of fibre optic cables).
- However jobs have declined between 2013-17, notably in the Information & Communication broad sector. Digital and Telecommunications is a mixed picture – specialised but in specific sub-sectors.
- With the difficulties around SIC codes assessing niche sectors, these findings will be tested in the following Innovation section. This will help determine what type of innovation activity occurs within these sectors and how significant these activities are to the local, regional and national economies.

A map of the United Kingdom is shown, with a solid green overlay covering the landmass. Overlaid on this green area is a dense, white network of lines that resemble a road or railway network. The word "Innovation" is written in a large, black, sans-serif font across the middle-left portion of the map. The background of the slide is a light gray, and there are some white, wavy lines in the top right and bottom right corners.

Innovation

INNOVATE UK FUNDING SINCE 2003/04

Grant funding for Innovate UK projects (2003/04 – 2018/19)



*Figures have not been smoothed

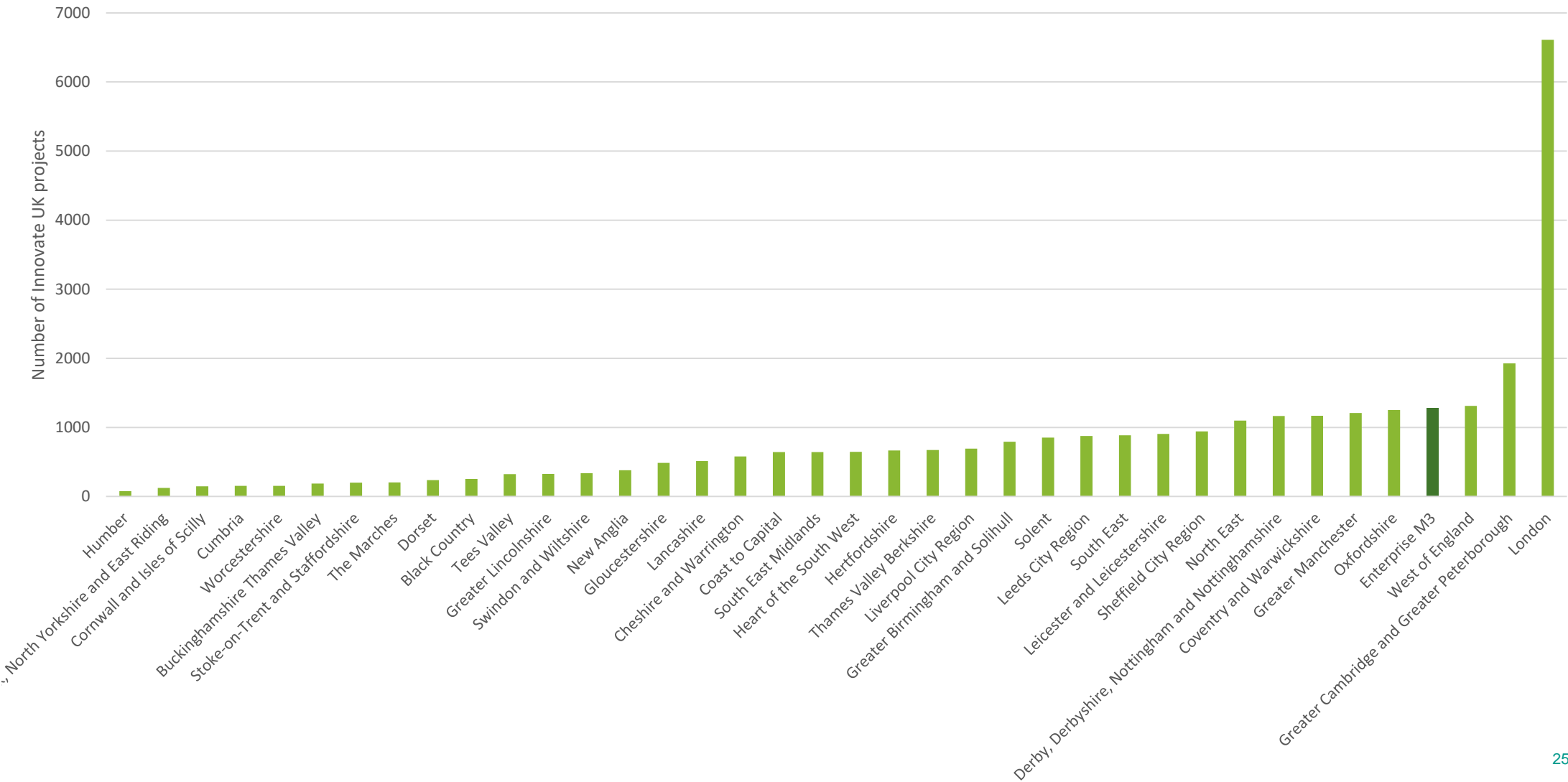
Organisations within Enterprise M3 attracted £19.12m in funding for innovate UK projects over 2018/19. Grant funding in 2003/04 was £712,046, increasing to £13.74m in the following year and has continued to grow in size since. Although 2018/19 reflects a large level of investment, it was the LEP's lowest funding allocation since 2012/13.

Just shy of half of this funding was allocated to projects in the Manufacturing, Materials & Mobility sectors (49.6%), with the next highest proportion in Ageing Society, Health & Nutrition Research (16.2%).

Enterprise M3 has attracted £216.6m of project funding since 2003/04, at an average of £13.5m per year. In comparison, project grants in 2018/19 attracted a higher than average level of investment despite being the lowest since 2012/13.

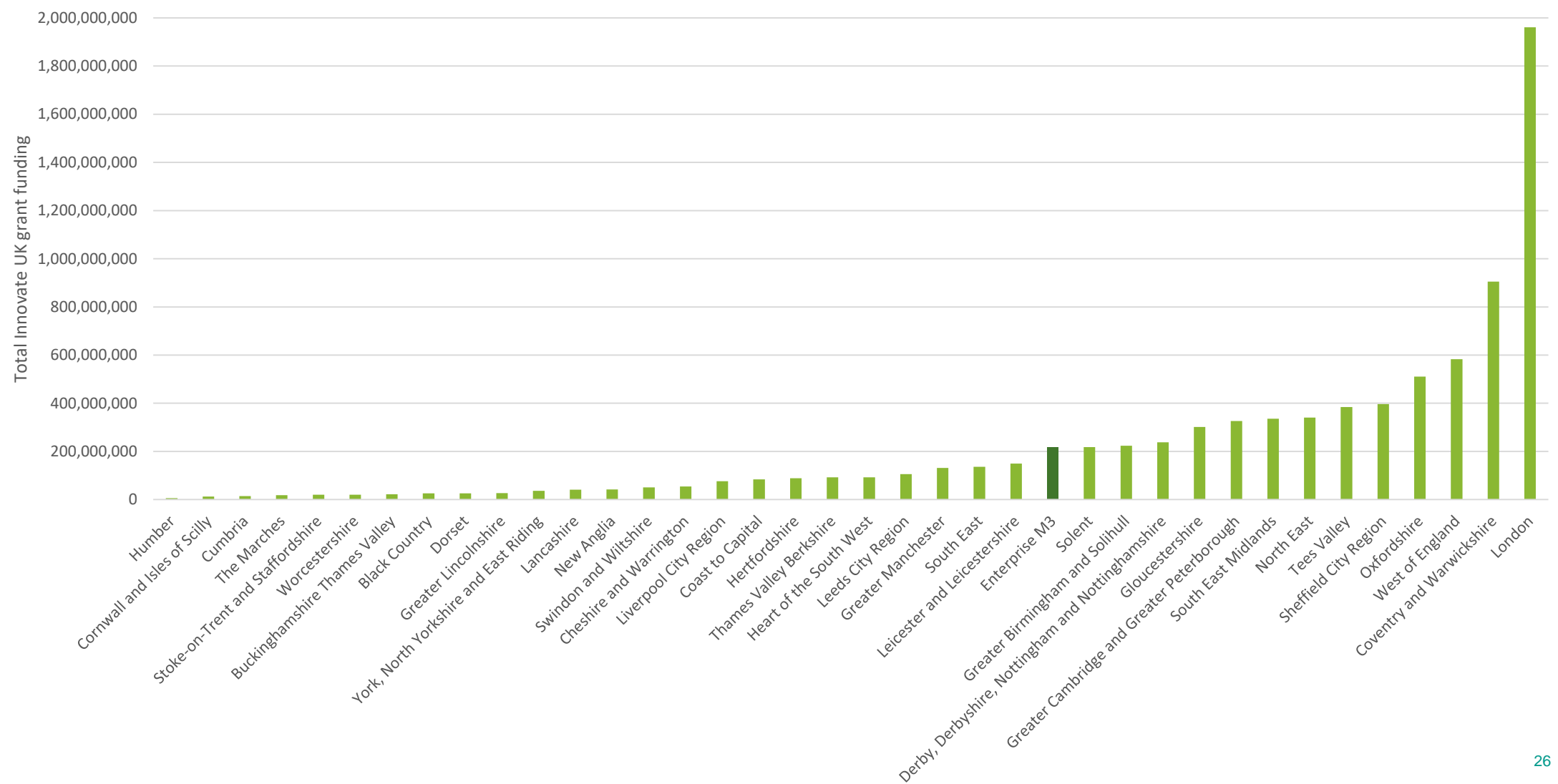
TOTAL NUMBER OF PROJECTS ACROSS LEPS

Total number of Innovate UK projects across all 38 LEPs (2003/04 – 2018/19)



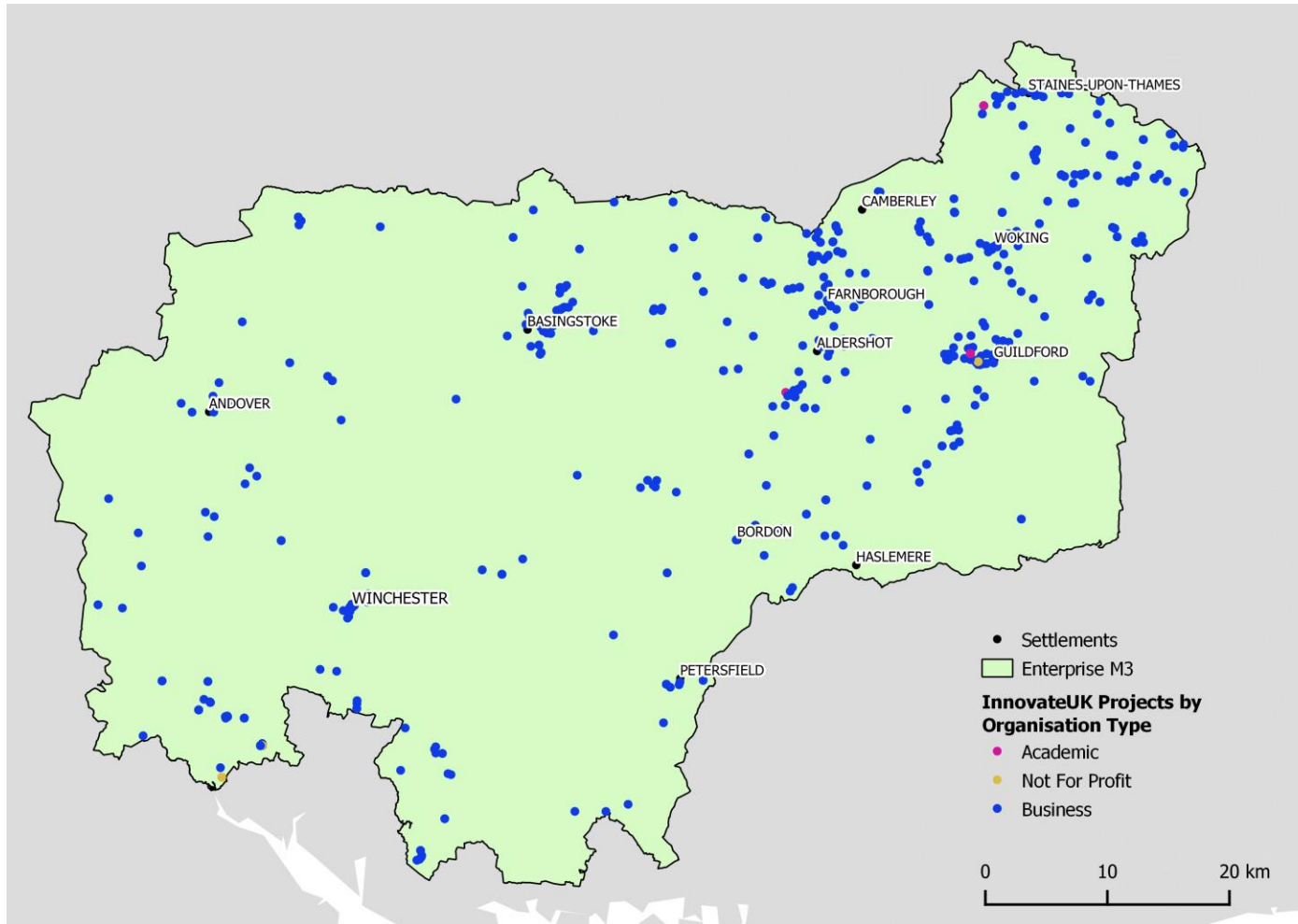
TOTAL GRANT FUNDING ACROSS LEPS

Total grant funding for Innovate UK projects across all 38 LEPs (2003/04 – 2018/19)



SPATIAL DISTRIBUTION OF INNOVATE UK FUNDING

Innovate UK projects by type of organisation (2004 – 2019)



A lot of the innovation activity in EM3 happens in the east of the LEP, specifically the north-east, closer to London. This activity is mainly business focused, clustering around major settlements like Farnborough, Guildford, Woking and Staines-Upon-Thames.

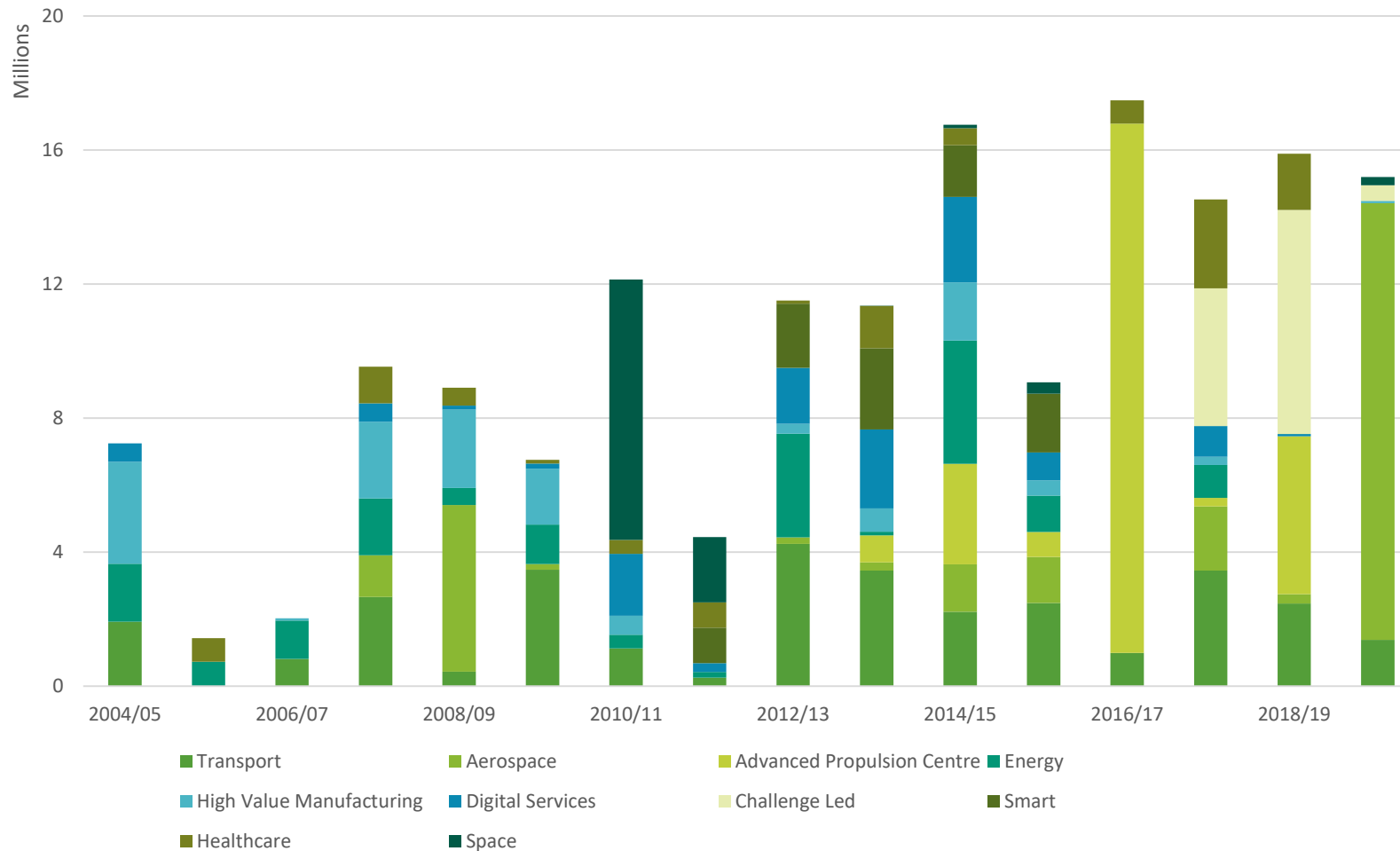
There is minimal clustering in the south and south-east of the LEP as there are lower overall number of Innovate UK projects. Activity is primarily clustered around Winchester, Southampton Science Park and Andover.

The low number of Innovate UK projects undertaken by Academic Institutions is reflected in the map of Innovate UK projects. Since 2004, Academic organisations have only accounted for 9% of EM3s total projects, and only 7% of funding.

Not for Profit organisations are organisations such as charities, who have conducted only two innovate UK projects since 2004. These projects are usually small, with 2010/11 being an exception when HoiP conducted a project that attracted £302,964 of funding from Innovate UK.

INNOVATE UK FUNDING BY SECTOR

Grant funding for Innovate UK projects by sector (2003/04 – 2018/19)



This graph shows the top 10 sectors by innovate UK funding. In the current year, Aerospace has attracted £13m in grant funding – considerably more than any other sector. Reflecting the sector work, there is a strong link to the Space and Digital sectors.

The top three sectors funded are **Transport (£31.37m)**, **Aerospace (£24.84m)** and **Advanced Propulsion Centre (£25.32m)** since 2004/05.

However, combining Space with Aerospace brings the total to £34.84m, which would then represent the most funded sector.

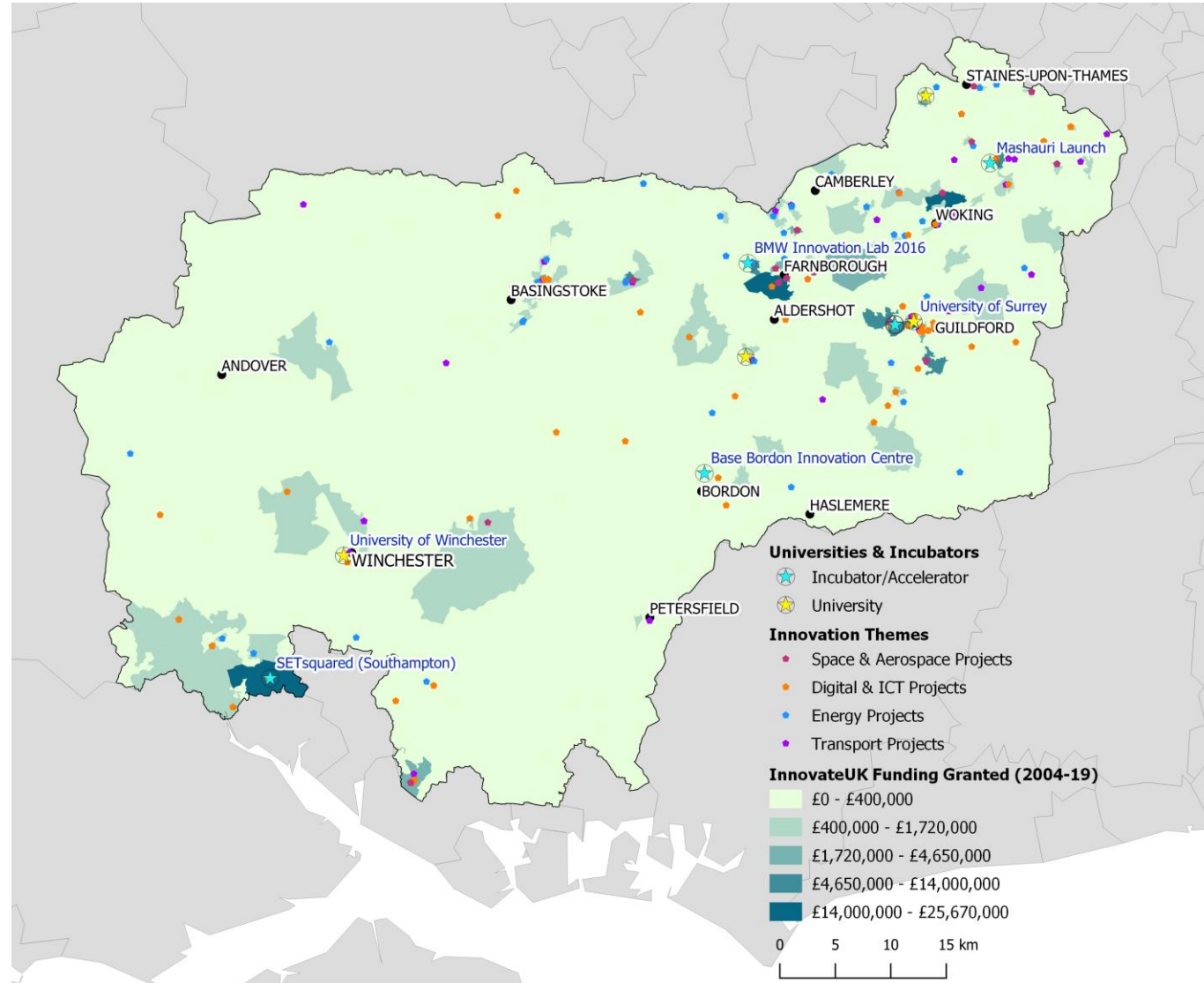
Transport has received the most funding with £31 million granted over 139 projects. Most projects relate to commercialising electric vehicles by improving battery technology or innovative materials.

Advanced Propulsion is the 2nd highest funded sector at £25 million over 14 projects. This area supports low carbon engines for the automotive and rail industry.

Digital Services has received over £18 million over 144 projects. Projects in this area ranged from cyber security to data, robotics and A&I

Space projects received over £10 million of funding spread among 44 projects. Projects include satellite development and manufacturing of robotics

SPATIAL DISTRIBUTION OF INNOVATE UK BY THEME



Spatial distribution of InnovateUK Funded Projects by Theme (2004-19)

This colour-coded heat map represents the total funding allocated within each LSOA. It is intended to emphasize that one single area, such as Surrey Science Park, can have multiple projects occurring within close proximity of one another.*

When including the existing science and research parks, there are clear clusters of activity around hubs specifically catered towards research and innovation.

Guildford consistently emerges as a strong area for innovation activities across all themes. This is unsurprising considering the support from the University of Surrey and Surrey Research Park.

Areas around Southampton Science Park also has a high level of grant funding received, benefiting from close proximity with the University of Southampton

Farnborough has high level of grant funding, with projects receiving between £14-£25 million. The area supports large budget investments in High Value Manufacturing, Transport, Aerospace and Space, whilst being home to the BMW Innovation Lab that supports start-ups.

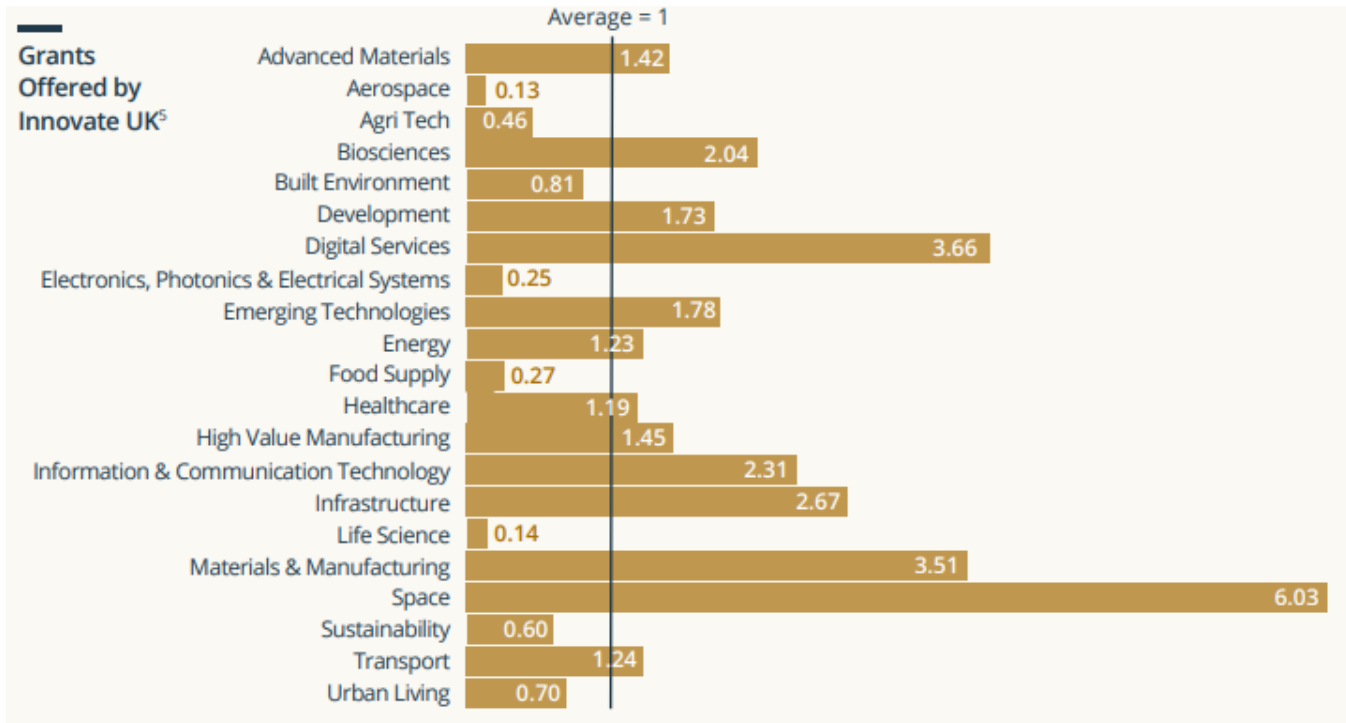
Advanced Propulsion received the 2nd highest funding from InnovateUK at £25 million over 14 projects. Woking is central to this activity, receiving £16 million of this total grant funding pot.

Space projects received over £10 million of funding spread among 44 projects. These projects are clustered around four areas; the University of Surrey in Guildford, which has the most projects and funding; followed by Farnborough; Rushmoor; and Winchester.

Other thematic areas receiving a high level of funding are High Value Manufacturing, Energy, Healthcare and Challenge Led projects which crosses multiple sectors from energy to healthcare. **These themes received a cumulative funding of £66 million.**

AREAS OF HIGH VALUE INNOVATION

Grant funding offered by Innovate UK (2014-2018)



*Information relates to the old EM3 boundary – including the New Forest and isolating areas of Test Valley, Winchester and East Hampshire

Enterprise M3 firms are very active in Research & Development, spending 1.8 times that of the average LEP.

Enterprise M3 produces notably high-value innovation in Space, Digital Services and Materials & Manufacturing. The broad industries these sub-sectors fit into – Professional, Scientific & Technical, Information & Communications and Manufacturing – are all recognised as specialist areas within the LEP. All three sub-sectors have attracted a higher than average amount of funding relative to other LEPs.

Many sub-sectors have received grant funding beyond the LEP average, reflecting EM3s highly innovative nature across a range of fields. A significant proportion of these are high-skilled, high-value, technological industries. Such industries drive an economy's complexity as they require a diverse range of knowledge.

TOP ENTERPRISES BY VALUE OF INNOVATE UK FUNDING

Top 10 enterprises by grant funding for Innovate UK projects

Funding since 2003/04	
Organisation	Total Grant Funding (£)
McLaren Automotive Limited	14,220,855
QinetiQ Group PLC	13,917,802
BAE Systems (Operations) Limited	12,407,561
University of Surrey	12,311,317
QinetiQ Limited	11,645,972
Surrey Satellite Technology Limited	9,013,588
Gordon Murray Design Limited	8,897,143
NPL Management Limited	7,728,266
BMW Motorsport Limited	5,730,804

Funding since 2010/11	
Organisation	Total Grant Funding (£)
McLaren Automotive Limited	14,220,855
University Of Surrey	9,292,159
Surrey Satellite Technology Limited	9,013,588
QinetiQ Limited	6,864,511
BMW Motorsport Limited	5,730,804
Gordon Murray Design Limited	5,617,052
BAE Systems (Operations) Limited	5,100,181
McLaren Applied Technologies Limited	4,714,947
NPL Management Limited	3,749,163

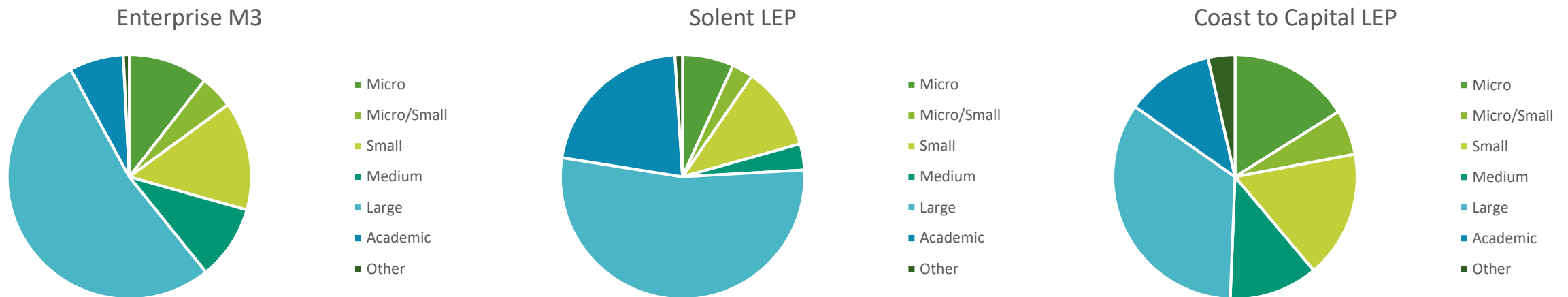
Funding since 2015/16	
Organisation	Total Grant Funding (£)
McLaren Automotive Limited	10,234,081
University of Surrey	6,212,711
BMW Motorsport Limited	5,730,804
McLaren Applied Technologies Limited	4,714,947
Gordon Murray Design Limited	3,376,083
The Pirbright Institute	2,531,477
Alvant Limited	1,970,099
Autodesk Limited	1,792,837
Siemens PLC	999,441

Above are details of the highest value innovators in the Enterprise M3 region; the right-hand table illustrates this in the last five years. This table shows a **high concentration of high-value, highly innovative companies working in the automotive, aerospace and defence industries.**

INNOVATE UK FUNDING BY ENTERPRISE SIZE

Enterprise M3 has a high level of innovation – generating £216.6m from 2003/04 to 2018/19. Over half of this funding has been allocated to large organisations, whilst Academic Institutions have received a comparably low level of funding.

Grant funding for Innovate UK projects by enterprise size (2003/04 – 2019/20)



Large organisations in Enterprise M3 have attracted the most funding since 2003/04, accounting for 53% of the total grant value for the LEP. This is directly comparable to Solent LEP, where 53% of total funding has also been allocated to large organisations. Coast to Capital on the other hand have a much lower level of overall funding, and large organisations only capture 34% of it.

For EM3, unsurprisingly, Small and Micro businesses attract the next largest levels of grant funding in Enterprise EM3 – 14% and 11%, respectively. As touched on in the sectors analysis, a large proportion of the economy is small and micro businesses, of which many are innovative and high value. This is a much different picture in Solent, which has a significantly smaller proportion of funding within the smaller industries. Coast to Capital on the other hand, has the highest number of micro and small businesses across the three LEPs.

EM3 has three universities, same as Solent LEP and Coast to Capital, so it isn't underrepresented in terms of academic institutions, but the value of grants allocated to universities in Enterprise M3 is considerably lower than in neighbouring LEPs (7% compared to 21% and 12% in Solent LEP and Coast to Capital).

RESEARCH AND DEVELOPMENT EXPENDITURE

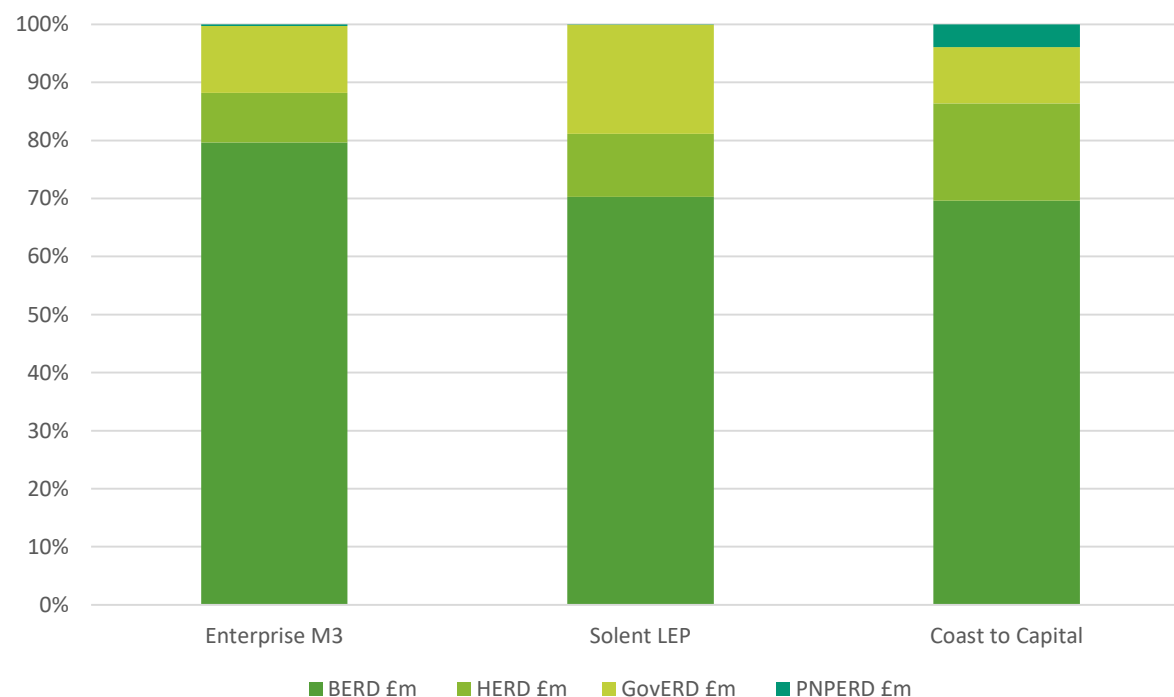
**BERD EXPENDITURE
£M (2015)**

£1,359

**HERD EXPENDITURE
£M (2015)**

£115

Research and Development expenditure in Enterprise M3



*Business Enterprise Research and Development (BERD): **2015**; Higher Education Research and Development: **2014**; Government Expenditure Research and Development (GERD): **2014**; Private Non-Profit Expenditure Research and Development: **2014**

Source: Smart Specialisation Hub, based on Eurostat 2015 data.

BERD constitutes 80% of total research and development expenditure in Enterprise M3, compared to 70% in both the Solent LEP and Coast to Capital. This statistic shows that private sector industry is a clear driver of R&D within the LEP.

Similar to the trend in the LEPs innovate UK project funding, only a small proportion of research and development expenditure is spent by Academic Institutions (HERD). Only 9% of total R&D expenditure came from within higher education in Enterprise M3, compared to 11% and 17% in the Solent LEP and Coast to Capital. This is perhaps related to universities placing a greater focus on providing space for innovation to happen or their consultancy services, although this is difficult to confirm without understanding the role of universities within Enterprise M3.

Local government comprises 11% of R&D expenditure in Enterprise M3 - the seventh highest proportion of all LEPs. This compares to 19% in the Solent LEP (third highest of all LEPs) and 10% in Coast to Capital.

The private sector is much more active in Enterprise M3 than in neighbouring LEPs, whilst spending by academic institutions is considerably lower.

However, whilst this is the most recent data, it is dated back to 2015. With the activity of universities, this could perhaps underestimate their influence within EM3.

BUSINESS LED INNOVATION CLUSTERS IN FARNBOROUGH

Aerospace Clusters

- Farnborough is the hub for the aerospace industry both in the UK and internationally. It contains the **Farnborough Aerospace Centre**, considered to be one of the leading business parks in the M3 corridor.
- The **Farnborough Aerospace Consortium, the UK's longest established Aerospace and Defence trade body**, hosts a cluster of key businesses which are crucial to this industry.
- Farnborough Aerospace Centre provides over 2 hectares of office space across 4 buildings dubbed Ascent 1,2,3, and 4. **The park's tenants include leaders in the aerospace sector such as BAE Systems, Lockheed Martin, Airbus**, all of which are heavily investing into their R&D facilities in the area.
- The Centre is located within 5km of TAG Farnborough Airport (offering private chartered flights) and Farnborough train station, offering strong linkages to London and internationally.
- Since 2012, **Rushmoor Borough Council has made a £250m commitment toward regeneration of Farnborough's town centre and civic quarter** to make the area a more attractive place to live and work.

BMW Innovation Lab 2016, 2018

The BMW Innovation Lab is a 10-week programme based in the company's HQ in Farnborough. It has been run in 2016 & 2018, with the purpose of enabling start-ups within the Digital sector to:

- Test their products at scale
- Receive expert mentoring advice from senior BMW members and management
- Access funding from L Marks, a London based, global start-up accelerator

INNOVATION LAB
from BMW GROUP UK

Cody Tech Park

- Farnborough is also home to Cody Tech Park, a unique business campus with **over 80 organisations, operating within the Defence, Space and Digital sectors**.
- The park contains the HQ of **QinetiQ** who specialise in Air, Digital, Space and Defence. It operates as their main facility for R&D, hosting Electric Propulsion Test Chambers and a 'centre of excellence' for advanced laser technology, in association with the MOD Dragonfire programme.
- It is also a hub of QinetiQ's innovation and skills development, hosting an **academy talent centre** focused purely on creating a space to inspire innovation and new ways of working.
- Similar functioning companies in this sector include **UK Missile Defence Centre, UK Defence Solutions centre and Airbus Defence & Space**.
- There are also clusters of tech companies here, with the HQ of **OptaSense (a spin-out of QinetiQ), Ark Data Centres and Ignition Technologies**, undertaking innovative R&D in the Digital sector.



BAE SYSTEMS

LOCKHEED MARTIN



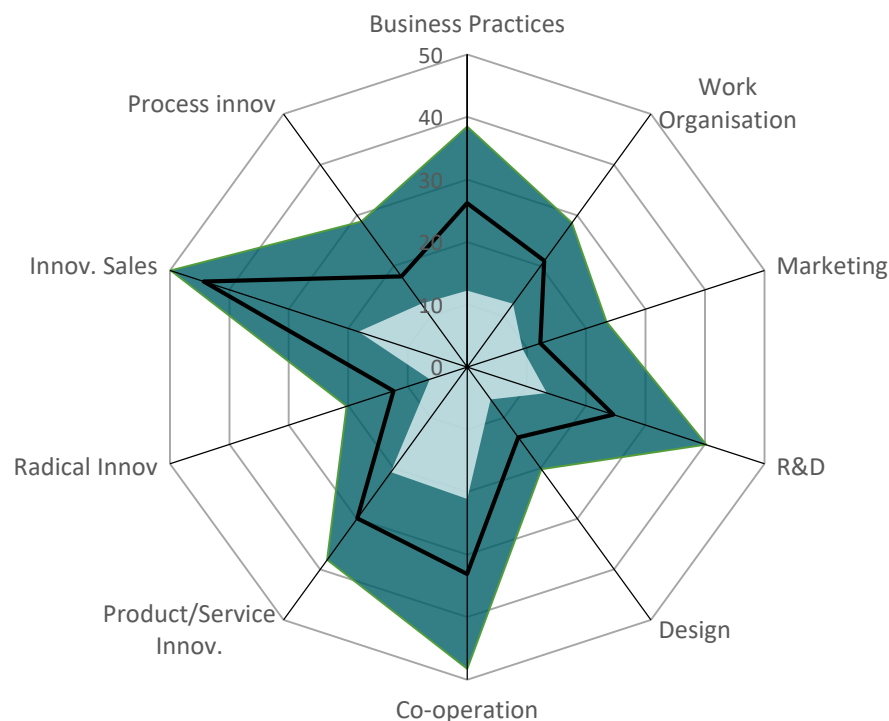
AIRBUS **QINETIQ**

INNOVATION BENCHMARKS

Innovation Benchmarks: 2014-16



■ Highest ■ Lowest □ Enterprise M3



Source: Enterprise Research Centre - Benchmarking local innovation, the innovation geography of England: 2019

Innovation activity share and ranking

Innovation activity*	Share	Rank
Introduction of new business practices by local economic area (% of firms)	26.2%	9/39
Introduction of new methods of work organisation by local economic area (% of firms)	21.0%	16/39
Marketing innovation by local economic area (% of firms)	12.3%	29/36
Percentage of firms undertaking R&D by local economic area (% firms)	24.6%	9/38
Percentage of firms undertaking design investment for innovation by local economic area (% firms)	13.9%	16/35
Collaboration for innovation by local economic area (% of innovating firms)	33.1%	18/39
The proportion of firms undertaking product or service innovation (% of firms)	29.9%	7/39
New to the market product and service innovation by Local Area (% firms)	12.4%	8/35
Sales of innovative products and services by Local Area (% sales of innovating firms)	44.3%	5/39
Process innovation by local economic area (% of firms)	17.9%	19

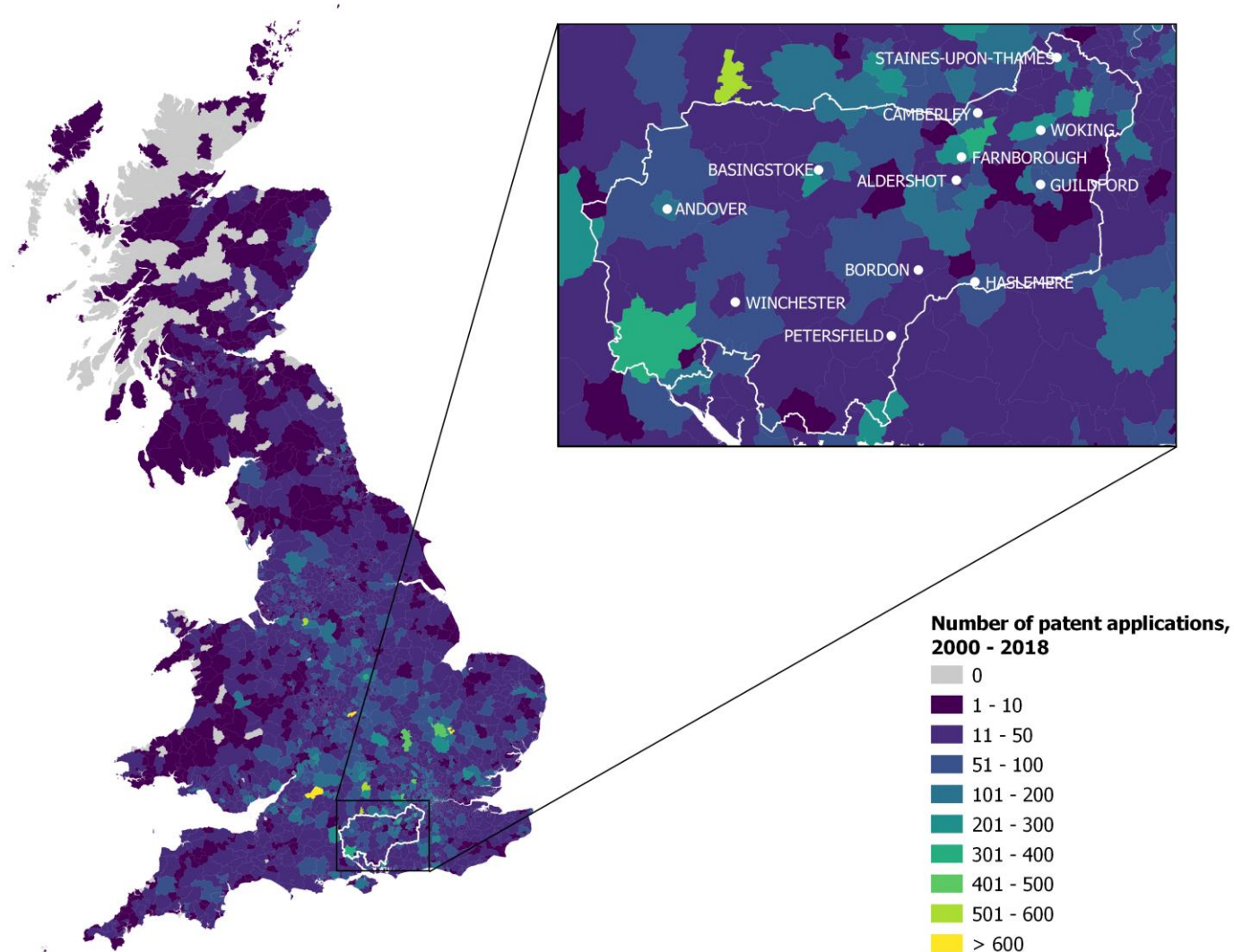
*Activity definition breakdowns are located in the appendix

INNOVATION BENCHMARKS

- The radar chart on the previous slide shows EM3's innovation performance against 10 innovation benchmarks. The data is sourced from the ERC's UK Innovation Survey 2017 with a total sample size of 14,000 firms of which 315 are in EM3. A full explanation of these benchmarks can be found in the appendix.
- The area in dark green shows the performance of the top ranked LEP against each benchmark, the area in light blue shows the performance of the lowest ranked LEP. The thick black line indicates EM3's performance.
- **EM3 is ranked within the Top 10 for five out of 10 innovation benchmarks, performing best in the commercialisation & sales of innovative products, ranking 5th.** Over 44% of *innovating firms*' (a smaller sample size than all 315 firms) have sales derived from innovative products and services.
- Overall there is a high level of innovation in EM3, with almost **30% of all 315 EM3 firms surveyed having introduced a new or significantly improved product of service over 3 years**. This is the 7th highest among 38 LEPs.
- EM3 is also successful in introducing "new to the market" product or services with **12.4% of firms surveyed achieving this benchmark. This is the 8th highest among 38 LEPs** where data is available. This means that EM3's firms plays a major role in diversifying the product or service offering in the market.
- **EM3 is ranked 9th highest for the following 2 benchmarks: introduction of new business practices** (e.g. supply chain management or business re-engineering) and **percentage of firms undertaking R&D**. 26.2% of the 315 EM3 firms surveyed having adopted new business models over 2014-16 and 24.6% of firms undertook R&D over the same period.
- **EM3's lowest performance is in marketing innovation (firms implementing changes to marketing concepts or strategies) where it ranked 29th out of 38.** Performance in the introduction of new methods of work organisation (the means to which work is organised and structured e.g. new training or employee responsibilities) **is** 16th out of 38. EM3's high performance in introducing new business models has not translated over to a high ranking in new work organisation and marketing innovation. This is unusual given that performance in these 3 benchmarks are usually linked .
- **What is surprising is that EM3 is ranked as 18th for firms collaborating for innovation.** Given the innovative environment within EM3, this is expected to be higher, however only 33% of firms have said to be in collaboration or have collaborated during 2014-16.
- What should also be noted is that whilst EM3 is ranked 16th for new methods of work organisation and firms undertaking design investment, it is not far from the top performer. A small increase in these areas would see EM3 climb the ranks quickly.

SPATIAL DISTRIBUTION OF PATENTS

Number of patent applications by postcode district



The left-hand maps illustrate the number of patent applications submitted since 2000. The LEP has submitted a relatively high number of patents – circa 4,690.

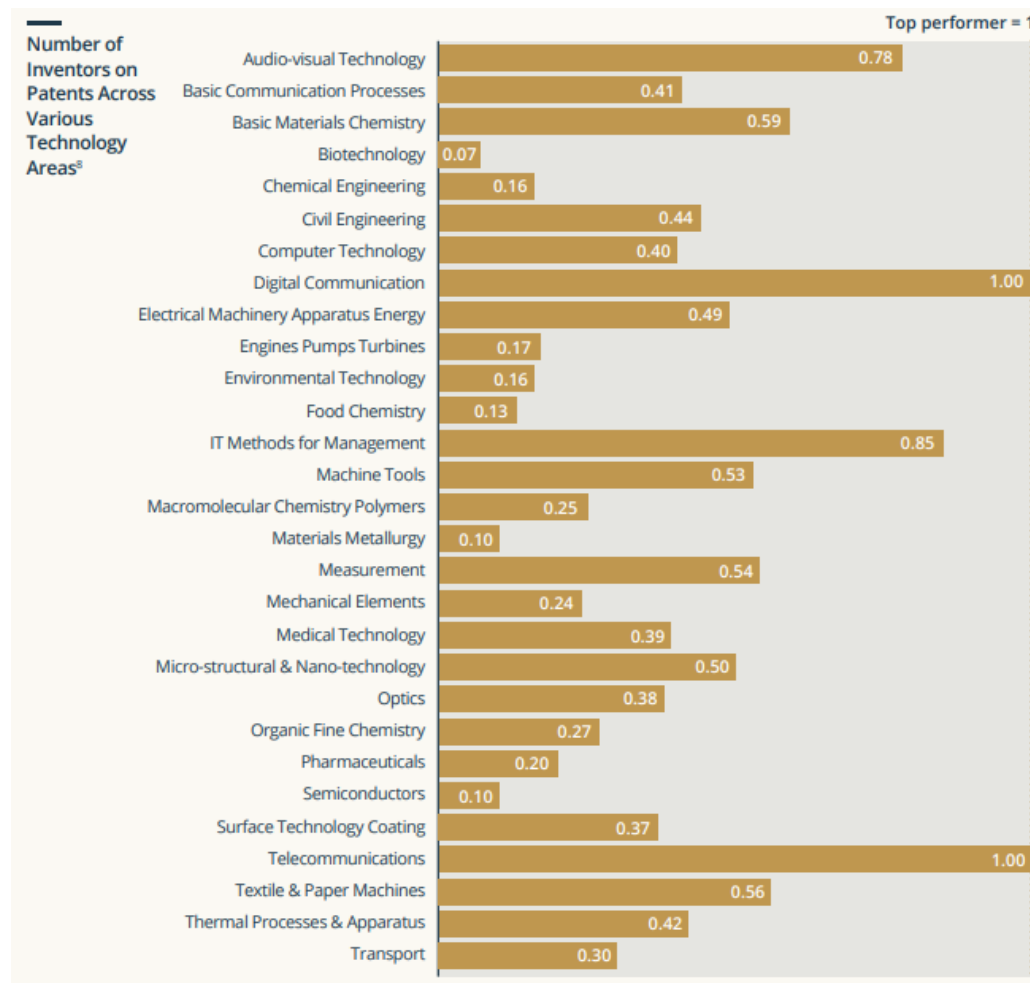
The highest number of patent applications come from the postcode districts around Southampton, Woking and Farnborough. 392 patent applications were filed in the GU16 postcode district since 2000, east of Farnborough, and 381 in the KT13 postcode, east of Woking. Together they account for over 16% of the total applications filed within the LEP area.

Much of the patent activity is clustered around the centre-east of the LEP area around Guildford, Aldershot, Farnborough and Woking, but there is a cluster of activity around Southampton – specifically around the Science Park. 312 patent applications were filed from 2000 – the third highest of any postcode district within Enterprise M3.

The South-West and North-West of the LEP area are more underrepresented in terms of patent activity, with the exception of Basingstoke, where 202 applications have been submitted since 2000; this is the sixth highest within the LEP area.

PATENT ACTIVE FIRMS

Number of inventors on patents (2015-2017)



*Information relates to the old EM3 boundary – including the New Forest and isolating areas of Test Valley, Winchester and East Hampshire

The number of innovation active firms in Enterprise M3 is 1.13 times greater than the LEP-wide average.

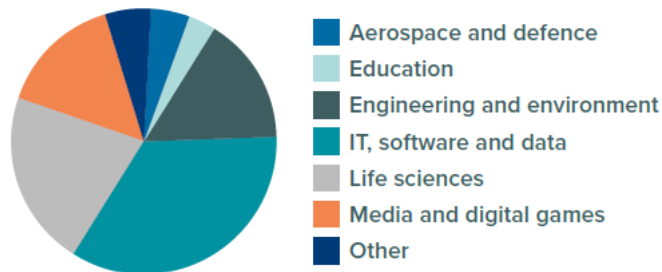
Telecommunications and Digital communication are very innovative sectors, drawing activity from a high number of firms. The top performer refers to the top performing LEP, and EM3 is the most collaborative innovator in these sectors. Audio-visual technologies also involve a comparably high number of firms in innovation – the third highest in England. All of these firms are involved in Media and Electronics.

EM3 specialises in innovation in the technology sector, with a number of these industries achieving a benchmarked score of around 0.50 or greater. Technology has also been incorporated in the science and manufacturing sectors – the former with a little less success than the latter in terms of the number of patent innovation firms.

SURREY RESEARCH PARK AT A GLANCE

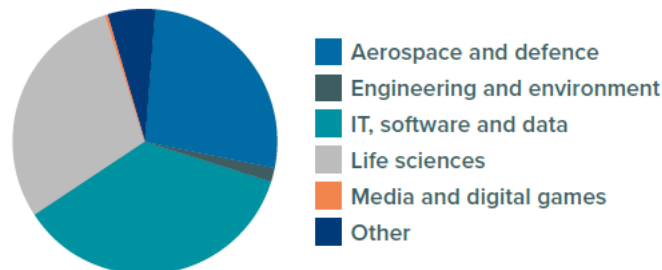


Number of companies by sector



34% of companies are within IT, software and data
21% in life sciences
16% in engineering and environment

Value of interactions by sector



36% of monetary value is within IT, software and data
29% in life sciences
27% in aerospace and defence

- Surrey research park is a hive of activity, providing a considerable number of jobs and economic value to EM3, with a turnover of **£1.165bn**.
- IT, software and data, life sciences and engineering dominate the companies in the area, benefitting from the links with research and innovation. However, **the greatest monetary value is found in IT, software and data (36%), life sciences (29%) , and the aerospace (27%) sectors.**
- A research hub backed by capital investment encourages entrepreneurship; as research income increases, so do the number of start-ups and spin-offs.

University of Surrey Research & Innovation Strategy

The university research and innovation strategy identifies the importance of producing high quality research and innovation through the engagement with local businesses.

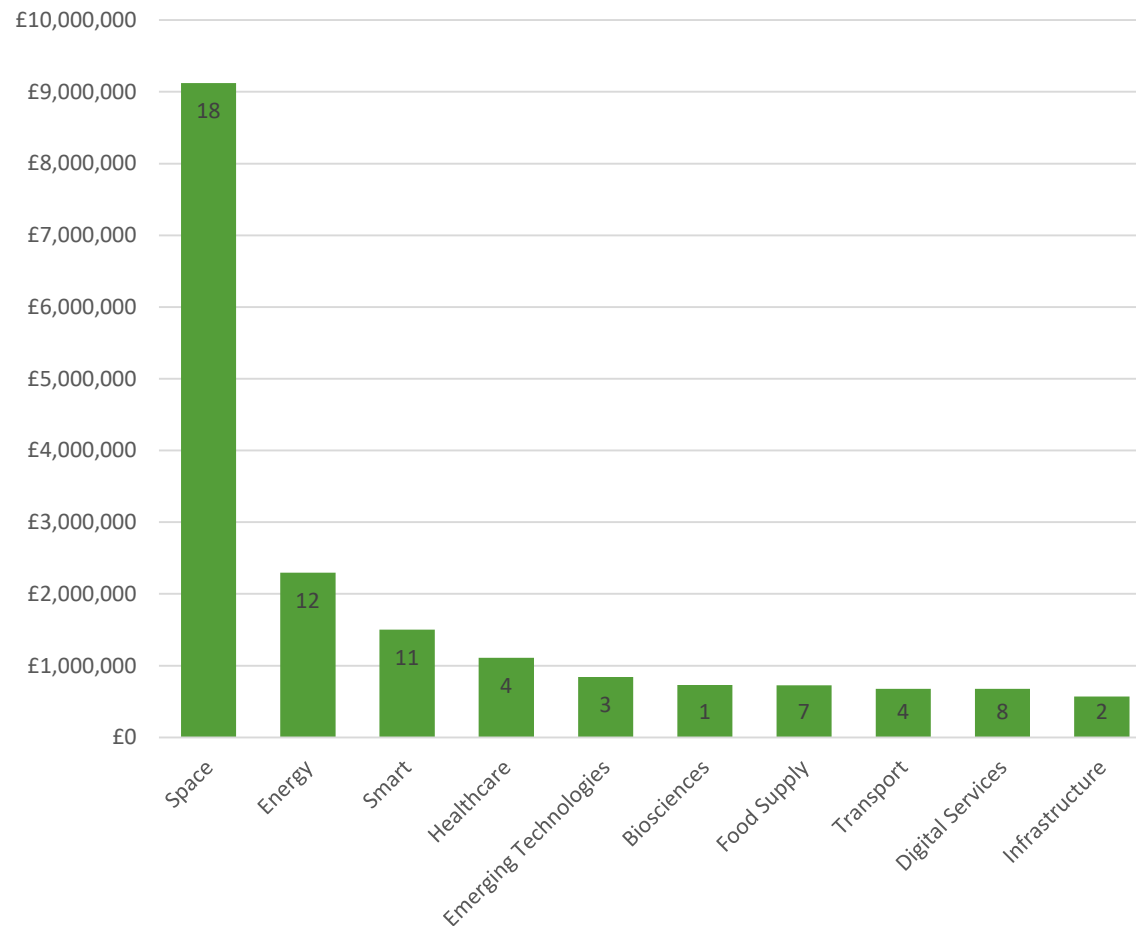
There is a focus on increasing the number of strategic partnerships, growing research income and activities and expanding the existing talent pool.

Innovation is central to the strategy, with a firm commitment towards greater partner collaboration, commercialising research and creation of an innovation community.



SURREY RESEARCH PARK INNOVATION ACTIVITIES

InnovateUK funding by Theme in Surrey Science Park 2004-19



- The chart to the left shows the Top 10 strategic “themes” and the total InnovateUK funding granted for each theme. The label on each column indicates the number of funded projects since from 2004/5-2018/19.
- The chart shows projects within a 1km radius of Surrey Science Park. This provides an estimate of the contribution of Surrey Science Park to EM3’s innovation ecosystem.
- **In total, there was over £21 million of InnovateUK funding** allocated to Surrey Science Park. However, it is very likely that the Science Park supports organisations outside of this 1km radius. Therefore, this is a conservative estimate.
- **Space dominates Innovate UK funding, with over 18 projects and a total grant funding of over £9 million.** This means 90% of EM3’s total InnovateUK funding for Space takes place within Surrey Science Park.
- **Energy received the 2nd highest funding allocation, totalling almost £2.3 million.** Projects in this theme ranged from hydrogen power to smart grids.
- **“Smart” innovation received the 3rd highest funding allocation, totalling £1.5 million.** This theme refers to commercialisation of innovation across any sector/industry.

SPACE ACTIVITIES IN SURREY RESEARCH PARK

Spotlight on Surrey Science Park Space Activities



- Within Surrey Science Park, **the organisation receiving the majority of funding is Surrey Satellite Technology (SST)** with over £8.8 million of funds granted from 2004-19.
- SST was formed as a University of Surrey spin-out company from 1985. In 2019 Airbus acquired SST. **The company is the world's leading small satellite manufacturer for scientific and commercial applications.**
- **TechDemoSat-1 from Surrey Satellite Company** receiving over £7.5 million of funding, equivalent to 86% of SST's total grant pot from InnovateUK alone.
- The small satellite launched in 2014 provides an in-orbit testing facility for new technologies, helping commercialise space technologies. TechDemoSat-1 and Surrey Space Centre is supported by several national bodies such as the UK Space Agency; Catapult Satellite Applications; UK Space Growth Partnership
- **Earth-i, a global Top 10 space company is also located within Surrey Research Park.** Earth-i provides analytics solutions from satellite imaging data to support decision in a wide range of sectors.
- **FAIR-SPACE Hub, an international research consortium supporting space robotics and AI is located within the research park.** The centre has a strong track record in supporting space robotics missions worldwide. It continues to address barriers for the space commercialisation with solutions having cross-sector applications.
- The leading institution is the University of Surrey with collaboration from other world-class research institutions such as Imperial College London. Applications for robotics in space range from repair of satellites to extra-terrestrial resource extraction; enhancing safety for human astronauts.
- There are also other notable activities on the research park. There are provisions for affordable, attractive **co-working spaces such as Rocket Desk** which support creative industries in activities such as gaming, web developers, video editors and more.

SOUTHAMPTON SCIENCE PARK

1,000+
Employees

- In the last 15 years, **Southampton Science Park has undertaken 98 Innovate UK projects attracting £20.3m in grant funding.**
- Small and Micro businesses have conducted one-third of these projects, each (35 and 36 projects, respectively). The two most active Innovate UK companies are:
 - **Ilika Technologies** (17 projects and £8.45m funding), a pioneer in materials innovation
 - **Nquiringminds** (14 projects and £3.4m), a specialist software company specialising in smart cities and the Internet of Things.
- With activity focused around innovation, the park produces research and products that are delivered to a global audience. There are a high number of organisations in IT and software, digital connectivity, materials engineering, and health research. **15 of the park's laboratories cater for global science and technology businesses.**

100+
Science &
Technology
Businesses

£550m
Annual
Economic
impact

17

Buildings on site including state of the art research labs and breakout spaces

15

Laboratories catering for science and technology businesses with global footprints

A Hub for Spin-Out Companies

The science park has a catalyst programme, designed to help companies grow and bring ideas to market over 6 months. It has supported 48 start-up companies, raising £11.5m of grants and investments.

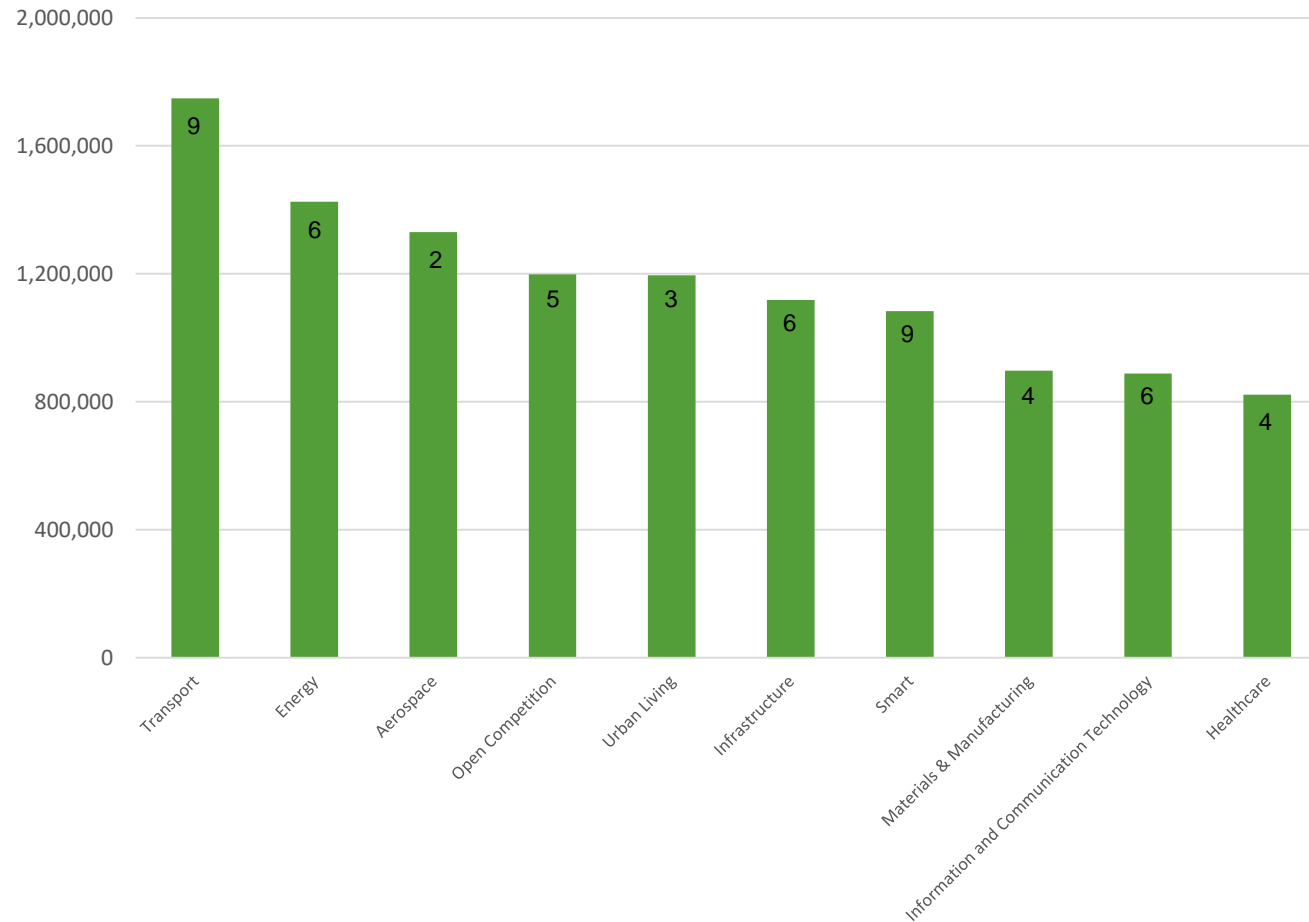
In addition, it is home to SETsquared, a company, twice ranked as the Global No. 1 Business Incubator. It is an enterprise partnership between the Universities of Bath, Bristol, Exeter, Southampton and Surrey that provides a wide range of highly acclaimed support programmes to help turn ideas into thriving business opportunities

£1.5bn SETsquared funding has helped propel businesses from start-up to scale-up within the science park.



SOUTHAMPTON SCIENCE PARK INNOVATE UK FUNDING

Grant funding for Innovate UK projects by theme (2004/5 – 2018/19)



The chart to the left shows the Top 10 strategic “themes” and the total InnovateUK funding granted for each theme. The label on each column indicates the number of funded projects since from 2004/5-2018/19.

The chart shows projects within a 2km radius of Southampton Science Park. This provides an estimate of the contribution of Southampton Science Park to EM3’s innovation ecosystem.

- **In the last 15 years, Southampton Science Park has undertaken 98 Innovate UK projects attracting £21m in grant funding.** This is only a conservative estimate, as it’s unlikely that projects attributed to the park will happen 2km outside of it.
- **Transport received the largest amount of Innovate UK funding,** attracting £1.74m. This accounts for 5.57% of EM3s total funding in the sector.
- **Energy and Aerospace are the next biggest sectors in terms of grant funding, receiving £1.42m and £1.3m,**
- Combined, the three sectors account for over a fifth of the Science Park’s total funding (£4.5m).
- Transport accounts for the largest number of Innovate UK projects (9) followed by Energy and Information and Communication Technology (6).

ACTIVITY ON THE SOUTHAMPTON SCIENCE PARK

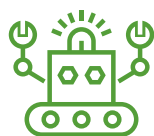
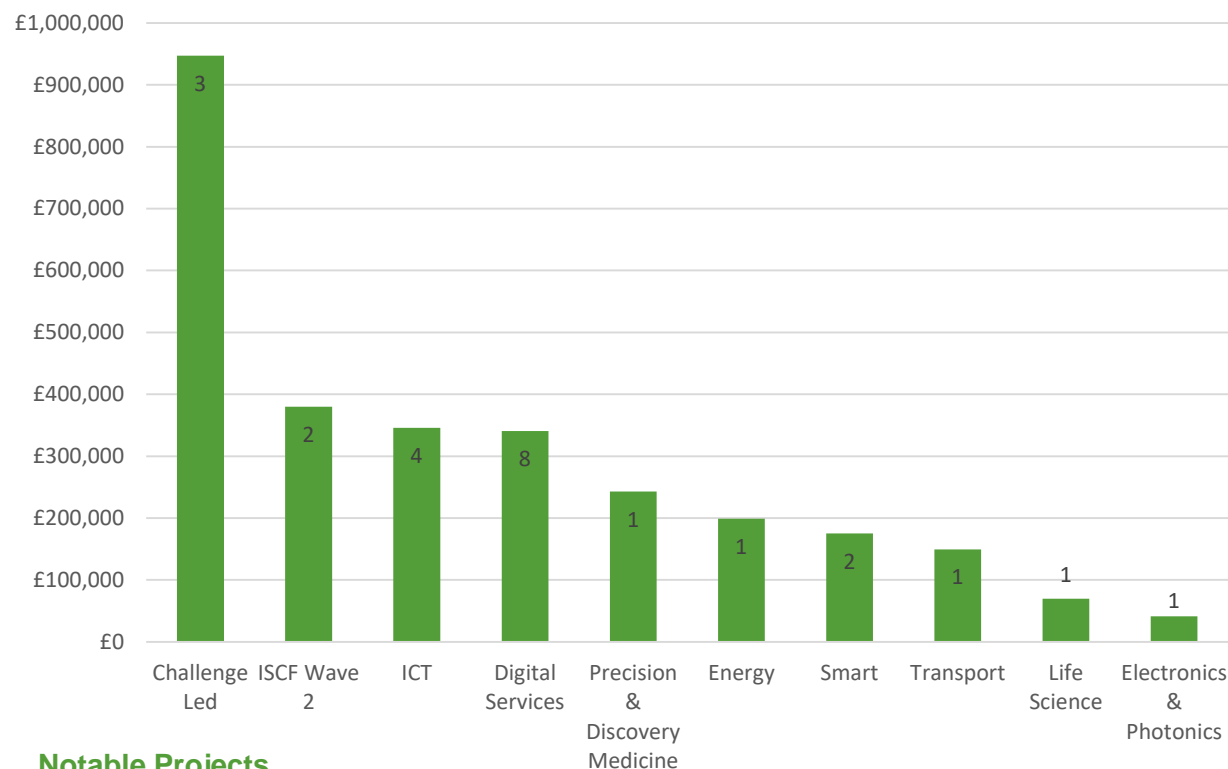


With 100+ companies employing over 1,000 talented employees, the incubator and the availability of funding, the Southampton Science Park has a multitude of success stories.

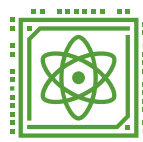
- **Perpetuum Ltd** are a company specialising in advancing and transforming railway and fleet management.
- **Perpetuum Ltd has secured in excess of £926,000 in grant funding from Innovate UK alone.** £590k of was for a project in rail innovation, Maonaxle, to detect cracks on railway lines.
- Founded in 2015, **Trimunocor Limited** is a spin-out company from the University of Southampton which has developed a way to treat and prevent inflammatory lung disease.
- **Support from SETsquared ICURe Aid programme, £500k from Innovate UK and £310k private funding** has helped manufacture pharmaceutical medicines and form a partnership with a larger company to develop into a product. **This has been instrumental in the University of Southampton being awarded a £3m grant to trial on babies.**
- **BluPoint Ltd** is a tech spin-out company from the University of Southampton, that provides a robust & resilient offline internet solution to companies, governments & NGOs. Their technology is a cloud-based system that works in conjunction with a solar-powered network, serving content up at speeds faster than 4G.
- **£500k from Innovate UK, £500k private funding and SETsquared programme** support helped establish a company generating revenue with 12 months. In 2017, BluPoint deployed a pilot test in Ethiopia and have since release a hardware product to market.

SPOTLIGHT ON ROYAL HOLLOWAY

Grant funding for Innovate UK projects by theme (2004/5 – 2018/19)



**Robotics & AI
in extreme environments**



**Quantum
Computing**



Cyber Security

The chart to the left shows the Top 10 strategic “themes” and the total InnovateUK funding granted for each theme related to Royal Holloway. The label on each column indicates the number of funded projects since from 2004/5-2018/19.

The chart shows projects within a 1km radius of Royal Holloway University. This provides an estimate of Royal Holloway’s contribution to EM3’s innovation ecosystem.

- **In the last 15 years, Royal Holloway conducted 22 out of 35 InnovateUK projects within the area attracting £2.3m of funding.** This is a conservative estimate, taking into account projects within a 1km buffer of the university. There is potential that projects attributed to the University may occur outside this radius
- **Challenged-led projects attracted the most funding at £946,850** across 3 projects all led by Royal Holloway. Projects in this theme related specifically to the use of robotics and AI in extreme environments
- **Industrial Strategy Challenge Fund (ISCF) projects attracted £379,944 in funding.** Projects in this area included a £326,731 grant to commercialise quantum technologies and a demonstrator for immersive hyper reality technology.
- **ICT and Digital Projects received a combined total of £686,704 in funding** with projects addressing cyber security for commercial enterprises. Combined, this has had the most activity in terms of innovate UK projects, highlighting the amount of activity in this sector.

ACTIVITIES AROUND ROYAL HOLLOWAY

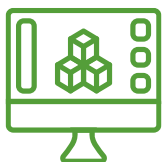


Cyber Security

In the last 15 years, **Royal Holloway has received £2.3m of InnovateUK funding across 22 projects.**

Between 2016-19 **Egham town received 9 inward investment projects**, the majority of which was for B2B software. Royal Holloway is strengthening businesses in this sector with a new, state-of-the-art **Cyber Security and Big Data Innovation Centre** planned for opening in Spring 2021.

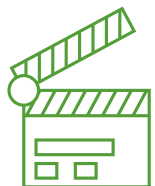
The Centre will provide facilities enabling businesses to test whether their products are resilient to cyber attacks. Over the next 5-10 years the Centre will deliver the following benefits:



B2B Software



Virtual Reality Immersive Tech



Creative Industries



Incubate at least 25 businesses over 5 years



Create 500 new jobs over 5 years



Increase GVA by £300-£500m over 10 years

Plans for an **Enterprise Centre for Royal Holloway** was approved. The Centre will provide business support, office space, and incubation facilities for start-ups. Current tenants of the Centre include



Health Psychology Research

A Creative Industries Hub

Royal Holloway is leading a consortium of national and international organisations to launch a **National Centre for Immersive Storytelling.**

Leading this effort is **Story Futures** which will use immersive technologies such as Virtual and Augmented Reality to push forward cutting edge innovation in the Creative Clusters.

Story Futures' work includes the **Virtual Veronese Exhibit** at the National Gallery, the **AI-Spy exhibit** at Broadgate and an **Immersive Production Workshop** in collaboration with BBC Three.

There are also world class production studios working with major UK and Hollywood movies and TV series, such as **Pinewood Studios** and the **Imaginarium Studios**

StoryFutures /ACADEMY/

Creative Industries  **Clusters Programme**

NFTS NATIONAL FILM AND TELEVISION SCHOOL



SCALEUP BUSINESSES

					
TOTAL NUMBER OF SCALEUP BUSINESSES	NO. BY EMPLOYEE GROWTH	NO. BY TURNOVER GROWTH	NO. BY EMPLOYEE AND TURNOVER GROWTH	TOTAL TURNOVER	TOTAL EMPLOYEES
1,200	445	990	235	£20.3bn	112,242

Top Visible Scaleups by Employee Growth



Top Visible Scaleups by Turnover Growth



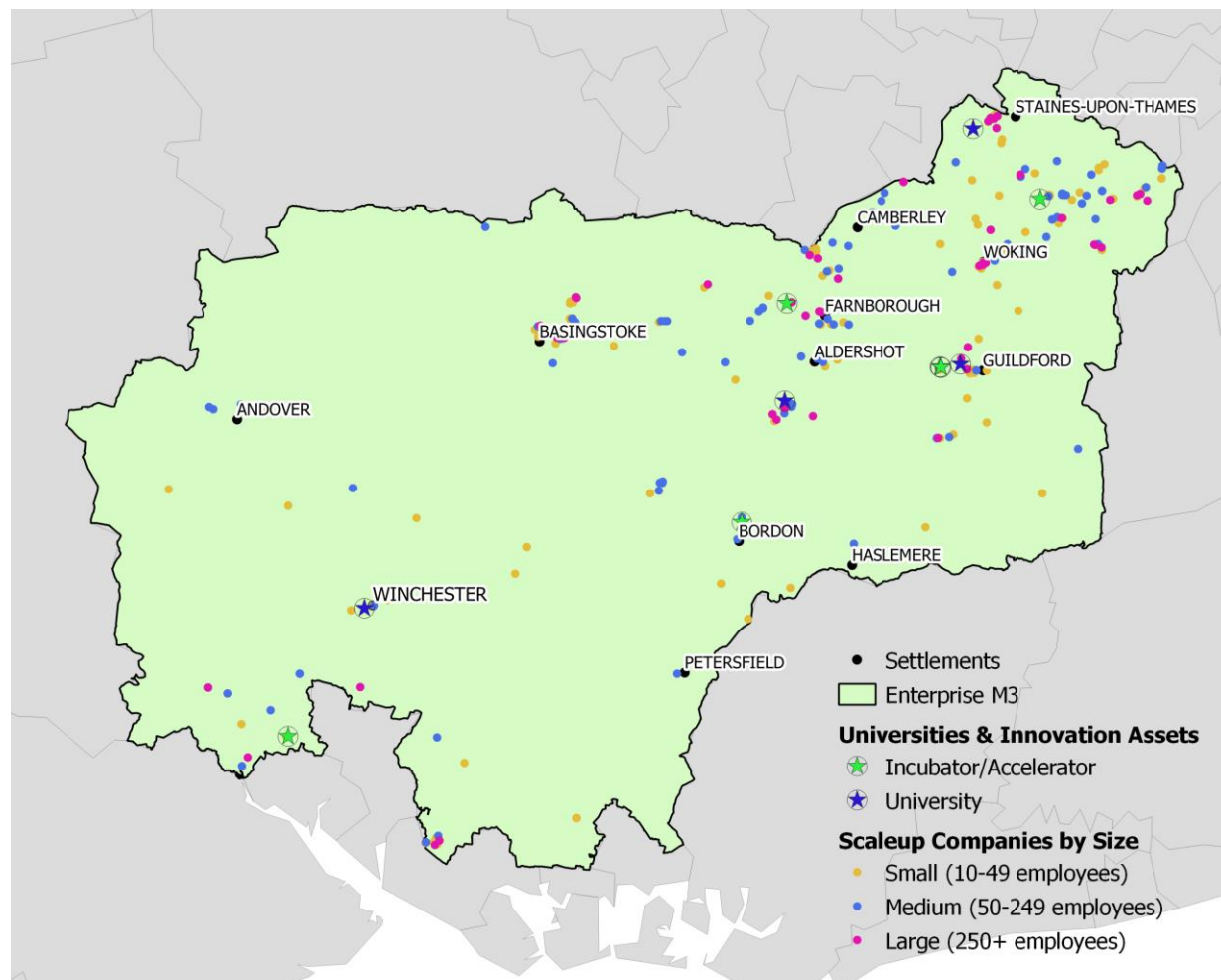
Scaleups are supported by the EM3 Growth Hub, working with private and public sector partners including SETsquared and County Councils of Hampshire and Surrey.

The Growth Hub works with businesses, not by focusing on products or programmes, but by understanding the support they require in order to grow as a business through a team of growth champions and sector specialists.

There is a core focus to provide business support and advice to scaleups within identified priority sectors. This is delivered through a small full-time team with senior commercial backgrounds and over 15 sector experts who have experienced scaling.

SCALEUP COMPANIES

Scaleup Companies by Size (2018)

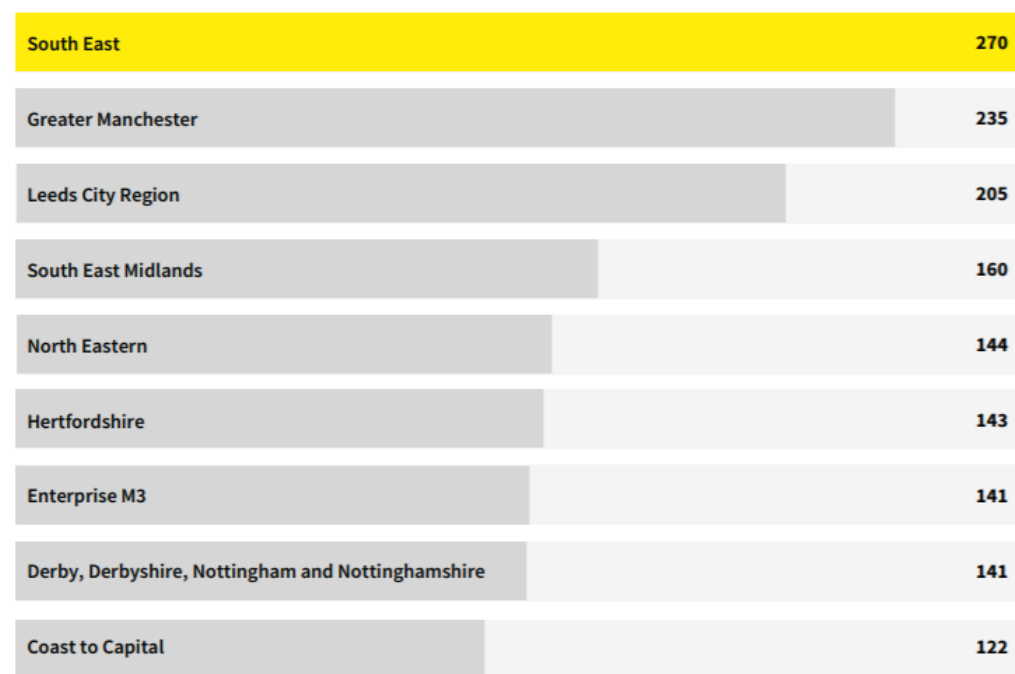


- The map to the left is to show the distribution of Scaleup Companies in EM3 in 2018 categorised by size. This is the most available data that could be spatially mapped.
- The ScaleUp Institute defines a scaleup as an enterprise with average annual growth of greater than 20% per annum over a three year period, with at least 10 employees.
- It shows companies that have had a turnover growth of over 20%.
- **In 2018 there was a total of 325 scaleups in EM3. The majority of scaleups were in small and medium sized companies.** There were 134 scale ups in small companies, 127 scaleups in medium companies, 64 scale ups in large companies. Please note, this total of 325 differs from the following slide because it contains small, medium and large scaleups and is 2018 data.
- **The combined turnover for these 325 scaleups was over £23bn.** The average turnover growth was 92%. This means that on average, turnover almost doubled following a scale-up.
- **Scale-up activity is concentrated in the North East** of EM3 closest to London. Elmbridge had the highest turnover count at 57. Runnymede, Basingstoke and Deane and Surrey Heath had all had a turnover count of 30 or above.
- Hart, East Hampshire had a scale up count of 16 and 14 respectively. Spelthorne had 1 scaleup, however, the turnover growth was high at 225%.
- **Aerospace & Defence companies often exhibit high turnover growth.** Some companies include BAE Systems, Qio Technologies, Cubic Defence, Farnborough International Ltd (which hosts air shows).

SCALEUP BUSINESSES

Top LEPs outside of London by number of scaleups (2019)

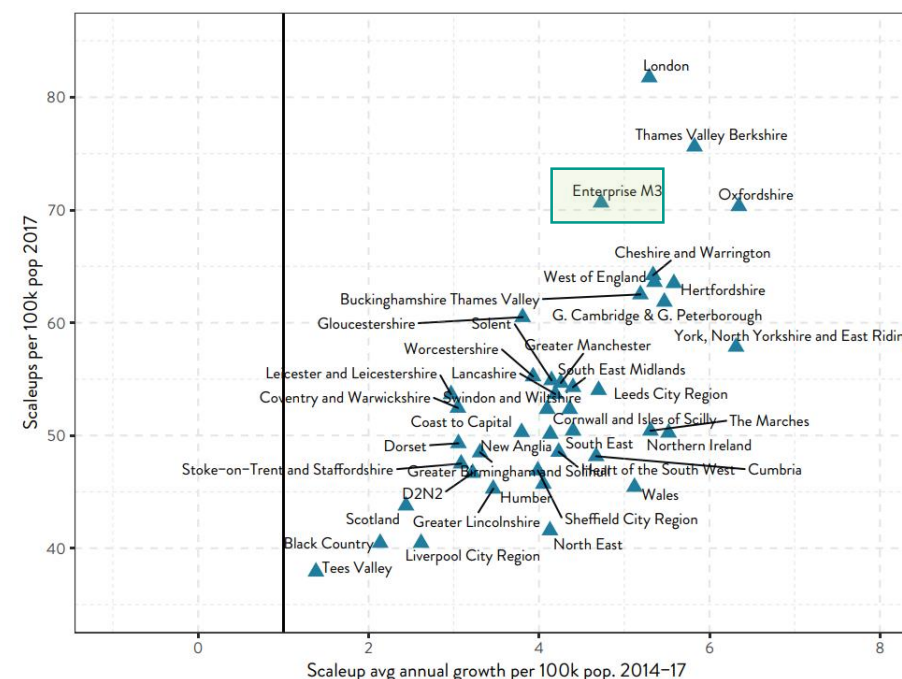
TOP LEPs OUTSIDE LONDON BY NUMBER OF SCALEUPS



Source: ScaleUp Institute and Beauhurst (2019) The ScaleUp Index 2019

- The graph to the left shows the ranking of LEPs by the number of scaleups, measuring 'small-sized' scaleups only. The map to the right shows the ranking of LEPs by the density of scaleups per 100,000 population and the average annual growth of scaleups.
- EM3 has a high level of scaleup activity. **In 2019, EM3 was ranked the 7th highest LEP nationwide by quantity with 141 scaleups in total and 4th highest by scaleup density** with over 70 scaleups per 100,000 population
- EM3's has an extremely high scaleup density, on par with Oxfordshire. Considering the population of the area, this indicates an extremely high number of scaleup

Top LEPs by scaleup density and growth (2017)



Source: ScaleUp Insights ONS ScaleUp Landscape (2019)

activity, again highlighting the importance of these businesses to the regional economy. This also suggests an even spatial distribution of scaleup activity, whereby multiple local authorities within the LEP have a high count of scale ups.

- **EM3's scaleup growth is above average with a 4.7% increase in the number of scaleups from 2014-17.** This is a marginal increase of 0.4% from the 2013-16 scaleup growth rate. This means there is a healthy innovative environment by which these types of companies are given the support required to growth, whether it is advice or connections from the Growth Hub or having the benefits of a research park facility.

INNOVATION SUMMARY

- In relation to the sector analysis, innovation is in line with some of the core strengths of Digital, Aerospace & Space and the Games industry. These are identified as areas of 'high value innovation', in which EM3 is performing well above the average compared to other LEPs.
- There is an abundance of entrepreneurship. EM3 is ranked as the highest LEP for the number of inventors on patents across Digital Communication and Telecommunications, coupled with a high number and a high density of scaleup businesses.
- The ERC analysis presents EM3 as a high performer in the commercialisation and introduction of innovative products and services to the market, with a large number of firms undertaking R&D. A surprising statistic is the low proportion of businesses collaborating together, particularly in an economy with such a high number of scaleups.
- Breaking down R&D expenditure across business, government and academia, identifies private sector industry driving R&D across EM3. This is supported by the business dominated areas of Basingstoke and Farnborough having significant clusters of activity, despite lacking dedicated research or incubation infrastructure.
- Innovation activity is focused to the East of the LEP, similarly to the economic complexity analysis, where there is the draw of London. However, this is not the only factor. Areas specifically dedicated to research attract a high amount of innovation activity and scaleups i.e. Surrey Research Park, Southampton Science Park and Royal Holloway.
- This suggests that whilst businesses may be leading investment in innovation, universities are important in providing the right space for innovation to take place. Without the infrastructure of research parks or the presence of higher education, areas like Guildford may have significantly lower activity.

Understanding Place

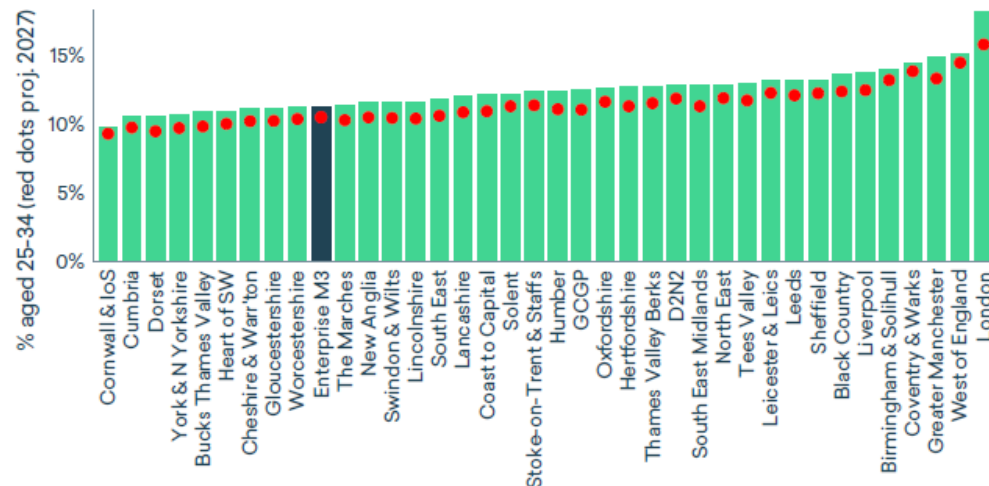
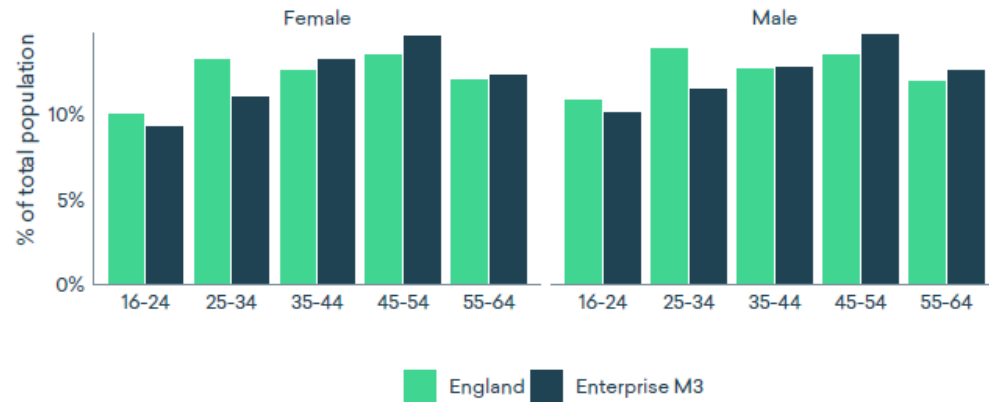


TOWNS

- The typology of EM3's towns can be split into 4 categories
 - **Major towns** with a population of over 50,000
 - **Large towns** with a population of 30,000-50,000
 - **Medium towns** with a population of between 20,000-30,000
 - **Small towns** with a population between 10,000-20,000
- There are 5 large towns, in descending order of population they are
 - Basingstoke with a population of 110,000
 - Guildford with a population of 78,000
 - Woking with a population of 78,000
 - Farnborough with a population of 58,000
 - Andover with a population of 56,000
- **Basingstoke is the employment, leisure, culture, health and education hub of the Northern Hampshire.** It is EM3's largest population centre. It has diverse cluster of businesses. Median house prices are below the LEP value
- **Guildford has clusters of distinctive niche sectors such as the Games industry and Space.** It has high levels of employment and availability of floorspace for commercial purposes. Median house prices are lower than the LEP value.
- **Farnborough** is a hive of patent activity, supported by sectors including space, transport and advanced engineering and the BMW innovation hub. It has high employment, high levels of commuting and enough industrial floor space to support business.
- **There are housing pressure Waverley with 3 out of 4 towns having a median house price greater than the LEP average.**
- **Woking** has specialisms in Advanced Manufacturing such as making low-emissions engines, with a core strength in advanced propulsion. There is a high level of employment and availability of commercial space however, levels in commuting are low.
- **Andover has a lower share of residents qualified the NVQ4+ level compared to the UK average** the town is defined as with distinctive specialisms in manufacturing. The role of the town is defined as a town centre supporting retail, employment and commuting.
- There are small but productive towns that such as Egham, Petersfield, South Winchester M27 Corridor which supports important business and science parks, strengthening the innovation and economic resilience in EM3.

AGE PROFILE COMPARED TO ENGLAND AND OTHER LEPS

Comparison of EM3 Age Profile by age and Gender (2019)

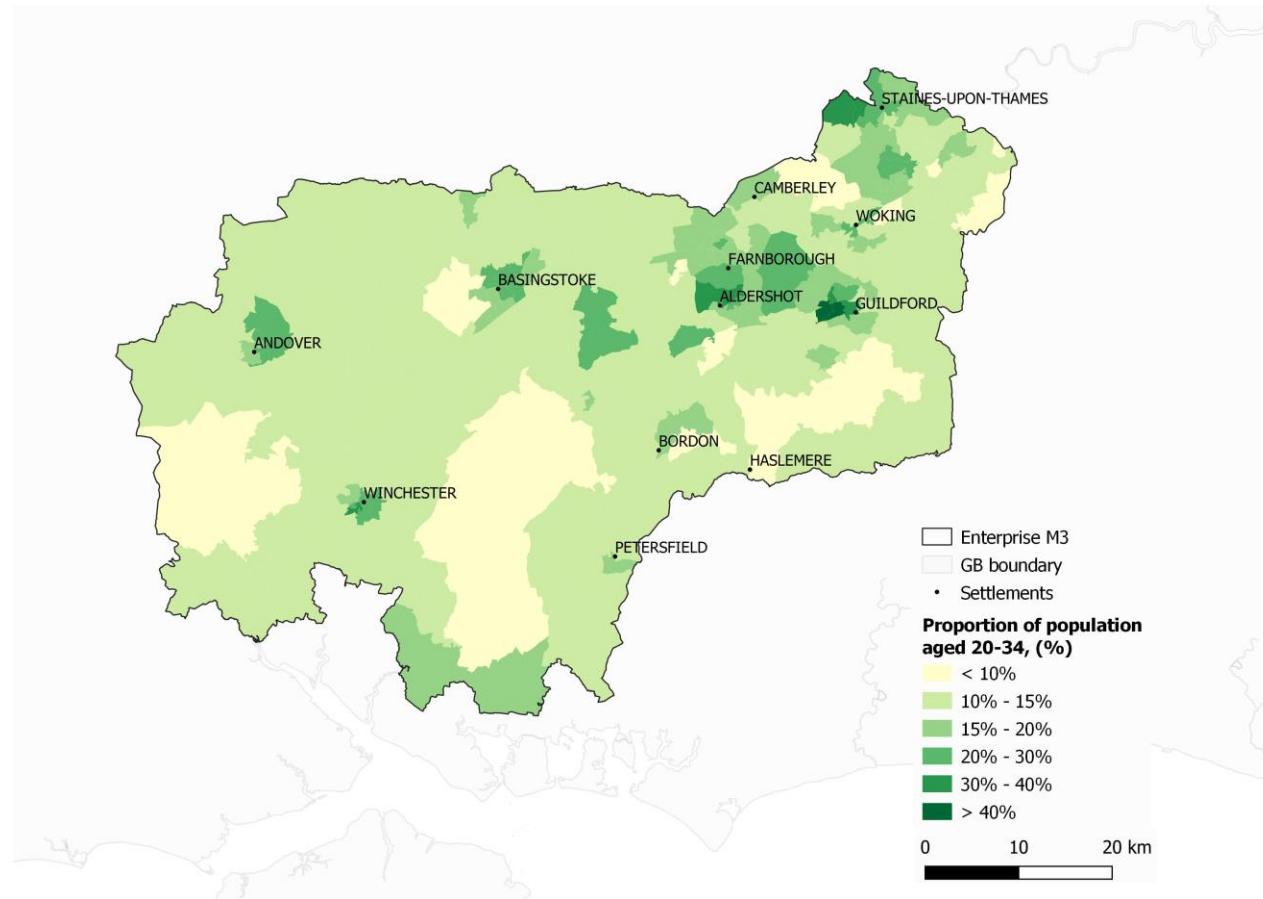


Data: Emsi 2019.1 Demographics

- These charts are from EMSI's labour market analysis for EM3's Skills Talent Advisory Group.
- The top chart shows the age distribution of the general population for EM3 compared to England categorised by age and sex.
- The bottom chart shows the share of young, working aged people between 25-34 years old compared to other LEPS.
- EM3 has an older age profile** with 7% fewer 16-24 year olds and 17% fewer 25-34 year olds compared to England.
- Despite having the **10th lowest share of residents aged between 25-34, EM3 is ageing more slowly than some areas.** The red dot in the bottom graph shows that the share of 25-34 year olds in EM3 is projected to decrease modestly in 2027 compared to major urban centres such as London and Greater Manchester.

DISTRIBUTION OF YOUNG PEOPLE

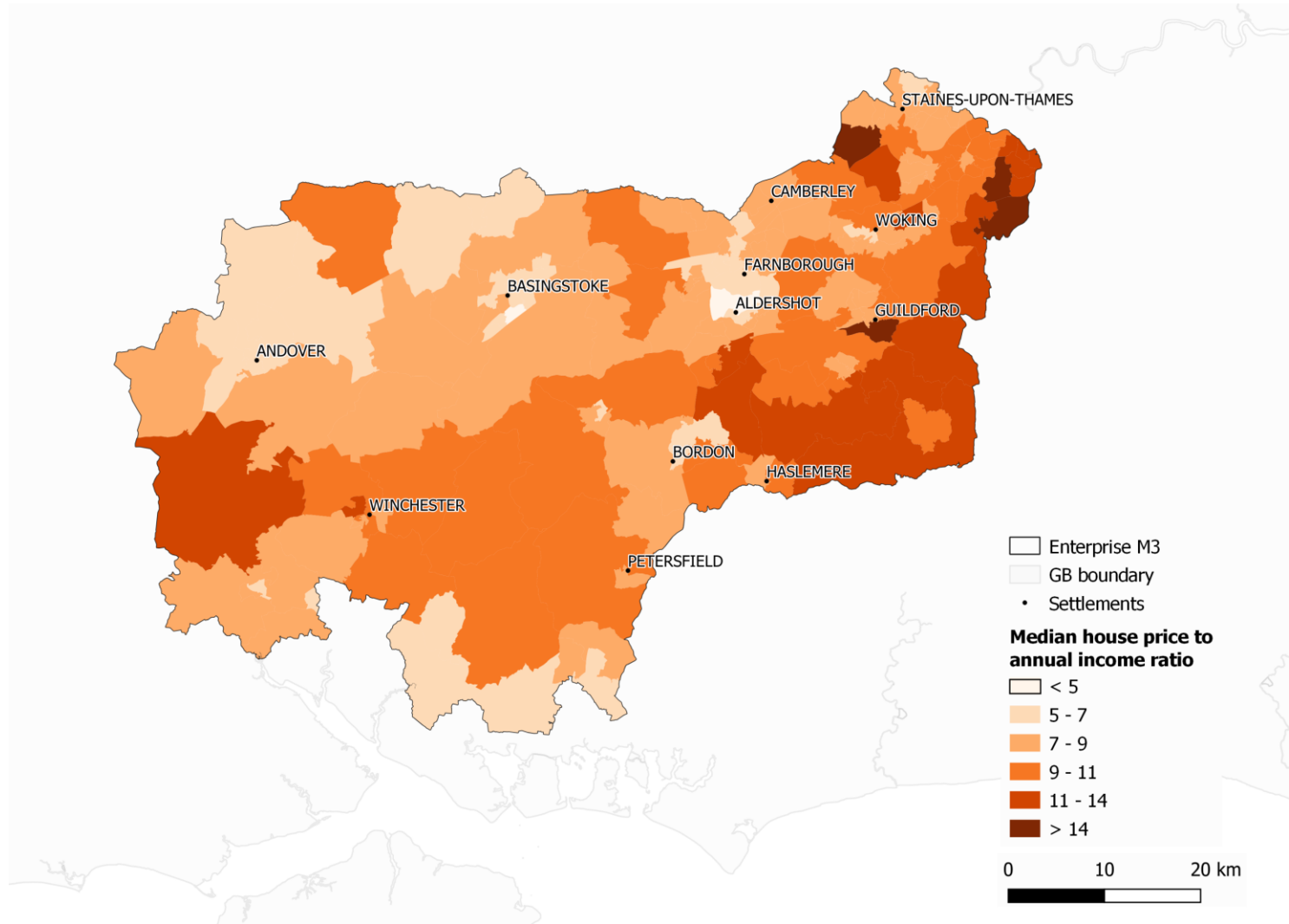
Spatial Distribution of Young People (2018)



- The map to the left shows the distribution of young people, aged 20-34, throughout EM3 in 2018 at the MSOA level.
- Young people are clustered around the North East of EM3 in areas closest to London.
- The areas around Guildford, Farnborough and Aldershot have shares of young people ranging between 30-40%.
- The distribution of young people decreases moving South and West of EM3.
- Areas around Basingstoke, Winchester and Andover also have a higher share of young people ranging from 20%-30%.
- Areas bordering Southampton have a higher share of young people ranging from 15%-20%.

HOUSING AFFORDABILITY

Housing affordability in EM3 (2016)



- The map to the left shows housing affordability for EM3 in 2016. Housing affordability is calculated by dividing the median house price by the net annual household income found within that area. Darker areas on the map indicate places of lower affordability.
- Areas of higher affordability can be found in parts of Basingstoke and Aldershot, with house prices at below 5 times that of net annual household income. Places with slightly lower housing affordability can be found in urban areas such as Andover, Bordon and Farnborough with median house prices between 5 – 7 times that of net annual household income.
- There are large parts of the EM3 area particularly around the centre, that experience low housing affordability, with house prices between 7 - 11 times greater than net annual household income. Affordability is found to be even lower in parts of the far west and east, with prices between 11 – 14 times that of net annual household income.
- The lowest housing affordability within the EM3 area is found in Guildford and areas located at the north east boundary with prices 14 times over that of net annual incomes.

PLACE – SUMMARY OF FINDINGS

- EM3's broad network of interspersed towns serve a variety of purposes and have varying levels of sector strengths, employment, major assets and services. The primary hubs of activity are Basingstoke, Guildford, Farnborough and Woking.
- The population distribution shows EM3 has an older age profile, with fewer 16-35 when compared to England, however it is ageing slower than some areas.
- Young people, drivers of innovation and creativity, are heavily centred around Guildford as expected with the University of Surrey. Further concentrations are around Farnborough, Aldershot Basingstoke and towards Staines.
- This correlates to not only employment opportunities or areas of innovation, but also to housing and where young people can afford to live. Farnborough and Aldershot are some of the most affordable places to live in EM3, whilst Guildford has a high student population.

Data Conclusions



CONCLUSIONS: WHAT IS THE DATA TELLING US?

- EM3 has key broad sector strengths of Health, Professional, Scientific and Technical Services and Information and Communication, with Health, Construction and Transport and Storage all growing faster than GB
- Sub sector specialisms include Scientific R&D, Computer Programming and the Manufacturing and Repair of Computer and Electronic Products.
- Business concentrations indicate strengths within Aerospace & Space, Digital, the Games industry and Telecommunications sub sectors and whilst jobs themselves have decreased in number, specialism remains high.
- Niche sectors are difficult to measure using SIC codes alone, Space, Digital and Telecommunications strengths are supported by activity within research parks and innovation funding statistics.
- Innovation funding is heavily business led through Digital, Space, Aerospace and Telecommunication project grants but also through private sector investment.
- However the academic institutions, like University of Southampton, are essential links to enabling this activity through the provision of innovative space and collaboration and consultancy opportunities, which are crucial in supporting a research and development ecosystem.
- Scale-ups are prevalent throughout EM3, particularly within the science and research parks, supported by business incubators, like SETsquared, which are catered towards helping smaller businesses grow. These businesses are highly important to the EM3 economy, more so than other LEPs due to the high value innovation undertaken.
- There is a strong west-east divide, with the proximity to London influencing industry, innovation and business clustering. Primary hubs are Basingstoke, Guildford and Farnborough, whilst towns like Winchester and Andover have less research orientated activity.

Engagement



ENGAGEMENT SUMMARY

To understand the state of innovation across Enterprise M3, we conducted a series of interview with key business figures, academics and innovators within the LEP. Below are the main findings.

Collaboration

- EM3 is full of great businesses but many work on an individual basis.
- Certain industries, like Space, network well internally but there is limited cross-sector overlap.
- Businesses have expressed a desire to work with 'other sectors', particularly Gaming, to utilise new immersive technologies and digital skills.
- Collaboration isn't confined to EM3 boundaries, observed via examples of partnerships with Oxford Innovation and the South Coast Centre of Excellence.

Skills & Talent

- Difficulties in recruitment overseas and retaining talent as a result of Brexit.
- Space sector is losing talent as engineers move abroad to work on more attractive projects whilst also struggling to recruit.
- Businesses across sectors recognise the need to recruit more digital skills to utilise new technologies and shift to new methods of working.
- Graduate recruitment is low for science degrees, many leave the area with businesses not capitalising on the skills coming out of universities.
- Businesses are suffering skills gaps, particularly in electronic engineers and finance

Business

- Difficulties in accessing funding as anchor institutions, like Innovate UK, having no regional focus.
- Identify a lack of leadership driving change; lots of conversations and working groups but little action
- A willingness to connect with other businesses but nothing in place to enable this.
- Companies rely on their own initiative to find opportunities or business partners, finding it difficult to know who or where to look.

Place

- Businesses and academia struggle with EM3 as a place. Boundaries are not recognised.
- An identity issue: no primary city to bind to but huge potential given the existing industry.
- Businesses struggle to build contacts due to dispersed nature of the area.
- An overlooked, underpromoted economy where leading Space, Aerospace and Games industry businesses should be forming a place identity.
- Places like Farnborough are 'waiting to be resuscitated', with greater investment needed to transform the place offering.

University

University of Surrey

- Businesses collaborate to share research.
- Short research projects with local businesses, longer research projects go beyond research park boundaries
- Companies tend to use the university for contacts and networks rather than funding.

University of Southampton

- High entrepreneurship in sharing ideas for patents and receiving funding.
- A specific focus around medicine, small clusters leading to similar customers and contact sharing
- Investments in industry partner teams to drive collaboration with businesses.
- Evidence of smaller scaleups working together to achieve a common goal.

Royal Holloway, University of London

- Central to developments in the Creative sector with StoryFutures and industrial strategy challenge funding.
- Creating challenges with big companies with a R&D agenda to build skills
- Working with businesses to grow and scale-up using new technologies.

ENGAGEMENT CHALLENGES

The challenges raised during engagement can be grouped into the five categories below:

Business Support	Skills	Cross-border collaboration	Place	Leadership
<ul style="list-style-type: none">• A need for help in finding funding, investors, talent and premises• Small businesses in particular require support to begin innovating and to turn their early steps into successful outcomes e.g. university partnerships like SPRINT.	<ul style="list-style-type: none">• Difficulties in attracting talent – particularly in industries with highly specific skills needs (e.g. Space)• A high demand for digital skills that is not being met• The area is thought to be losing talent to other areas of high innovation – Norway, Sweden, Canada. A 'brain drain' is occurring.	<ul style="list-style-type: none">• Businesses in innovative sectors are unable to access one another to develop skills and products• No infrastructure available to bring companies together• Industry and academia collaboration is essential. Industry need to say "I need these skills" for academia to plan how to deliver those skills in demand.	<ul style="list-style-type: none">• A lack of identity in an underpromoted economy• Businesses don't see administrative boundaries and many don't know what area EM3 stretches across. An identity issue, few characteristics and no city to tie into.• Difficulties in Business-to-Business connectivity due to dispersed nature of the geographic region	<ul style="list-style-type: none">• No leadership driving forward actions from working groups• A requirements to step up to link business, academia inside and outside of EM3 e.g. Surrey Research Park & Harwell.

Interventions



FIRST STEPS

The following interventions target specific actions the LEP can take in order to strengthen the innovation ecosystem of Enterprise M3. These range from activities relating to supporting smaller businesses to larger, more impactful interventions focusing on bringing business, innovation focused institutions and academia together.

However before these interventions can be implemented, the first step is to bring together a consortium of businesses based on our analysis, the engagement undertaken and the existing relationships with the LEP. The purpose of this is to establish business driven leadership which takes ownership of the challenges of innovation within Enterprise M3 and drives forward action. This requires the LEP to initially take the lead in bringing these businesses together, kickstarting a proactive conversation that will encourage industry to become more insurgent in creating change and achieving the interventions set out in this document.

The interventions cover the right ground but require the appropriate backing from key stakeholders to ensure positive change in the area, whether it is greater collaboration, access to skills or strengthened key sectors.

We propose an initial workshop as the first step in bringing these key strategic groups who want to be part of improving Enterprise M3 as a place for industry and innovation.

INTERVENTION 1

SUPPORTING SMALL & MEDIUM BUSINESSES

Enterprise M3 has a wealth of micro, small and medium sized businesses, having one of the highest number of scaleups in LEPs outside of London. These businesses are focused in key sectors, including space and digital, but need support to ensure the local economy reaches its overall potential. Smaller companies often are more flexible in how they work, utilising new technologies to solve problems, evidenced in places like Southampton Science park. Providing these businesses with the foundation to grow is important in ensuring continued innovation within Enterprise M3. The LEP can do this by assisting businesses in:

- Accessing funding streams from institutions like Innovate UK, European Space Agency and the Satellite Applications Catapult alongside university partnerships.
- Finding talent through greater clarity of apprenticeships, university graduate programmes and support in hiring specialised talent.
- Business planning: As smaller businesses begin to scaleup, assistance is required in finding appropriate premises.
- Obtaining access to business incubators, such as SETsquared and the EM3 Growth Hub, for help in finding investors and supporting growth of exciting new businesses in priority sectors.

INTERVENTION 2

CONNECTING SPACE, AEROSPACE AND THE GAMES INDUSTRY FOR CROSS-SECTOR COLLABORATION

Collaboration isn't fundamental to an economy nor is it essential for all businesses. A successful economy is one that is balanced. It has a range of functional jobs including legal and accountancy which bring in tax and income, which pave the way for more dynamic jobs to cultivate, innovating in a different space. It is in these different, innovative spaces where collaboration happens. Bringing together institutions, businesses and like-minded entrepreneurs catalyses innovation, creating new approaches to age old problems through new products and services.

Currently, Enterprise M3 has a range of highly innovative sectors which are internally facing. Our engagement has highlighted a clear demand for cross-sector connectivity to share ideas, collaborate and build stronger networks. Connecting these sectors both strengthens the innovation ecosystem and increases the likelihood of knowledge spillovers into the wider economy. To initiate this activity there must be a focus on:

- Working with shared workspace and business incubator experts, such as Rocketdesk and SETsquared, to identify the process which establishes the 'right space' and how the LEP can open up access to technology orientated businesses.
- Liaising with universities to understand how the LEP can become the link between business and academia, learning from the University of Southampton's industry partnerships and the collaboration on research parks, to inspire greater connectivity across industry.
- Connect Oxford Innovation with the innovation institutions within Enterprise M3 to work with local businesses and further embed innovation expertise into the economy, building greater relationships across business and academia.
- Build on the work currently being undertaken with both the national (KTN and Satellite Applications Catapult) and the European (European Space Agency) innovation networks to ensure priority sectors are sufficiently supported to undertake innovation.
- Create events to bring together big business and SMEs from different industries to share company success stories and build new cross-sector relationships.

INTERVENTION 3

DIGITAL SKILLS & ACCESS TO TALENT

The sectors we have highlighted throughout our analysis and engagement are relying on talent. Enterprise M3 has innovative companies that require technical and specific skillsets. There is a clear need for a greater number of digital and technical skills within the creative, space and games industries. New technologies, particularly immersive technologies, are becoming prevalent not only in the video games industry but also in areas like healthcare, automotive and professional services. The space, aerospace and defence sectors are consistently developing new products and services that need innovative, diverse skills to continue to commercialise innovation. Skills is a priority in the LEP's Local Industrial Strategy therefore these interventions are designed to link with the wider strategy in order to deliver the skills businesses need in order to remain competitive:

- Engaging with the key people who have expressed desire to be involved in addressing the skills requirements in the region and investigate the feasibility behind establishing a digital skills catapult in the South East.
- Working with the universities and local colleges to identify the digital skills created within higher education and how these can transition into the local economy. Additionally, investigate what opportunities are available for local businesses to upskill existing employees.
- Developing a skills action plan to address issues with education, skills and training.
- Working with business leadership groups to greater understand the skills demanded in the local workforce and how to make Enterprise M3 a more attractive and competitive area for prospective employees.

INTERVENTION 4

STRENGTHENING THE SPACE SECTOR

Historically, Surrey has immense standing in this sector. Surrey Satellite Technology Limited was central to crafting this reputation after being established by Martin Sweeting in 1985, finding success in small satellite technology through the Galileo programme, before later being bought by Airbus. This success established Surrey as the home of small satellites in Europe, hosting a multitude of companies undertaking space related research. Currently, 38% of the Space industry is in the research and development of products and services. 78% of this lies in Earth Observation, in which Guildford based Earth-I has international recognition.

The 2018 edition of the Size and Health of the UK Space Industry states the sector is worth £14.8 billion and is six times more R&D intensive than the UK average. Unsurprisingly, given the activity in Harwell and Surrey, the South East of England has the highest number of Space-related organisations in the UK. Supporting and strengthening this sector is fundamental to the regional and national economy. The LEP is in a strategic position of cementing the area as the centre of innovative Space development in the UK. What this needs is:

- To embed the Satellite Applications Catapult within Surrey Space Centre and Surrey Research Park, acting as a link between the Surrey and Harwell Space Campuses. This would be a first step towards creating a more collaborative Space sector between two world-class specialist research parks to lead the most interesting projects in Europe. Institutions like the European Space Agency Business Incubation Centre could then broaden their reach and inspire greater links across industry.
- Work with the LEP Space cluster group to identify how funding streams from Innovate UK and the UK Space Agency can offer greater support to businesses that better reflect their monetary requirements. Additionally, given the unknown impact of Brexit, map out alternative means of recruitment from universities, apprenticeships or overseas.
- To provide the skills the Space sector requires in order to advance research capabilities. Using the Space cluster group, create an approach that encourages greater uptake of Digital, IT and STEM qualifications coming out of universities. Collaborations with the UK Space Agency, ESERO UK and STEM Hubs will help further generate interest amongst students and raise awareness of the importance and opportunities within space technologies.

INTERVENTION 5

STRENGTHENING THE GAMES AND IMMERSIVE TECH INDUSTRIES

Game development plays a critical role in the Enterprise M3 economy. NESTA identified the Guildford and Aldershot travel to work area as one of the key game development hubs in the UK. UKIE recently identified the parliamentary constituency of Guildford as having the greatest number of games industry employees outside of London. The emerging Immersive Technology sector in Enterprise M3 is closely linked to its game development industry, with Virtual Reality and Augmented Reality have promising applications beyond entertainment in multiple local sector strengths including aerospace, space and professional services. The proliferation of 5G is expected to develop these use cases further and lead to the creation of a significant Immersive Technology industry complimenting the Enterprise M3 strengths in game development.

Supporting these industries means not only upholding sectors that are important to the future of the national economy, but also establishing Enterprise M3 as a unique hub of digital skills that can further complement key sectors. What this requires is:

- Further engagement with the games industry to understand its needs and requirements, including how best to accommodate its future demand for digital skills, support the success of its local companies and encourage their capacity for innovation. This engagement should also look to understand how the Immersive Technology industry is likely to emerge from within it and ensure that the two compliment each others growth.
- Additional development of the work underway to bring together the games industry into a local cluster group, that can represent its needs and interests as a whole, leading to the creation of supportive public sector initiatives and increasing awareness of key digital skills and services within Enterprise M3.
- Working with local businesses to create unique events and platforms that provide the opportunity for SME's to showcase their capabilities, promoting the strength and success stories of the games and immersive technology industries. These events and platforms should also provide new mechanisms to connect innovative businesses together and strengthen the relationships between key sectors.

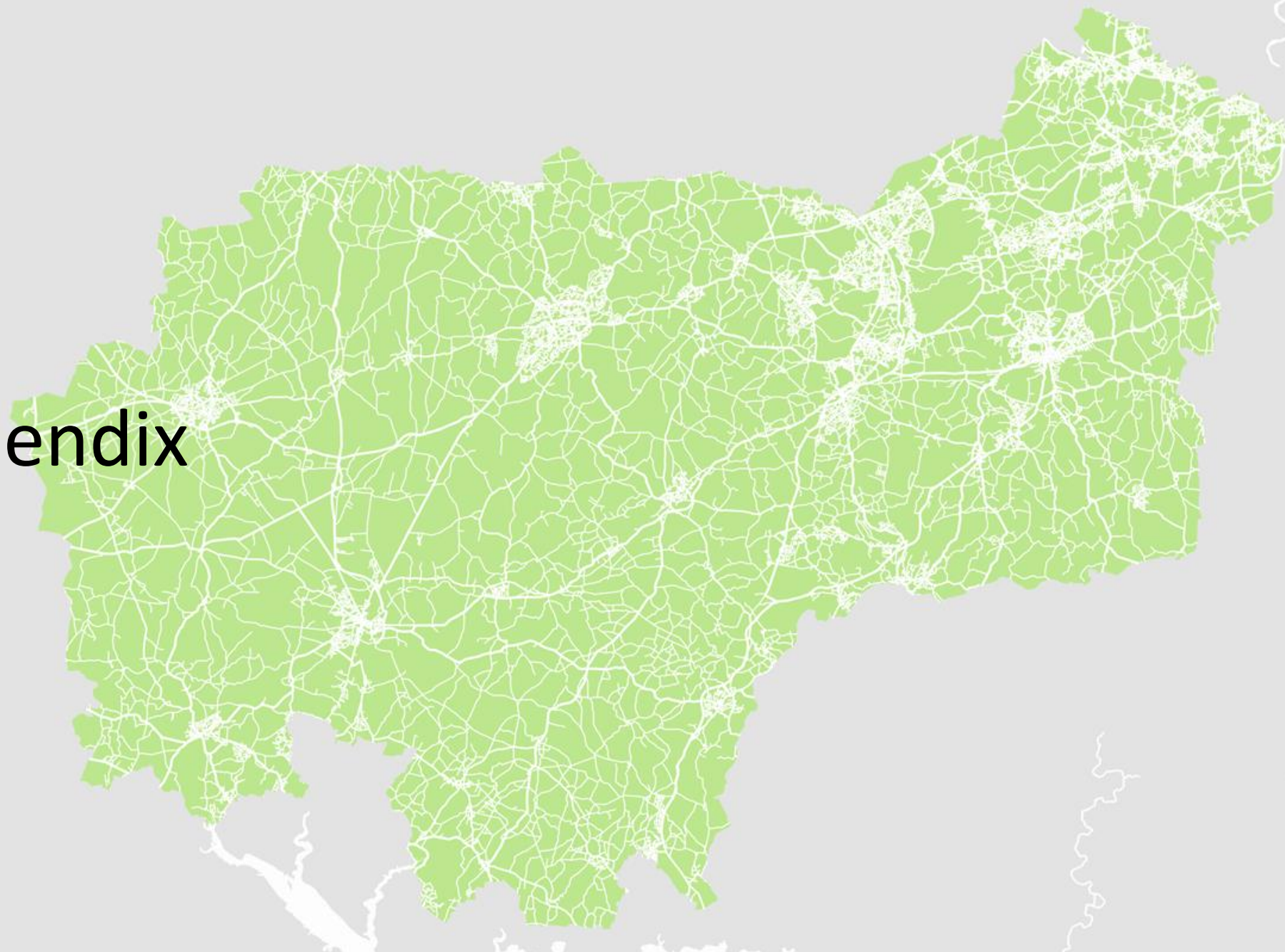
INTERVENTION 6

PLACE MAKING

Enterprise M3 is home to a multitude of businesses, big and small, which have a key role in the national economy. Many of these businesses are central to the UK Space Industry, play an integral role in the games industry or are significant to the Aerospace consortium. However despite a successful economy, Enterprise M3 is often overlooked as a place, partly a consequence of having no core city to tie into and a lack of recognisable boundaries, impacting the ability to attract talent and business. Aligning with the LEP Local Industrial Strategy, Enterprise M3 needs to be competitive as a business location and attractive to highly skilled, mobile workers by:

- Promoting industry to create a sense of place identity in Enterprise M3 ; publicising the strengths in space, aerospace, digital and industries and the successes of high growth business.
- Highlighting prosperous relationships between research parks, universities and businesses to emphasise Enterprise M3 as a great place to do business.
- Marketing the space sector to solidify Enterprise M3 as a key part of the space industry that is internationally recognised.
- Ensuring the Guildford and Aldershot area is promoted as one of the primary games industry hubs nationwide.
- Working with local councils to transform the place offer of towns across the LEP, attracting more people to live and work.

Appendix



APPENDIX – ERC INNOVATION BENCHMARK DEFINITIONS

- Introduction of new business practises: Firm adoption of new organisational processes over the 2014-2016 period. Examples of this type of innovation would be: supply chain management, business re-engineering, knowledge management, lean production and quality management.
- New methods of work organisation: This is the way work is organised and structured. It relates to firms adoption of new methods of organising work responsibilities and decision making. Examples are firms using a new system of employee responsibilities, team work, decentralisation, integration of de-integration of departments and new education/training systems
- Marketing innovation: Where firms have implemented changes to marketing concepts or strategies.
- Research and development: This reflects the expertise of R&D personnel, links between specific teams in order to undertake innovation or particular technologies that enables R&D
- Design investment for innovation: Firms investment in all forms of design related to the development or implementation of new or improved goods, services and process.
- Collaboration for innovation: Collaboration can deliver significant benefits for innovating firms. This metric is based on firms that were collaborating for innovation during 2014-2016. This includes continuous and one-off instances but also innovation that is not necessarily local.
- Product and service innovation: This metric measures the percentage of enterprises that have introduced a new or significantly improved product or service. Differences across areas will reflect both the innovativeness of local firms and to some extent the structure of local industries. For example, high-tech industries or those with high competition may have higher levels of innovation.
- New to the market innovation: It is generally thought more radical 'new to the market' innovations generate higher returns. This metric provides an indication of the percentage of firms which are introducing new to the market innovations (either products or services).
- Sales of innovative products/services: This relates to the proportion of innovating firms sales which are derived from innovative products or services. It is measured as the average proportion of firms sales derived from innovative products or services.
- Process innovation: This is in similar nature to that of product or service change and relates to the percentage of firms in each local area introducing new or significantly improved processes during 2014-2016.



METHODOLOGY

METHODOLOGY

Sources

All statistical data in this pack was retrieved from official sources unless otherwise stated. The sources of data used for each piece of analysis are listed on the relevant page of the evidence base document.

Key sectors

Analysis of the key sectors is carried out using the SIC code definitions stated on pages 6-7.

GVA

GVA is deflated to give values in 2017 terms.

InnovateUK Funding

Analysis of innovation specialisms uses the Datavis export tool from the InnovateUK website. It is categorised into broad “themes”. For an example on the types of projects in each theme please see the table on page 10. Please note there are more themes than displayed on the table. The most applicable themes for EM3 have been selected for inclusion

Scaleup

Scaleup data is sourced from ScaleUp Institute Report released in 2019.

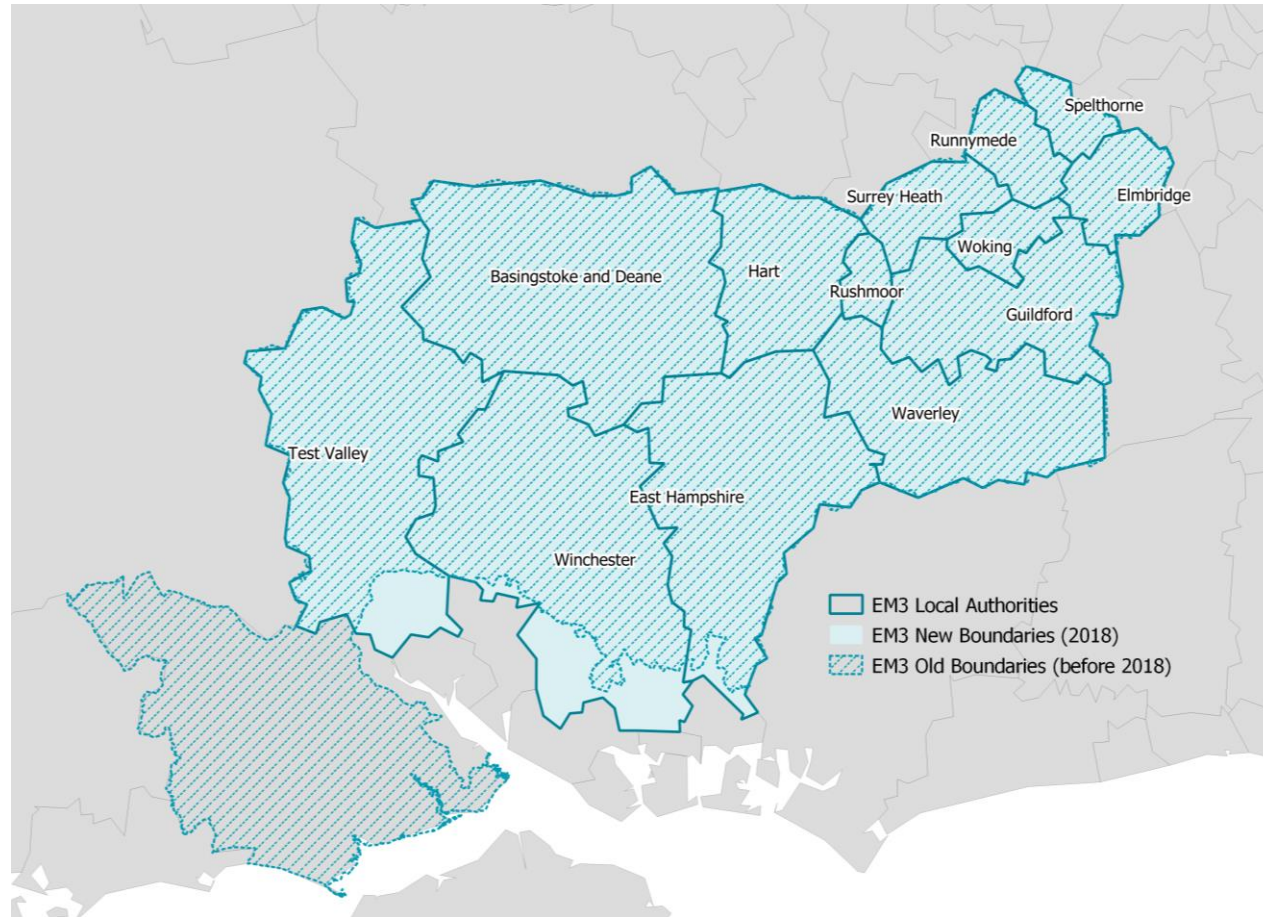
Rural and town analysis

Where small area level data is available, it has been used to analyse the socioeconomic characteristics of EM3’s rural areas. The rural area is considered to be MSOAs outside the 32 main towns identified by Hardisty Jones.

Qualifications profile small area level

An in house model is used to calculate qualification and occupation figures at the small area level using an in house model based on a combination of Census and Annual Population Survey data.

EM3 LEP BOUNDARY DEFINITION



- This map illustrates the boundary changes for Enterprise M3 coming into effect from 2018.
- The new boundaries LEP boundary now includes all of Test Valley, Winchester and East Hampshire. New Forrester is no longer part of Enterprise M3.
- All analysis has been done using the new 2018 LEP boundaries unless otherwise stated.

SIC2 CODE DEFINITIONS FOR BROAD SECTORS

ABDE	Primary Industries
1	Agriculture and hunting
2	Forestry and logging
3	Fishing and aquaculture
5-8	Mining and quarrying, excluding support activities
9	Mining support service activities
35	Electricity, gas, steam and air conditioning supply
36-37	Water supply and sewerage
38	Waste collection, treatment and disposal activities
39	Remediation and other waste management services
C	Manufacturing
10	Manufacture of food products
11-12	Manufacture of beverages and tobacco products
13	Manufacture of textiles
14	Manufacture of wearing apparel
15	Manufacture of leather products
16	Manufacture of wood products, except furniture
17	Manufacture of paper products
18	Printing and reproduction of recorded media
19-20	Manufacture of coke, refined petroleum and chemicals
21	Manufacture of pharmaceutical products
22	Manufacture of rubber and plastic products
23	Manufacture of other non-metallic mineral products
24	Manufacture of basic metals
25	Manufacture of fabricated metal products

C	Manufacturing
26	Manufacture of computer, electronic and optical products
27	Manufacture of electrical equipment
28	Manufacture of machinery and equipment
29	Manufacture of motor vehicles
30	Manufacture of other transport equipment
31	Manufacture of furniture
32	Other manufacturing
33	Repair and installation of machinery and equipment
F	Construction
41	Construction of buildings
42	Civil engineering
43	Specialised construction activities
GI	Retail & hospitality
45	Motor trades
46	Wholesale trade
47	Retail trade
55	Accommodation
56	Food and beverage service activities
H	Transport & storage
49	Land transport
50	Water transport
51	Air transport
52	Warehousing and transport support activities
53	Postal and courier activities

SIC2 CODE DEFINITIONS FOR BROAD SECTORS

J	Information and communication
58	Publishing activities
59	Motion picture, video and TV programme production
60	Programming and broadcasting activities
61	Telecommunications
62	Computer programming and consultancy
63	Information service activities
K	Financial and insurance activities
64	Financial service activities
65	Insurance and pension funding
66	Activities auxiliary to finance and insurance
L	Property/Real estate activities
68	Real estate activities, excluding imputed rental
M	Professional, scientific & technical activities
69	Legal and accounting activities
70	Head offices and management consultancy
71	Architectural and engineering activities
72	Scientific research and development
73	Advertising and market research
74	Other professional, scientific and technical activities
75	Veterinary activities
N	Administrative and support service activities
77	Rental and leasing activities
78	Employment activities
79	Travel agency and tour operator activities
80	Security and investigation activities
81	Services to buildings and landscape activities
82	Office administration and business support activities

OP	Public administration & Education
84	Public administration and defence
85	Education
Q	Human health and social work activities
86	Human health activities
87	Residential care activities
88	Social work activities
RS	Arts, entertainment, recreation & other services
90	Creative, arts and entertainment activities
91	Libraries, archives, museums and other cultural activities
92	Gambling and betting activities
93	Sports, amusement and recreation activities
94	Activities of membership organisations
95	Repair of computers, personal and household goods
96	Other personal service activities

SIC4/5 CODE DEFINITIONS FOR COMPANIES CONCENTRATION

Aerospace/Space/Defence

2540	Manufacture of weapons and ammunition
3030	Manufacture of air and spacecraft and related machinery
3040	Manufacture of military fighting vehicles
3316	Repair and maintenance of aircraft and spacecraft
6130	Satellite telecommunications activities
8422	Defence activities

Digital

2611	Manufacture of electronic components
2612	Manufacture of loaded electronic boards
2620	Manufacture of computers and peripheral equipment
2640	Manufacture of consumer electronics
4651	Wholesale of computers, computer peripheral equipment and software
5829	Other software publishing
6201	Computer programming activities
6202	Computer consultancy activities
6203	Computer facilities management activities
6209	Other information technology and computer service activities
6311	Data processing, hosting and related activities
6312	Web portals
6399	Other information service activities n.e.c.
8020	Security systems service activities
9511	Repair of computers and peripheral equipment
9521	Repair of consumer electronics

Gaming

3240	Manufacture of games and toys
5821	Publishing of computer games
62011	Ready-made interactive leisure and entertainment software development

Telecoms

2630	Manufacture of communication equipment
2731	Manufacture of fibre optic cables
2732	Manufacture of other electronic and electric wires and cables
2733	Manufacture of wiring devices
4652	Wholesale of electronic and telecommunications equipment and parts
4742	Retail sale of telecommunications equipment in specialised stores
4743	Retail sale of audio and video equipment in specialised stores
6110	Wired telecommunications activities
6120	Wireless telecommunications activities
6190	Other telecommunications activities
9512	Repair of communication equipment

INNOVATEUK THEMES

Advanced Propulsion	
BMW Motorsport Ltd	SPEED V: Super-high Power-dense Engines for Electric-hybrid Vehicles
BMW Motorsport Ltd	HP-LiSD - High Power Lithium Storage Device
McLaren Applied Technologies Ltd	ViVID - Virtual Vehicle Integration and Development
McLaren Automotive Limited	Advanced transmission and e-drive for high value hybrid drive vehicles
Transport	
BAE Systems	Hybrid Electric Technology for transit Buses
Gordon Murray Design Limited	T.27ev - Production of a prototype for a new ultra-efficient electric vehicle
Gordon Murray Design Limited	Paradigm_Shift - breakthrough Small Lightweight EV Platform
Energy	
BOC Limited	UK Renewable Hydrogen Hub
Siemens Industrial Turbomachinery Limited	HISTORIC - Technology Support for 2nd Generation BIGCC Plant
VerdErg Connectors Limited	Fosar Deep: Deepwater Permanent Reservoir Monitoring Using Fibre Optic Seismic Arrays
Digital/ICT	
Flexeye Ltd	HyperCat for All
Electronic Arts Limited	Real-time Interactive Cinematic Content Creation
Imagineer Systems Limited	REFRAME: Location Performance Capture for Real-Time Enriched Media
Flexeye Ltd	SASSI - Smart Asset/Smart Security Integration
OmniPerception Limited	Visualisation tools for effective face matching

Aerospace	
Thales UK Limited	SAVANA (Satcom and VHF Architectures for Nextgen Avionics)
QinetiQ Limited	Large Projects -Lightweight Materials & Structures (Nxt Gen Wing)
BAE Systems Operations Limit	Future Flight Deck
Space	
Surrey Satellite Technology Limited	TechDemoSat-1
Surrey Satellite Technology Limited	NovaSAR innovative imaging chain critical element qualification
University of Surrey	Telecom Satellite Mechanical Platform
DMC International Imaging Limited	High Resolution System for Commercial Carbon Stock and Flux Measurement
Challenge Led	
Ilika Technologies Limited	Faraday Battery Challenge: Innovation R&D - Round 2
Planet Ocean Ltd	Research and Development Competition for RAI in Extreme and Challenging Environments
First Option Software Limited	Digital Health Catalyst Round 1 - CRD
Royal Holloway Univ of London	Robotics and AI: Inspect, Maintain and Repair in Extreme Environments
AUTODESK LIMITED	Aerospace Technology Institute Batch 21