

SEMLEP LOCAL INDUSTRIAL STRATEGY

EVIDENCE BASE

November 2018

SEMLEP

South East Midlands
Local Enterprise Partnership



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SEMLEP: Overarching Economic & Demographic Evidence

SEMLEP

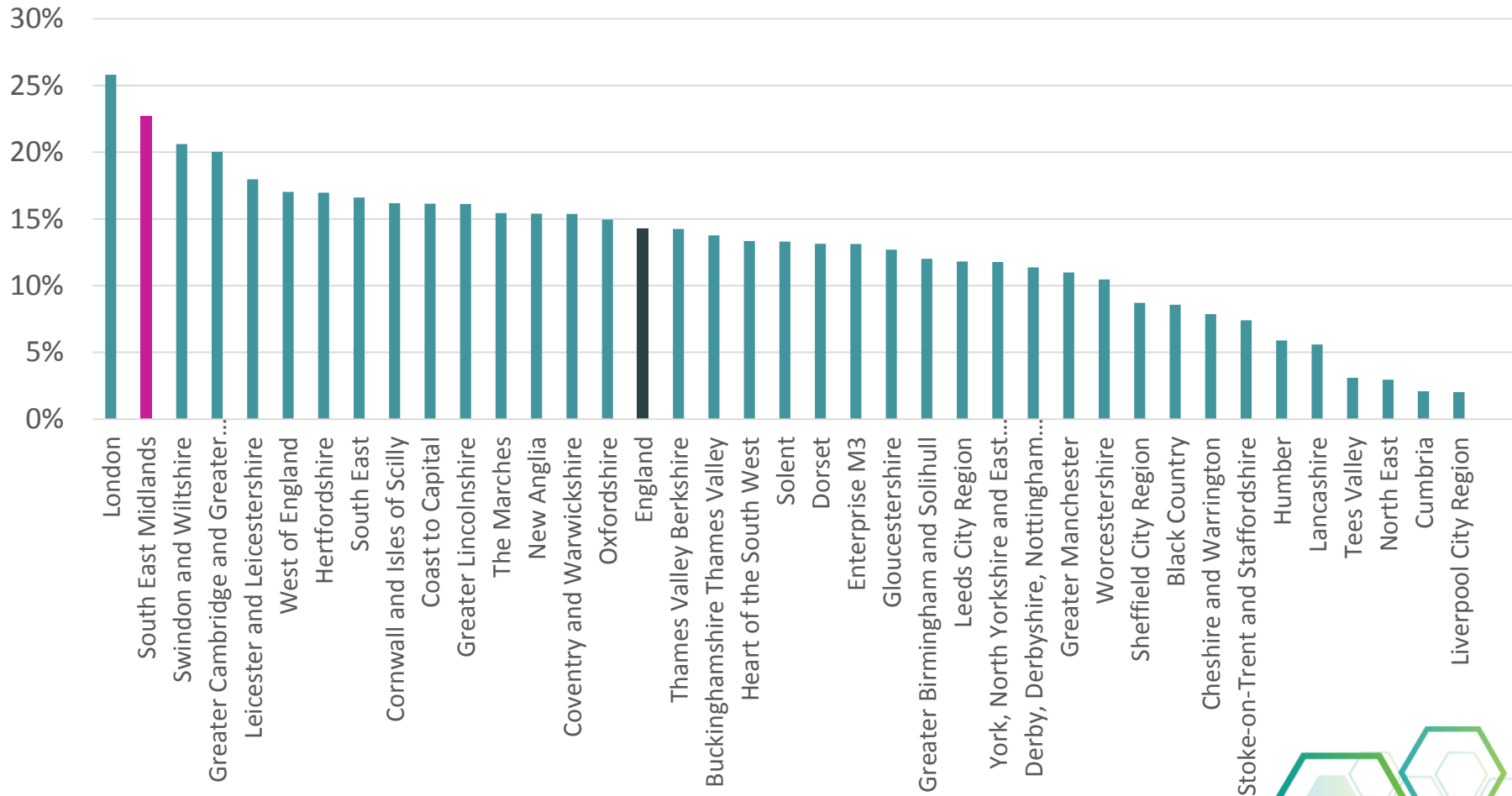
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SEMLEP occupies a strategically and economically important position at the nexus of Oxford, Cambridge, Birmingham and London



Over the past two decades, the population of SEMLEP has grown faster than any other LEP area outside London...

Population growth, 1997-2017, all LEPs (% change)



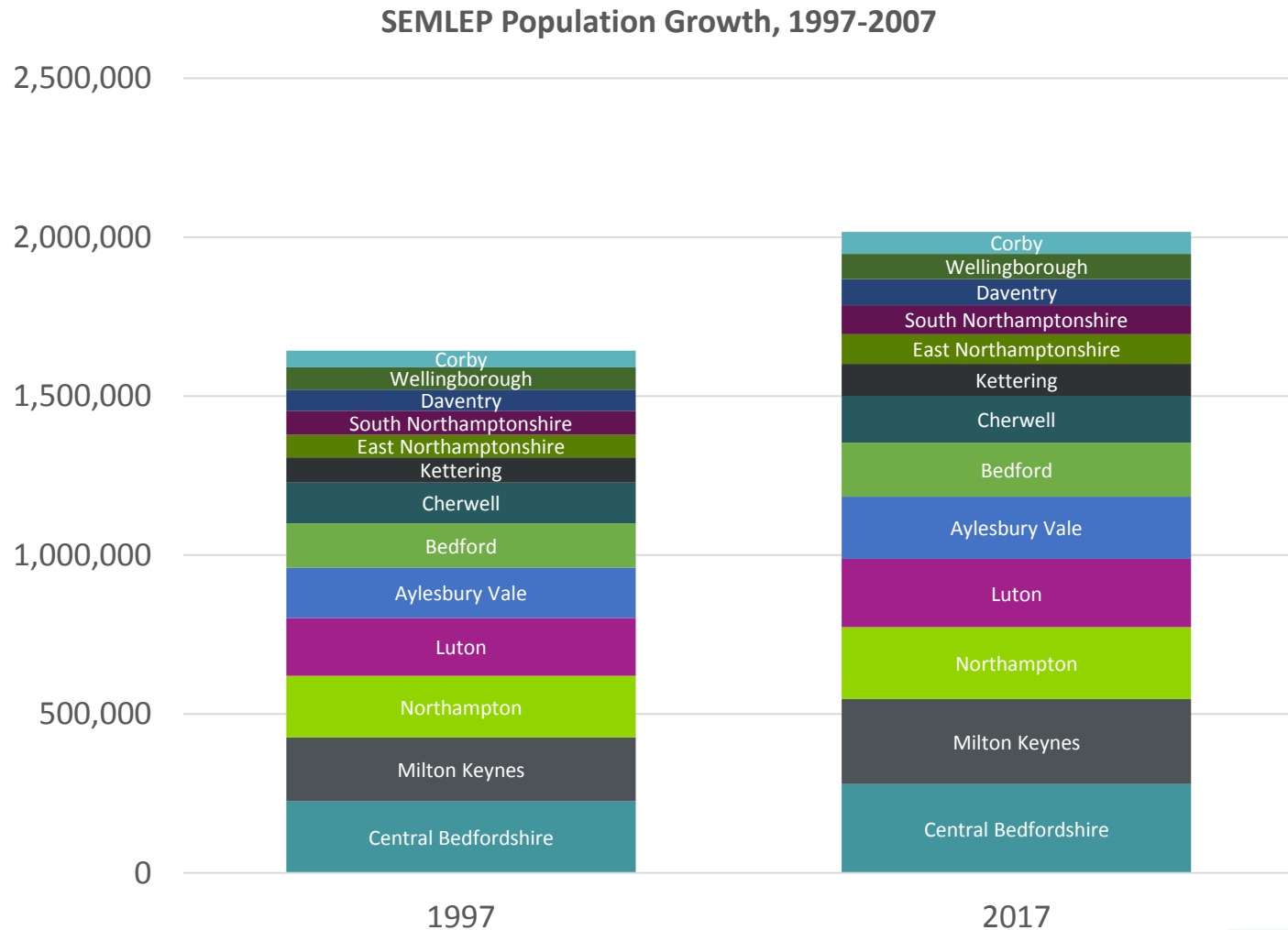
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[Source: ONS population estimates]



...taking the current SEMLEP population to c.2m



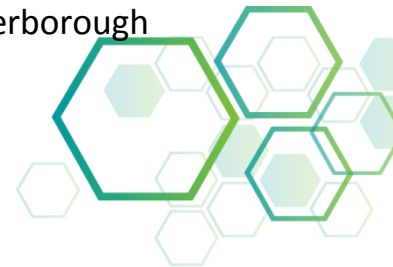
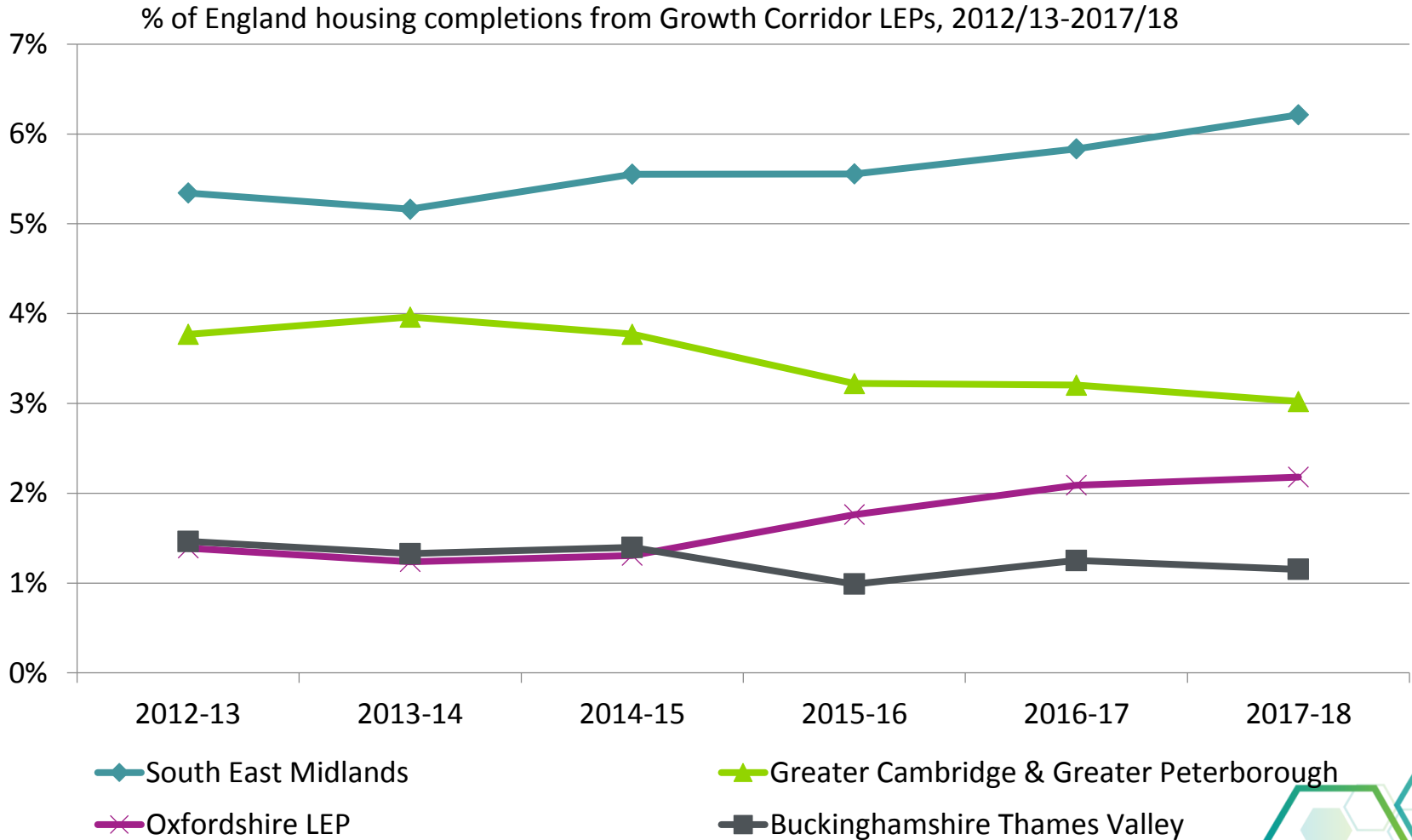
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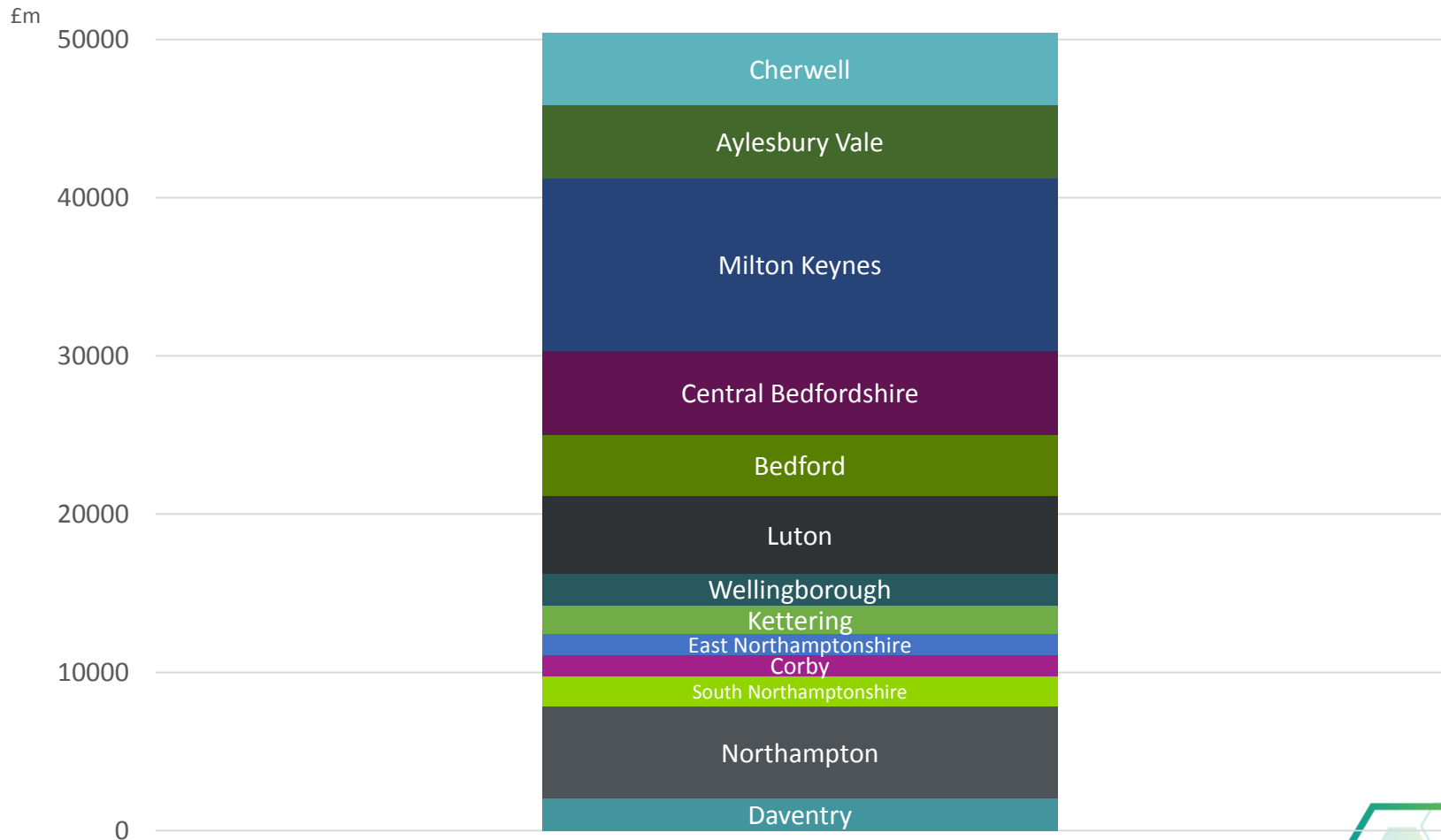
[Source: ONS population estimates]



In recent years, SEMLEP has contributed a substantial, and increasing, share of national housing completions



SEMLEP contributes some £50bn in GVA to the national economy



SEMLEP

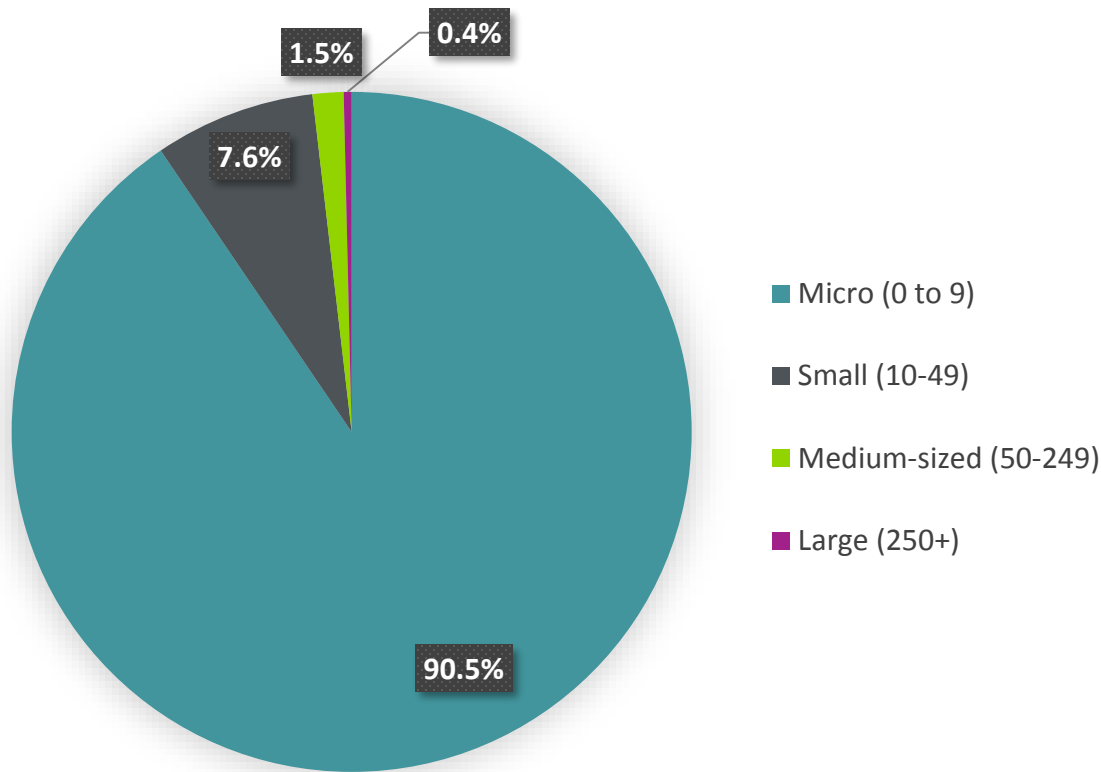
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[Source: 2015 figures;
ONS experimental stats]



There are over 90,000 PAYE-registered business enterprises in the SEMLEP area, and the size split is broadly comparable with England

Business enterprises in the SEMLEP: % split by size, 2018



Size	Location Quotient
Micro (0 to 9)	1.01
Small (10-49)	0.89
Medium-sized (50-249)	0.95
Large (250+)	0.97

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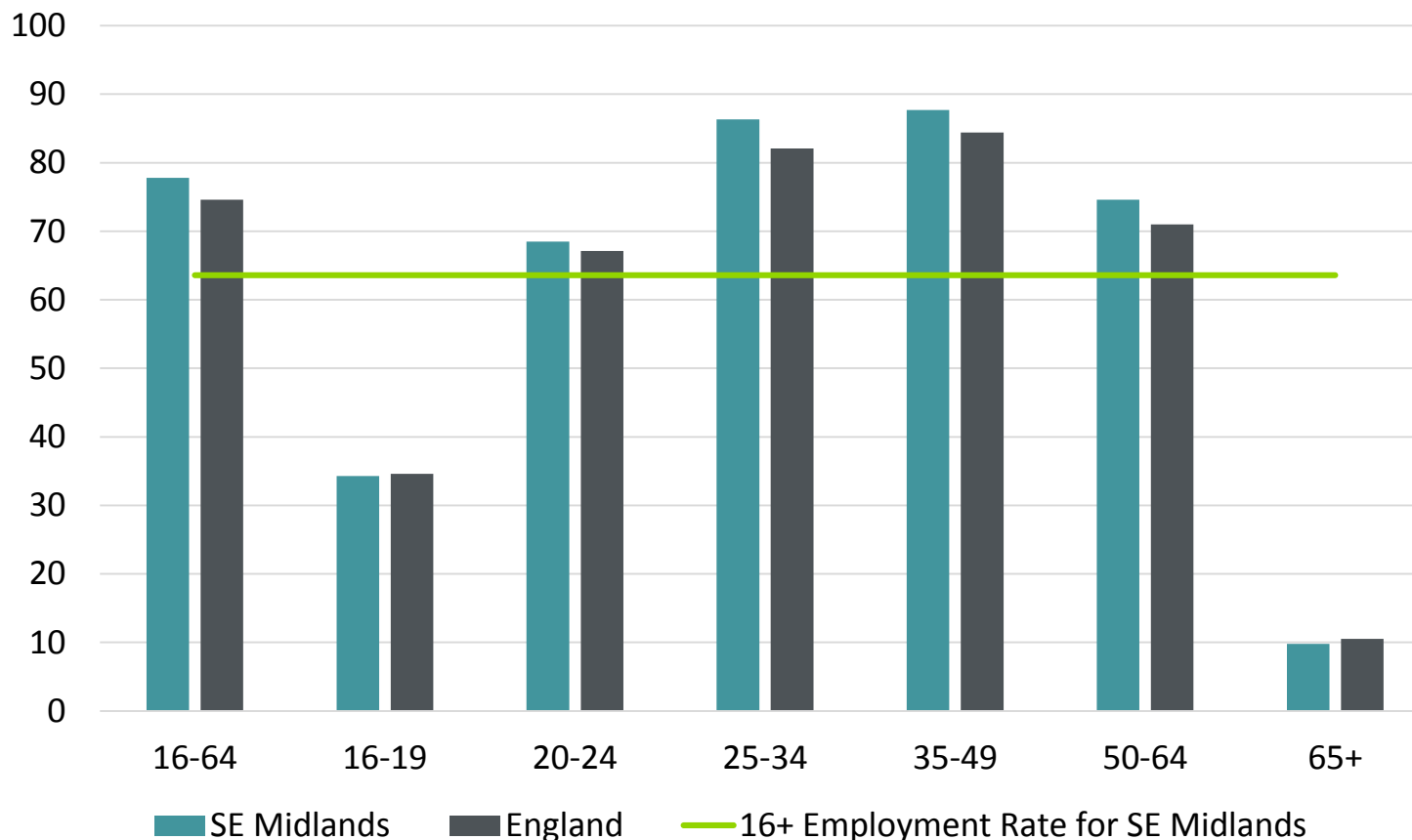
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[Source: ONS IDBR statistics]



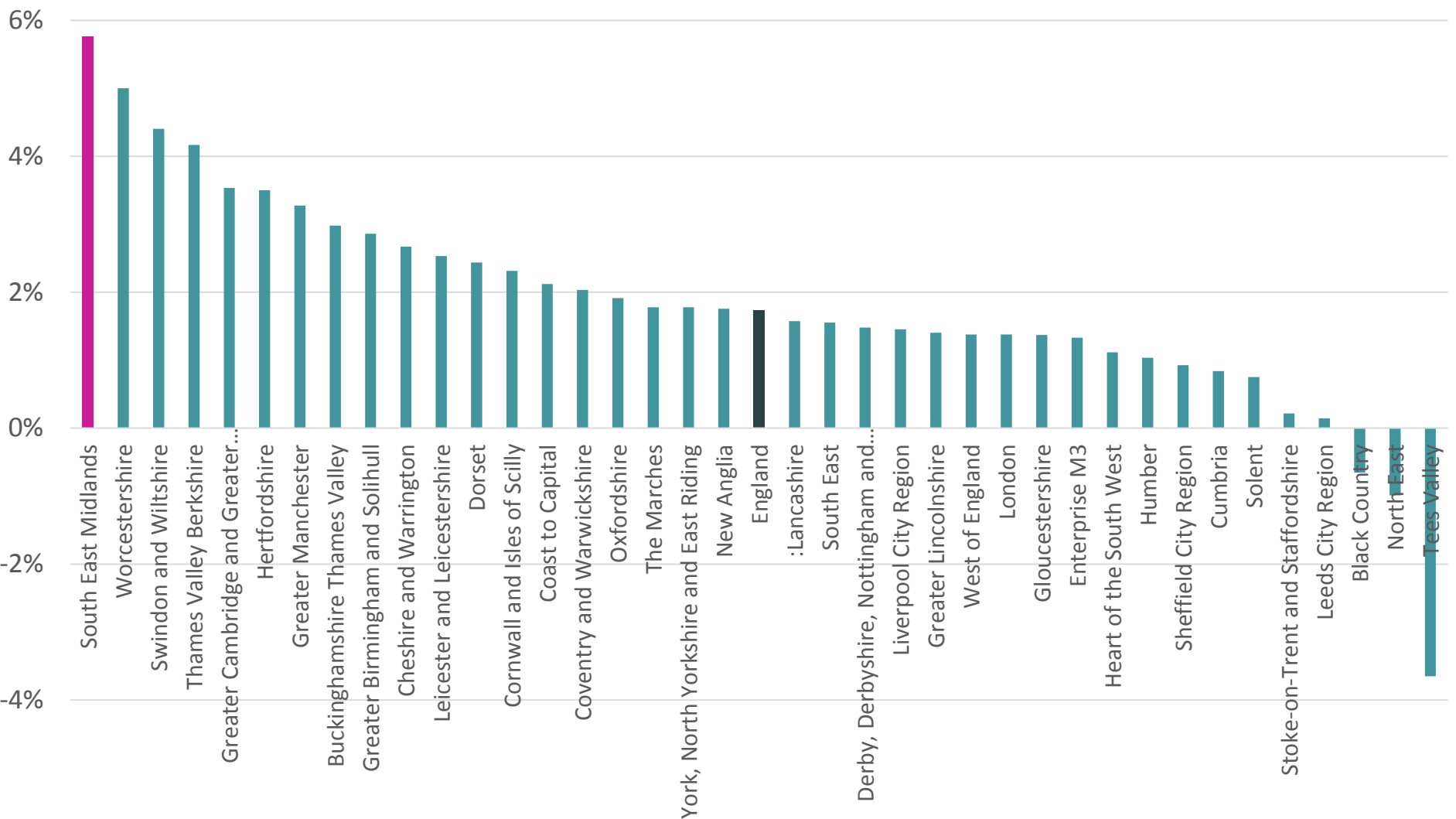
The SEMLEP area has a high employment rate...

Employment Rate by Age Band, SE Midlands & England,
12 months to June 2017



...and is the top performing LEP for recent employment growth

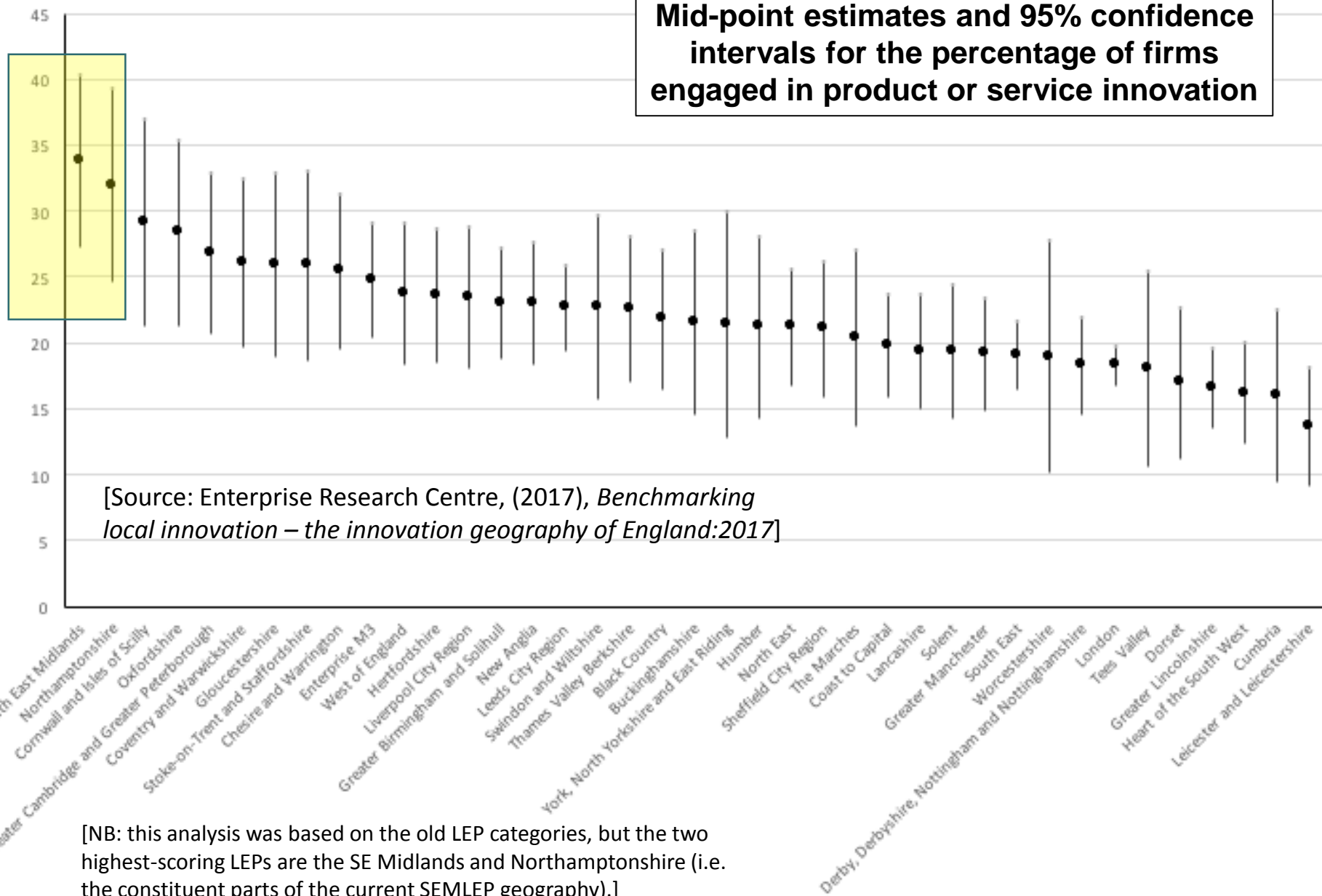
% Employment Growth, 2015-16, all LEPs



[Source: ONS Business Register & Employment Survey]

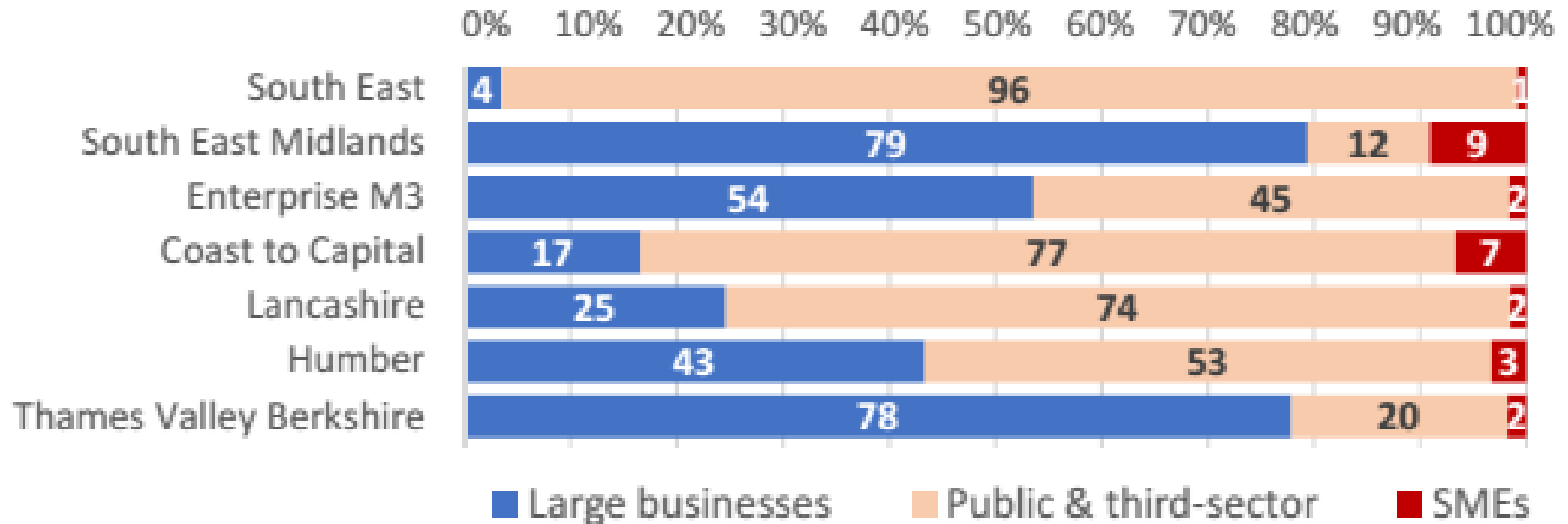
The SEMLEP area is highly innovative...

Mid-point estimates and 95% confidence intervals for the percentage of firms engaged in product or service innovation



...with an impressive commercialisation record

Contract Research – annual average 2010/11-2012/13 – % split in income: ‘large businesses’, ‘public & third sector’ and SMEs



- From 2010/11-2012/13, Higher Education Institutions in the SEMLEP area received 79% of their contract research income from large businesses, which is nearly 2.5 times the share for England as a whole.



It contains two of the top 10 UK cities for recent private sector jobs growth

Rank	City	Change, 2015-2016 (%)	Private sector jobs, 2015	Private sector jobs, 2016	Net job gains or losses
10 cities with the highest net private sector jobs growth					
1	Luton	15.7	67,000	77,500	10,500
2	Crawley	11.3	75,000	83,500	8,500
3	Chatham	8.3	60,500	65,500	5,000
4	Milton Keynes	8.2	134,500	145,500	11,000
5	Slough	6.2	65,000	69,000	4,000
6	Blackburn	5.9	42,500	45,000	2,500
7	Dundee	5.6	44,500	47,000	2,500
8	Newport	5.5	73,000	77,000	4,000
9	Reading	5.3	141,000	148,500	7,500
10	Exeter	5.1	58,500	61,500	3,000



And the SEMLEP area contains some productivity hotspots, most notably Milton Keynes...

Rank	City	GVA per worker, 2016 (£)
10 cities with the highest GVA per worker		
1	Slough	82,100
2	London	77,300
3	Reading	70,800
4	Milton Keynes	66,900
5	Aldershot	62,400
6	Edinburgh	59,800
7	Swindon	59,500
8	Aberdeen	59,300
9	Portsmouth	57,000
10	Bristol	56,900

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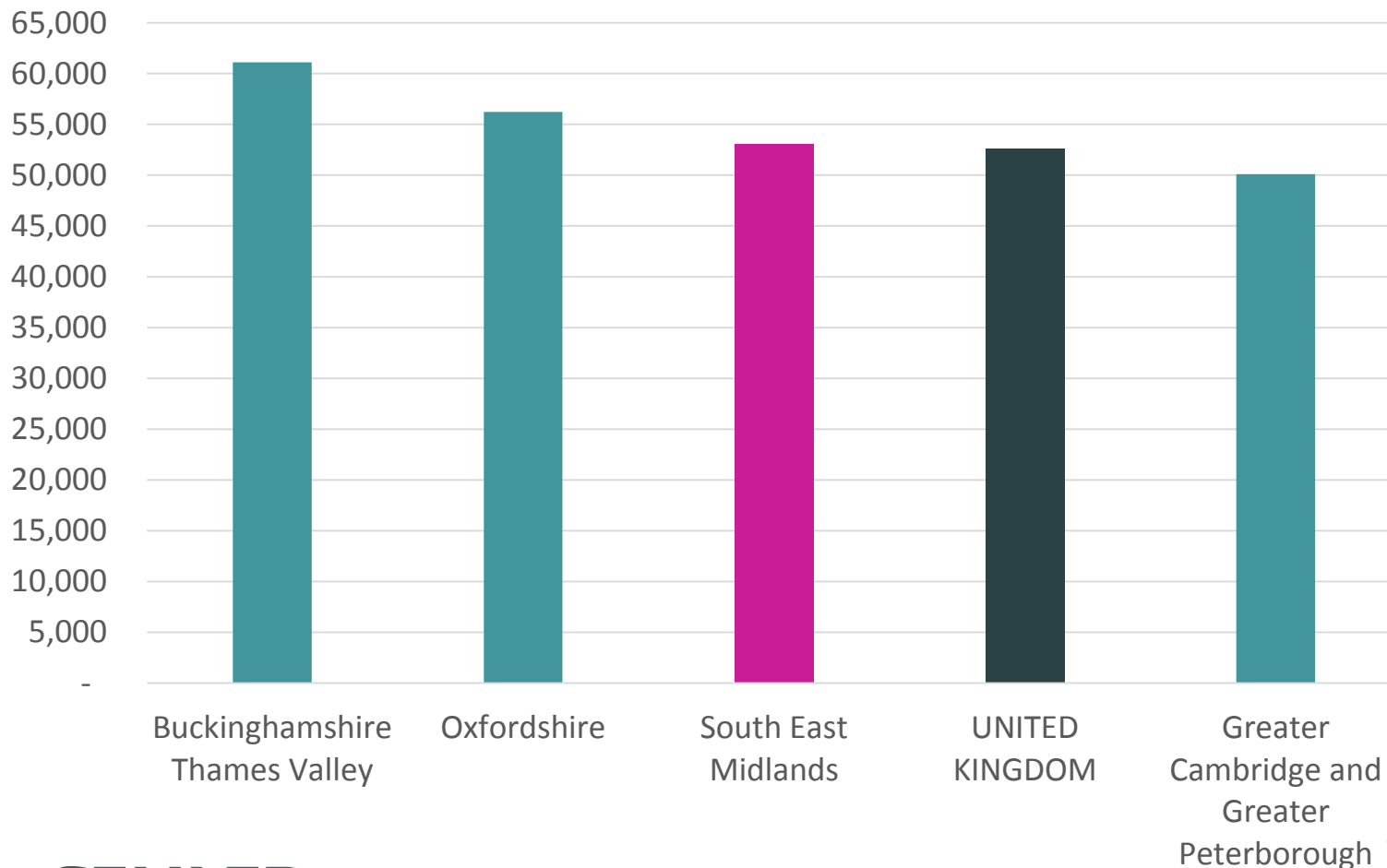
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[Source: Centre for Cities, (2018), *Cities Outlook 2018*]



... but SEMLEP's overall productivity is not as high as elsewhere in the Corridor (I)

(Nominal, Smoothed) GVA per filled job, across the Growth Corridor, 2016 (£)



SEMLEP

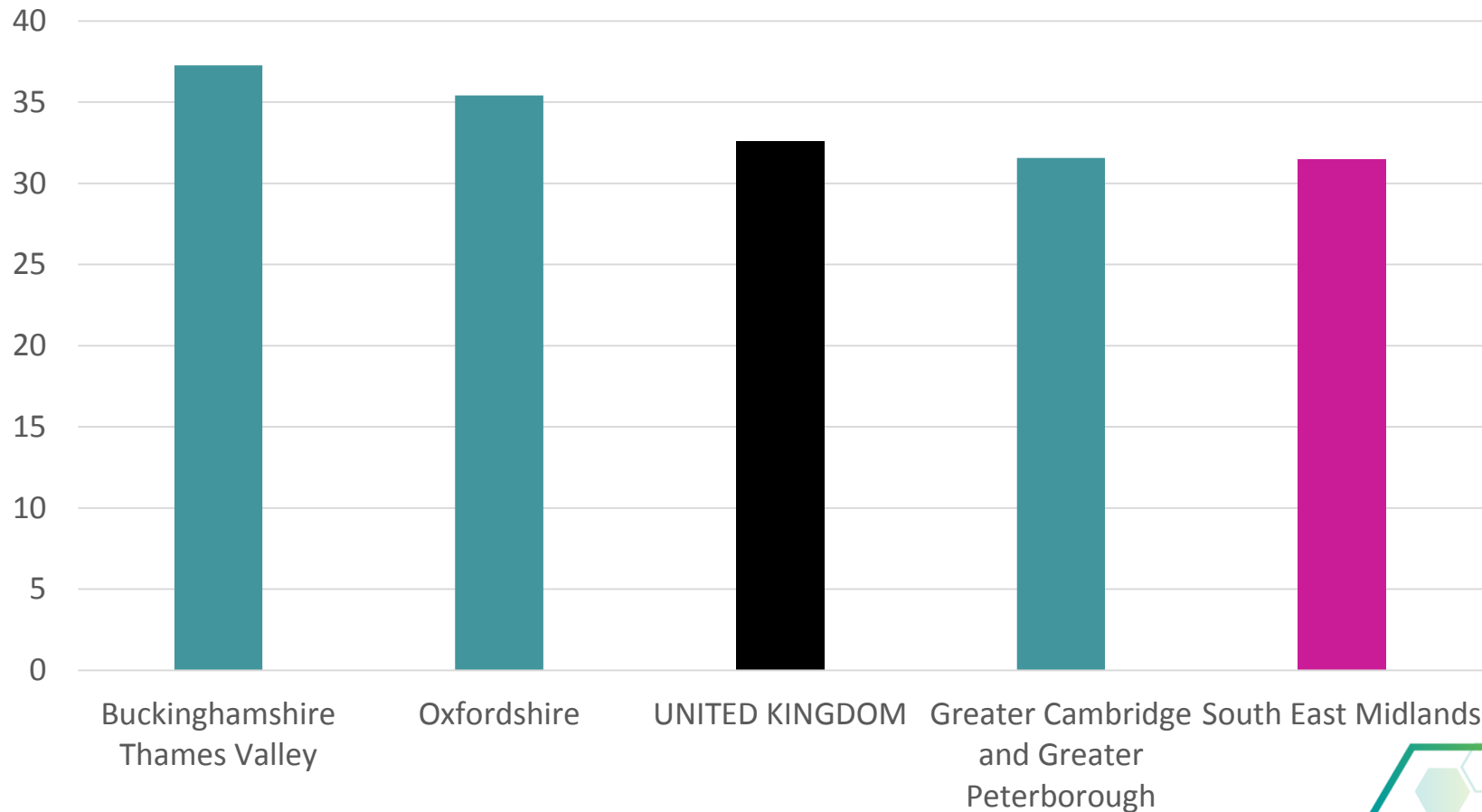
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[Source: ONS]



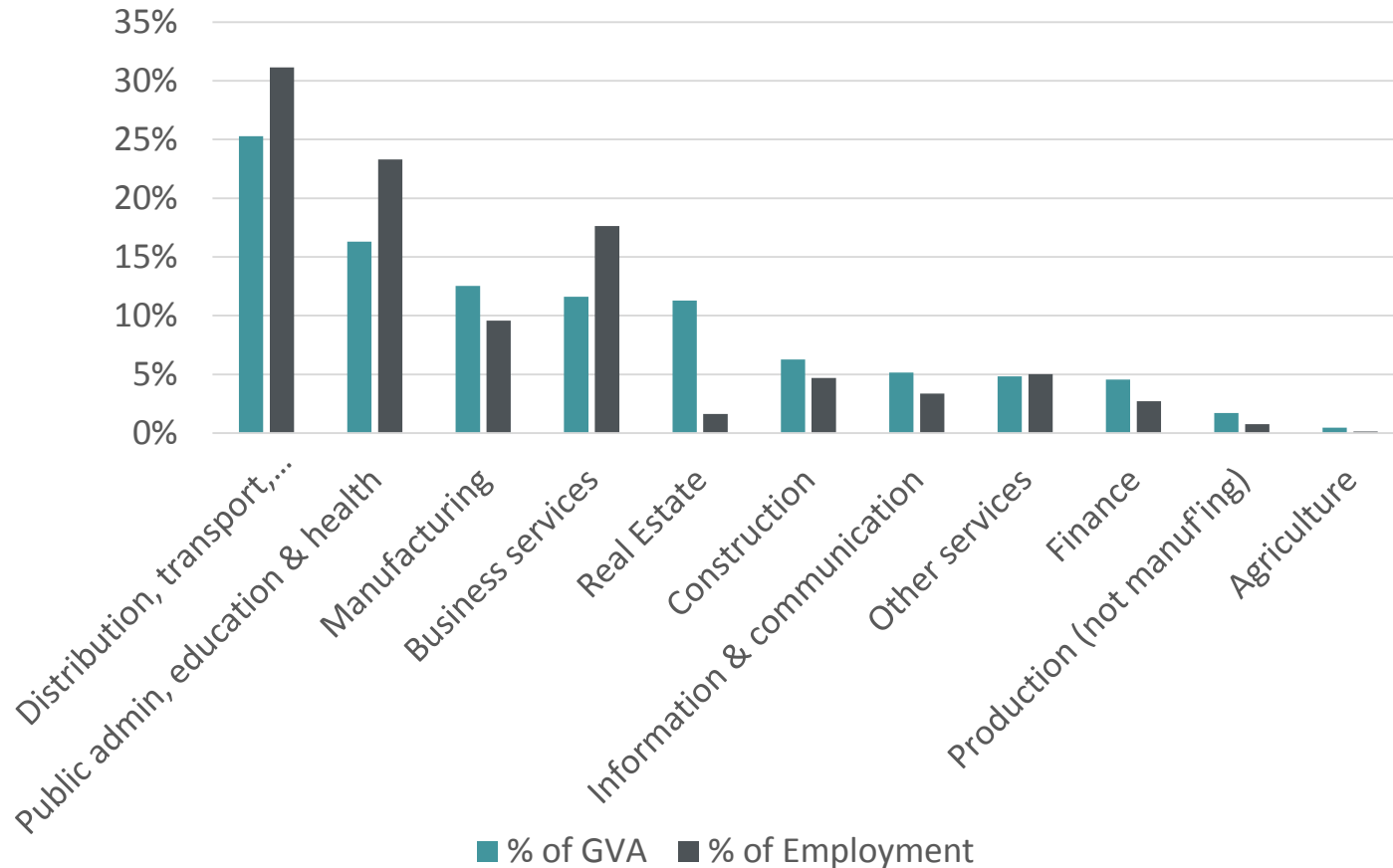
... but SEMLEP's overall productivity is not as high as elsewhere in the Corridor (II)

(Nominal, Smoothed) GVA per hour worked, across the Growth Corridor, 2016 (£)



High productivity sectors include Construction, Manufacturing, Real Estate, ICT & Finance

SEMLEP: % of GVA vs. % of Employment, by Industrial Sector, 2015



SEMLEP

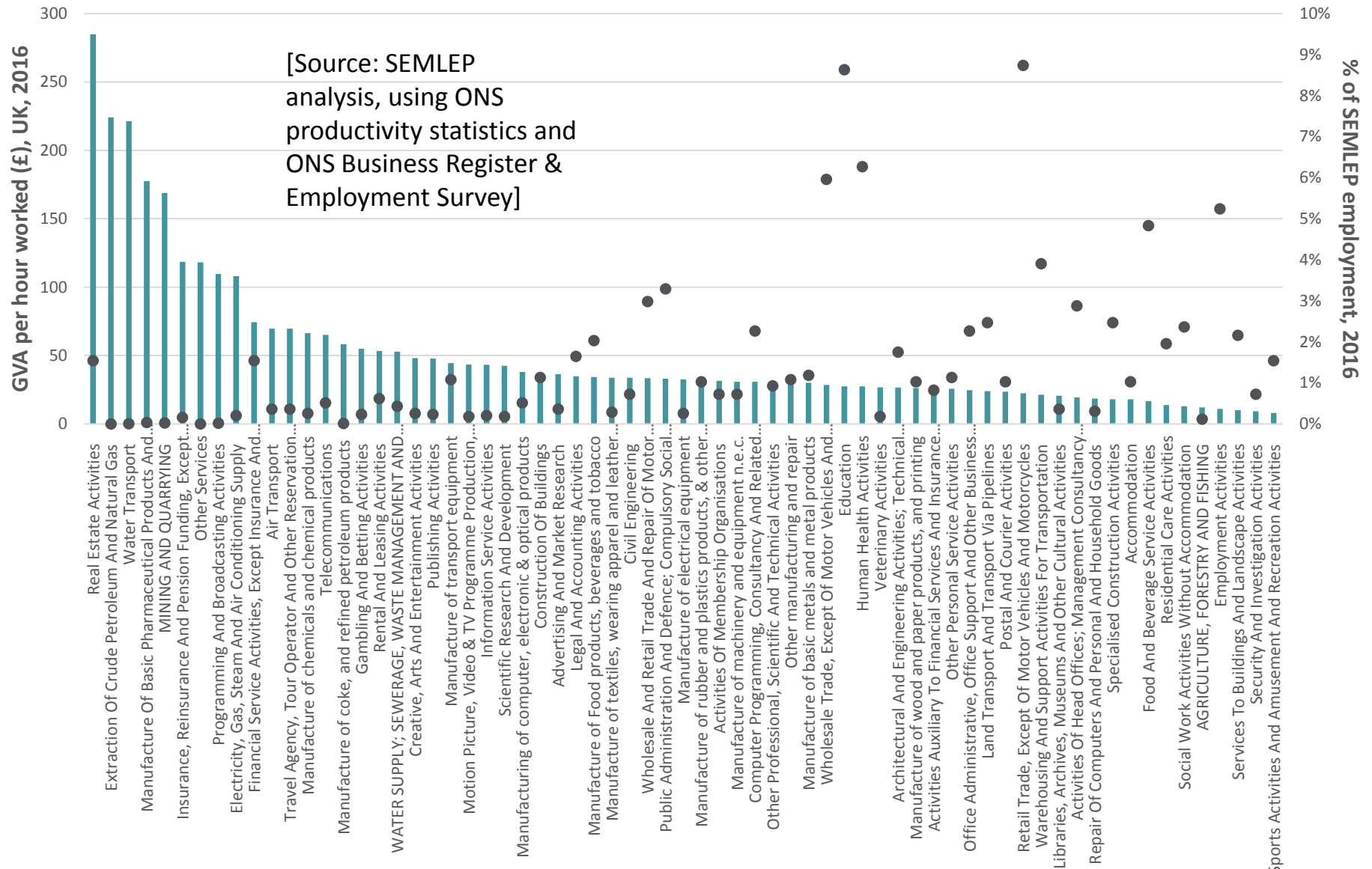
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[Source: SEMLEP analysis, using ONS sub-regional productivity statistics and ONS Business Register & Employment Survey]



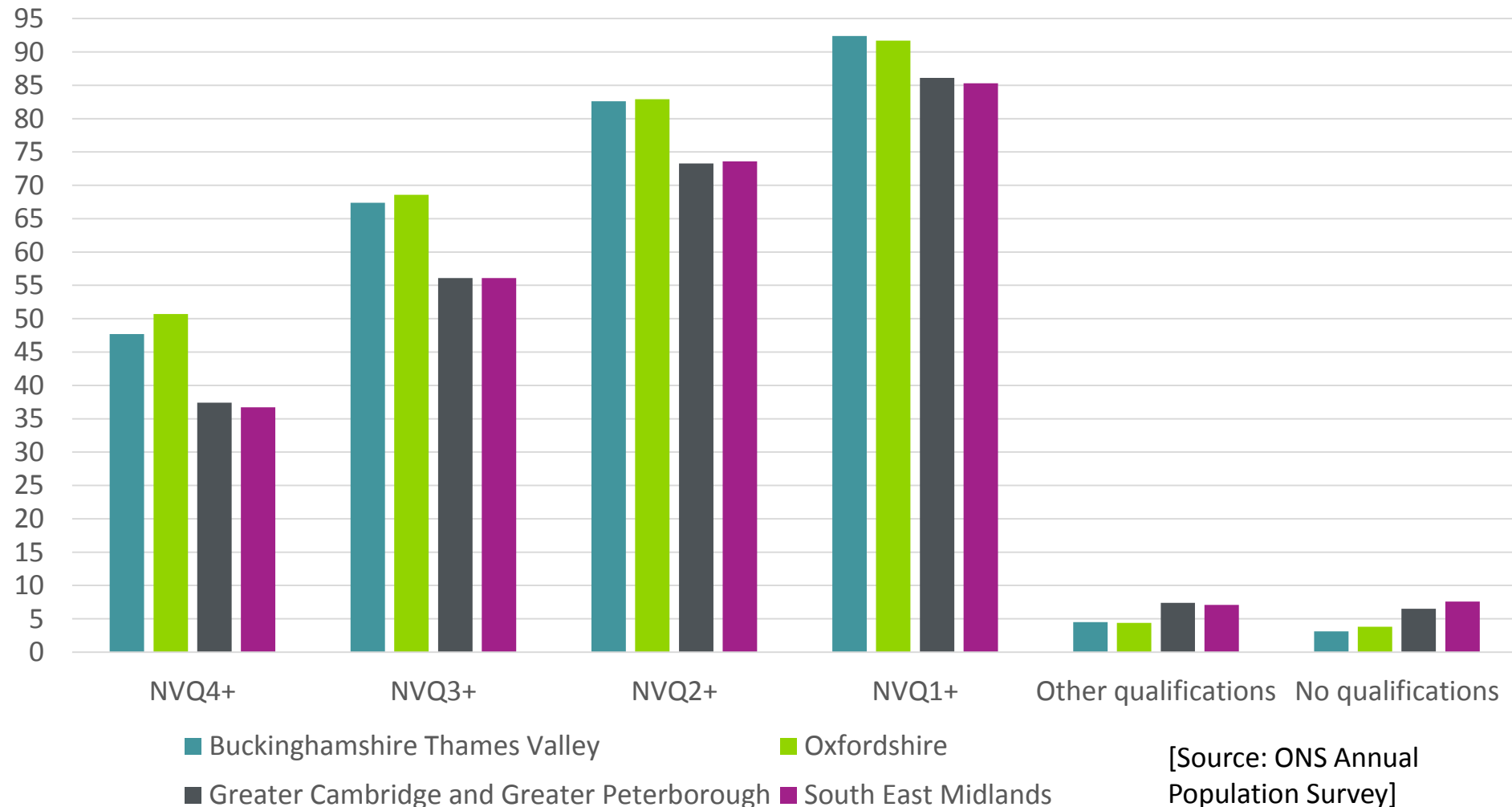
While lower-productivity sectors include Logistics sub-sectors and Food & Drink service activities

UK Productivity vis-a-vis SEMLEP Employment, by Industrial Sector, 2016



Qualifications in SEMLEP are in line with GCGRP but below those of Oxfordshire and Buckinghamshire...

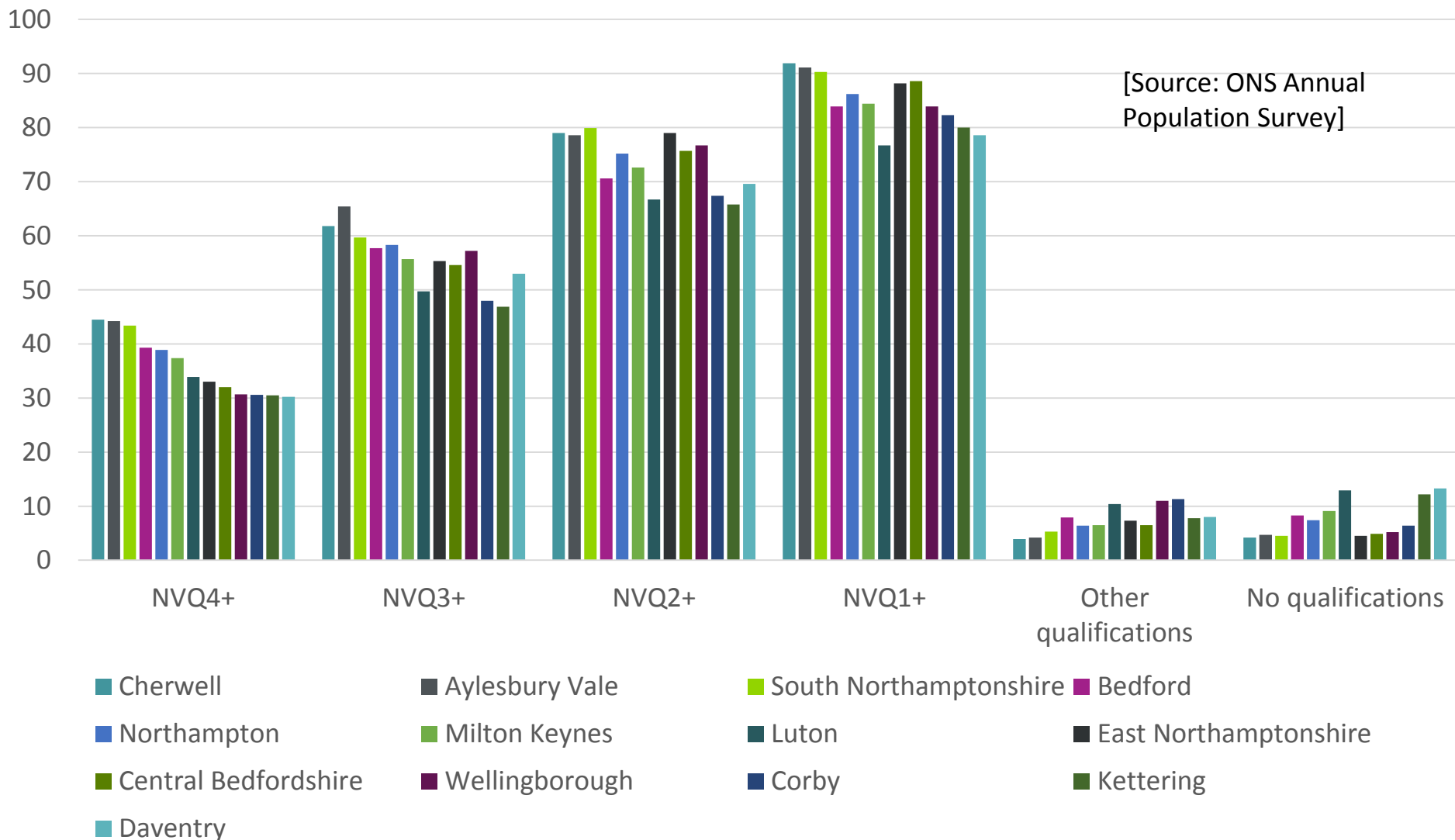
Qualifications of those aged 16-64 across the Corridor, 2017 (%)



...although this masks considerable variation within the SEMLEP area

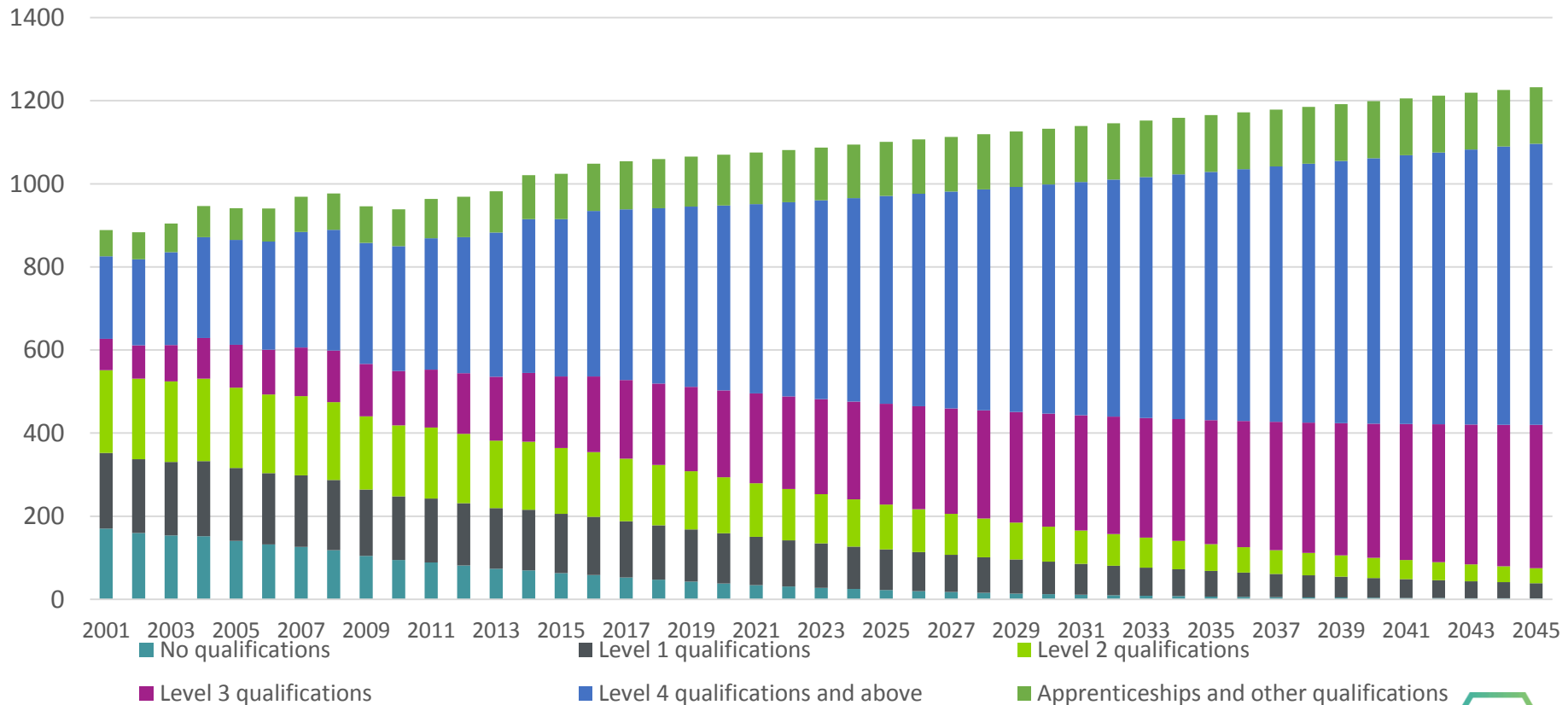
Qualifications of those aged 16-64 in the SEMLEP area, 2017 (%)

[Source: ONS Annual Population Survey]



And baseline forecasts suggest that higher qualifications will become more dominant in the workforce, with all workers having a qualification by 2038

Qualifications and skill structure of the workforce (000s) for SEMLEP area



SEMLEP

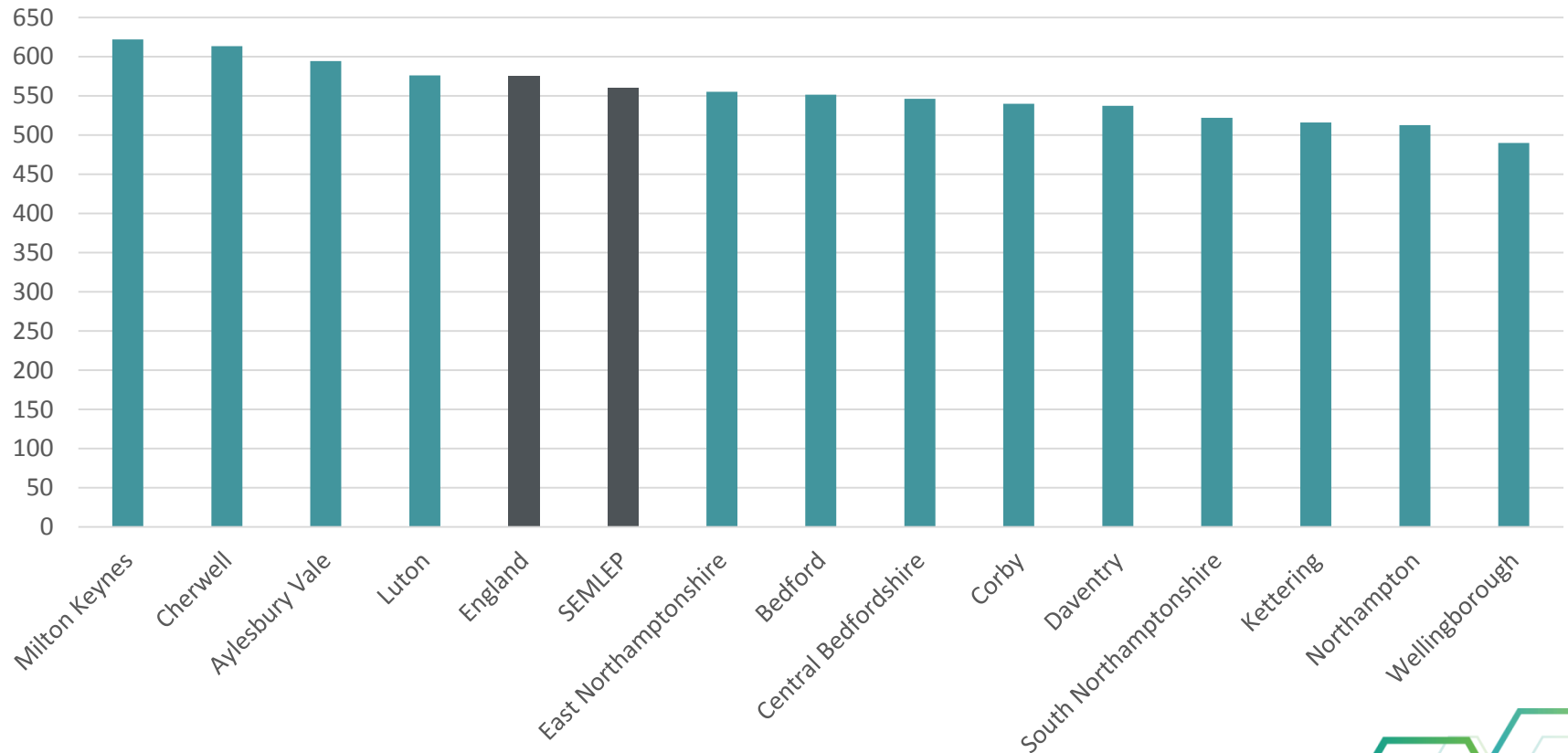
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[Source: Cambridge Econometrics, EEFM Skills 2017]

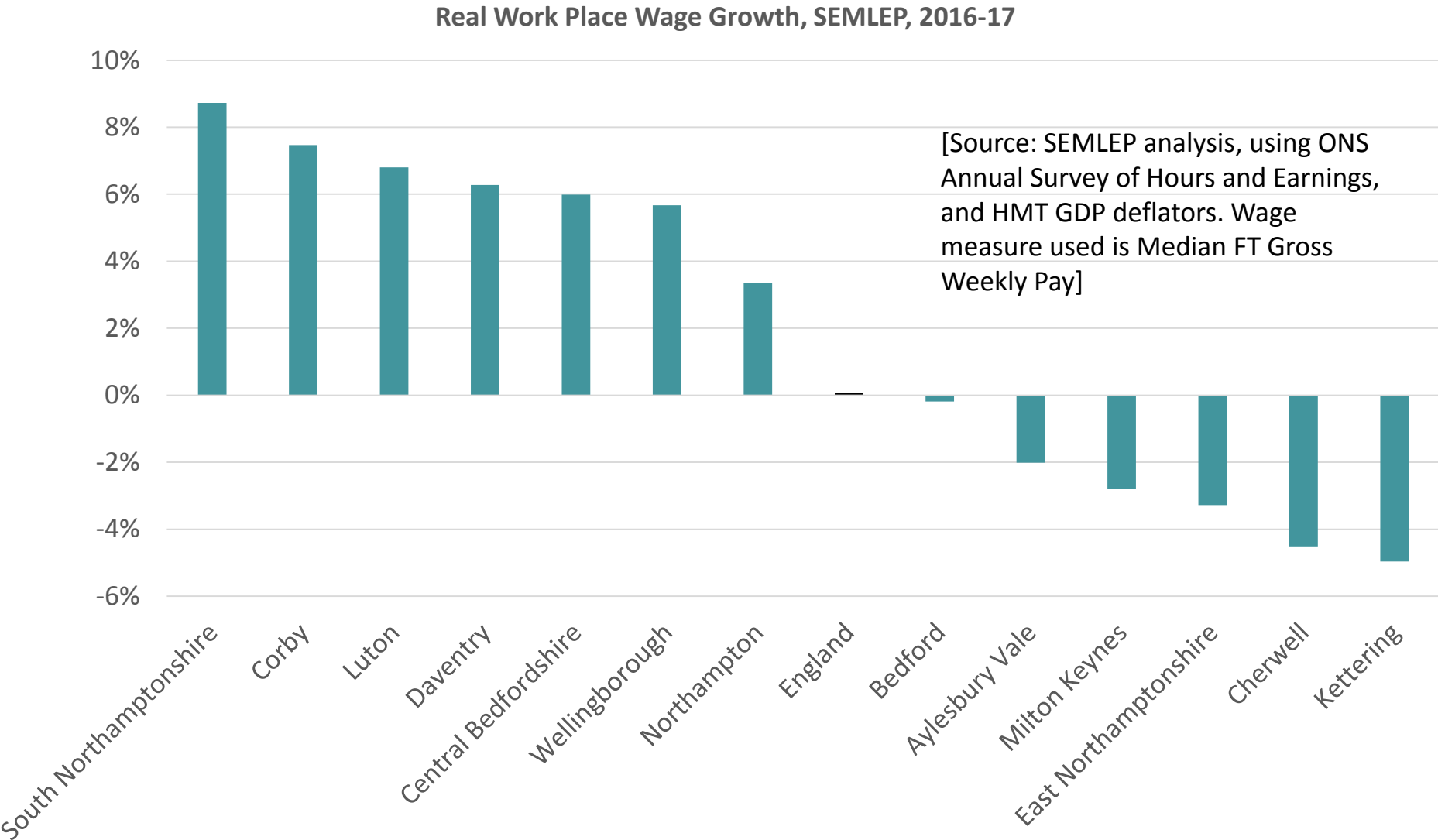


Only four local authorities in the SEMLEP area have higher work place wages than the England average, with earnings in the SEMLEP area being below the average for England...

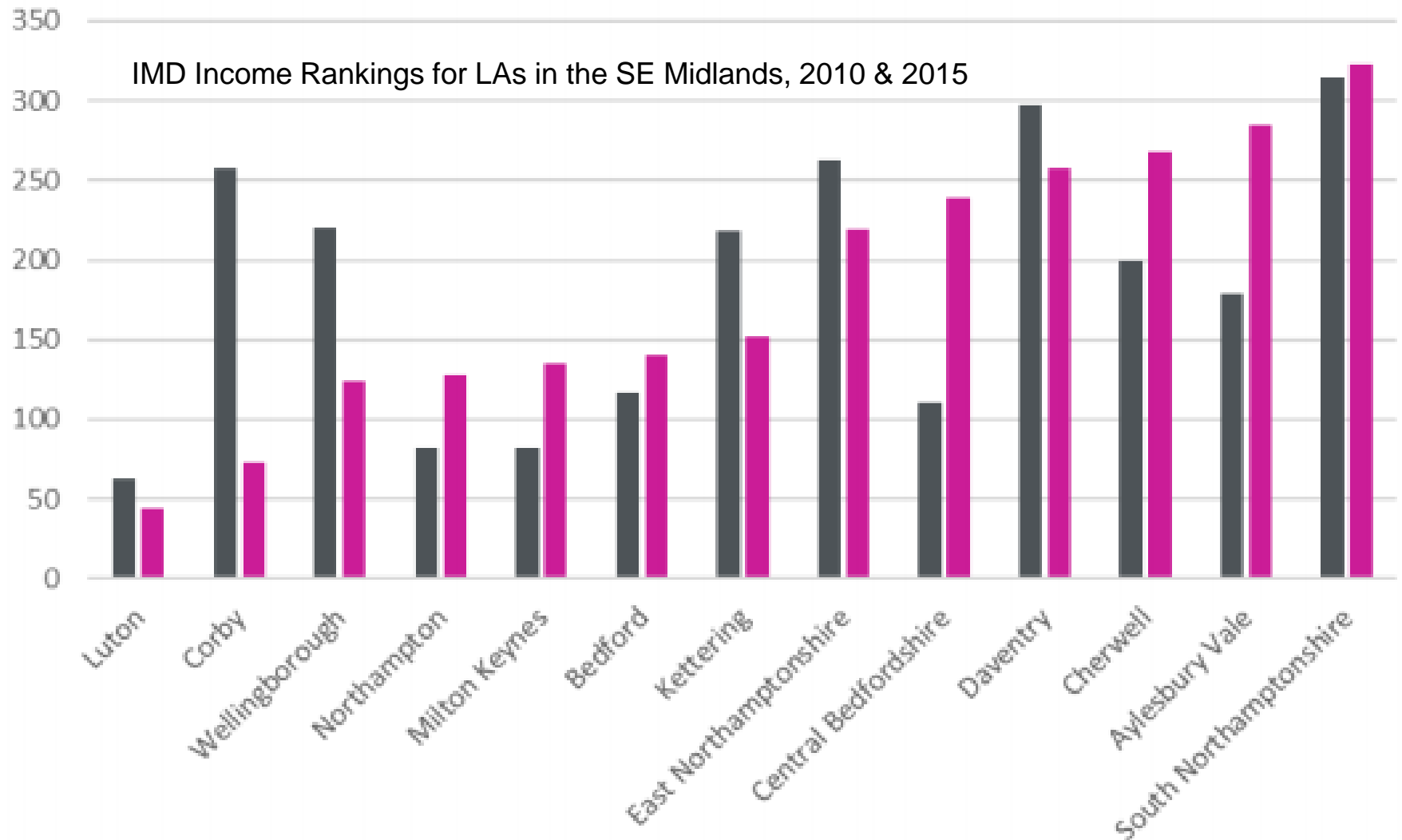
Gross weekly pay – FT workers, workplace analysis 2018 (£)



...but recent real wage growth in much of the SEMLEP area has outstripped that of England



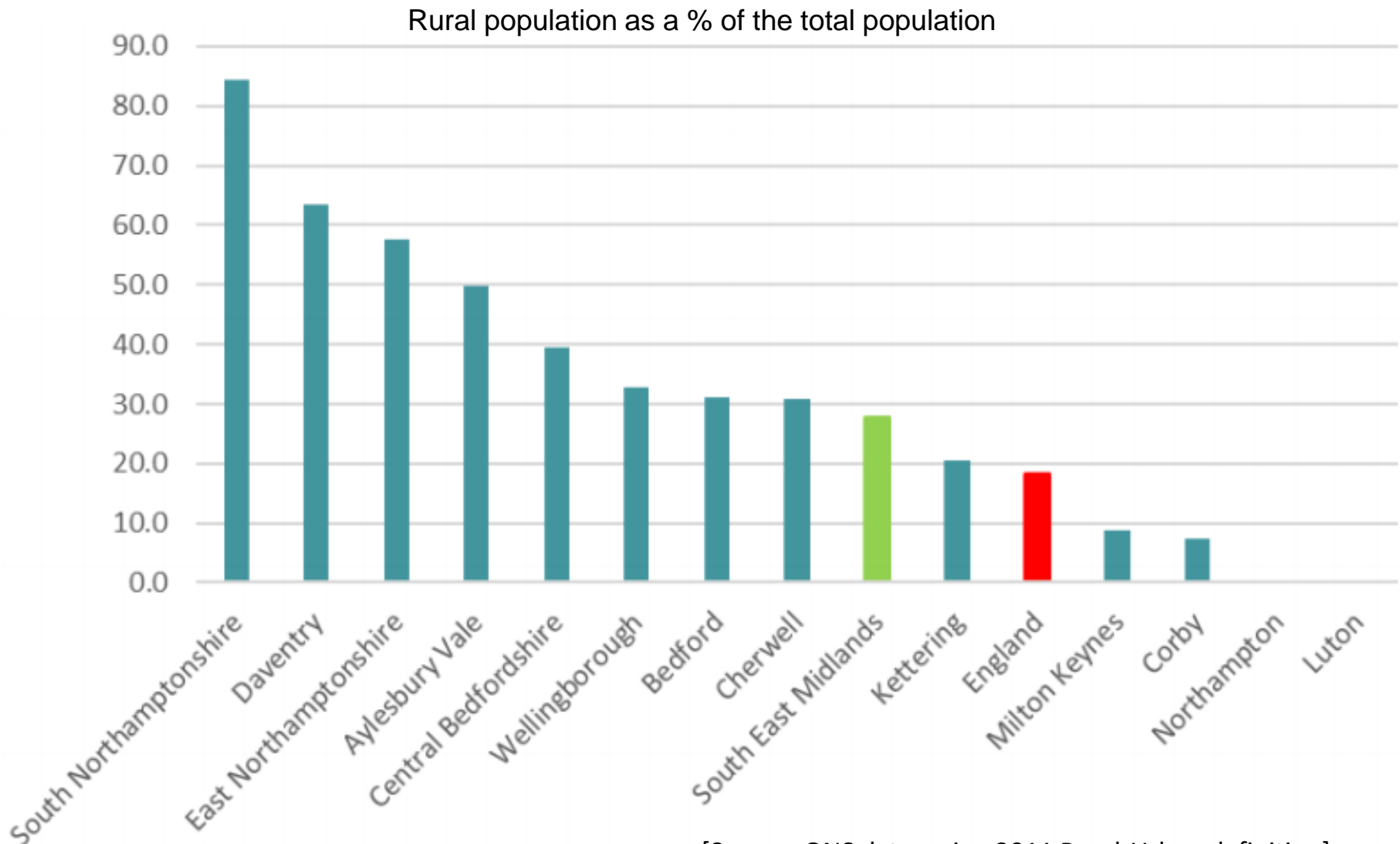
The SEMLEP area has pockets of relative deprivation...



[1=most deprived LA; 326=least deprived LA]

[Source: Indices of Deprivation, 2010 & 2015]

...and is very varied in terms of the urban-rural split



[Source: ONS data, using 2011 Rural-Urban definition]

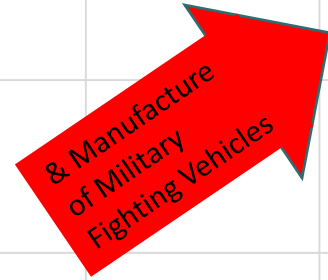
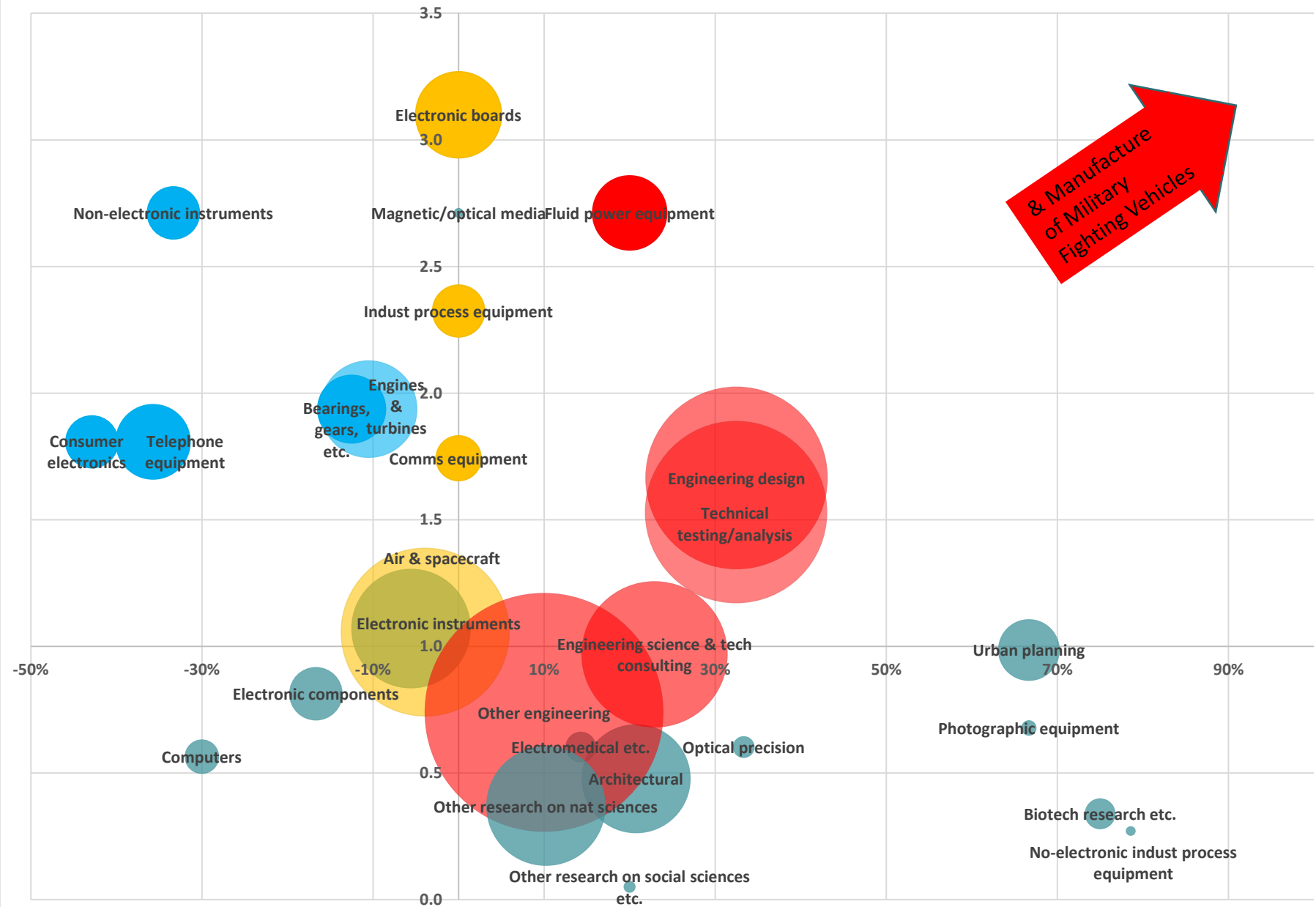


SEMLEP: Key Sectors & Sub-Sectors

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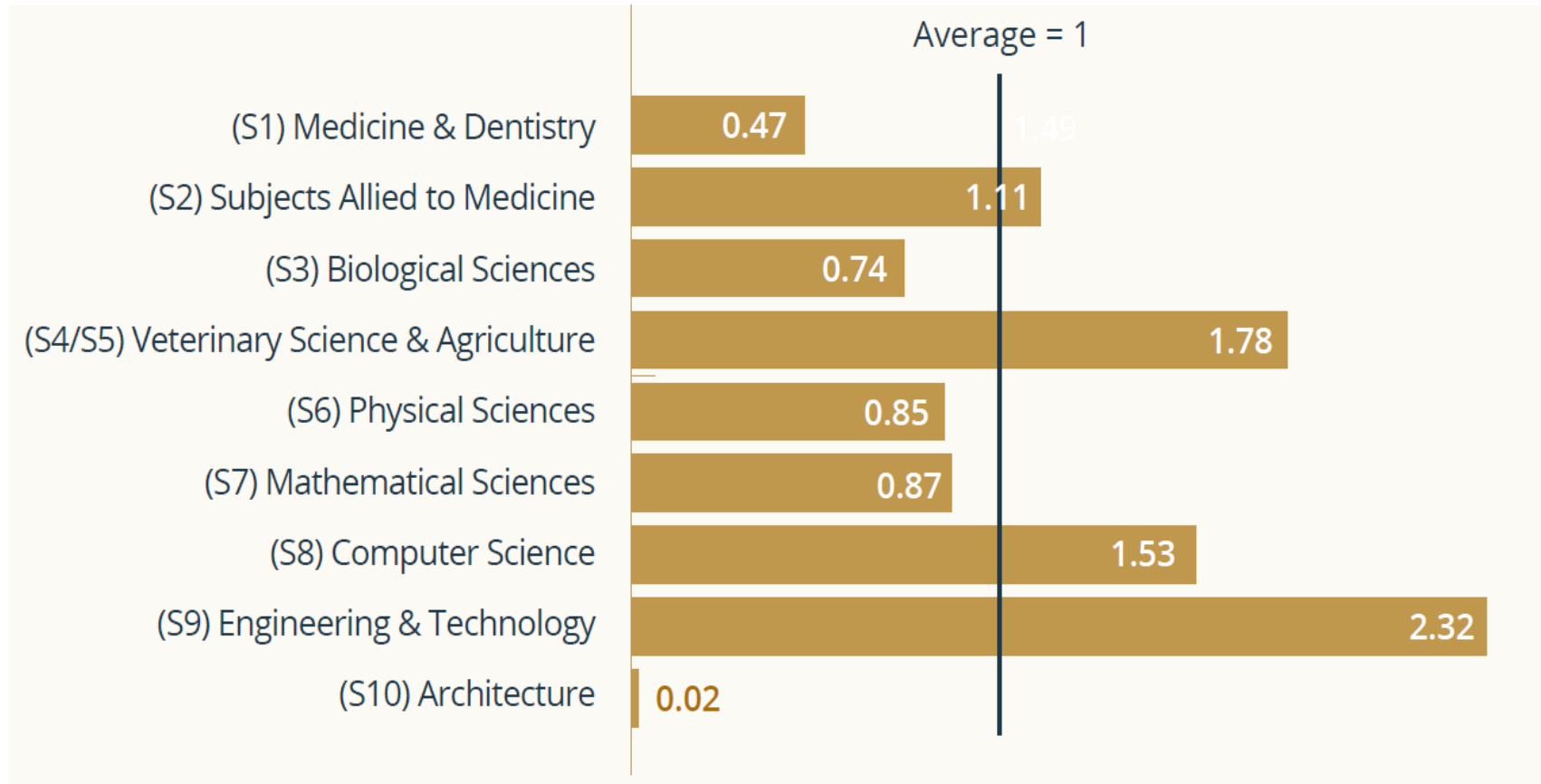
High Tech Capabilities: Key Sub-Sectors in the SEMLEP area



[Source: SEMLEP analysis, using ONS Business Register and Employment Survey: **x-axis** = national employment growth, 2009-15; **y-axis** = SEMLEP Location Quotient; **size of bubble** = quantity of employment in SEMLEP]

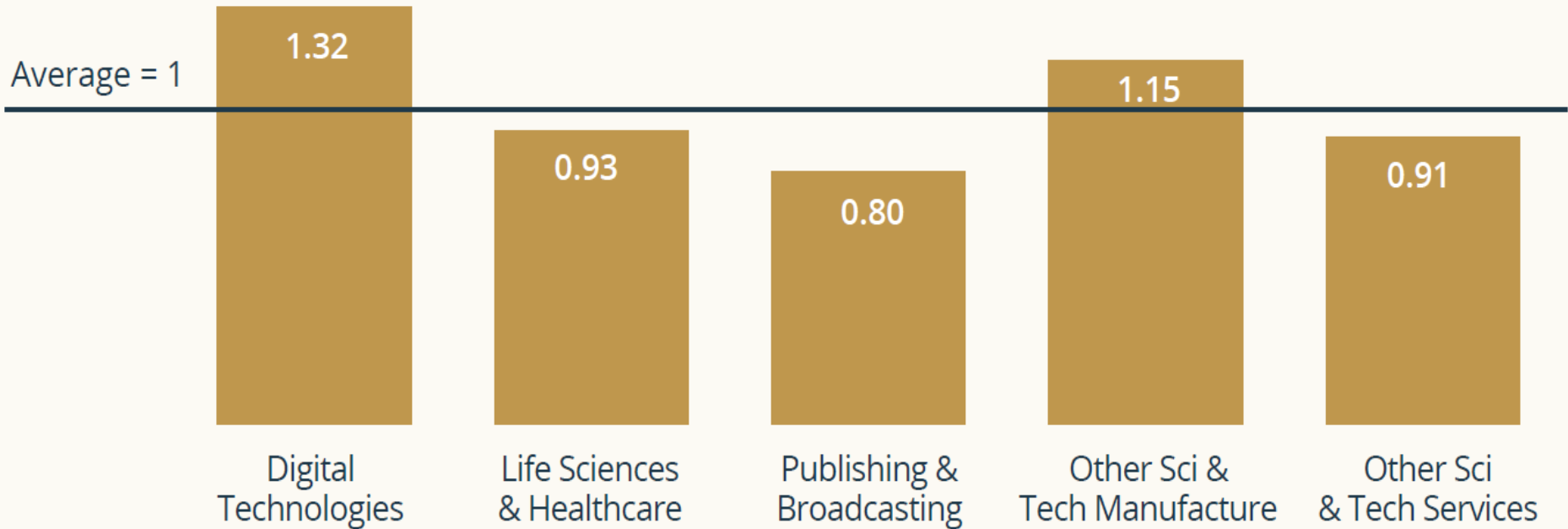
SEMLEP is a long way above the LEP average for Engineering & Technology and Computer Science research

Indicator of Staff Submitted for Involvement in Innovative Research Production to the Research Excellence Framework, SEMLEP vis-à-vis other LEPs



And has higher than average employment in Digital Technologies and Other Science & Technology Manufacture

Employment by Science & Technology Category
SEMLEP vis-à-vis other LEPs



The South East Midlands is a key player in the development of Connected and Autonomous Vehicles, and Next Generation Transport more broadly...



Multi-Use Environment
Autonomous Vehicle
Innovation (MUEAVI), Cranfield



Transport Systems Catapult,
Milton Keynes



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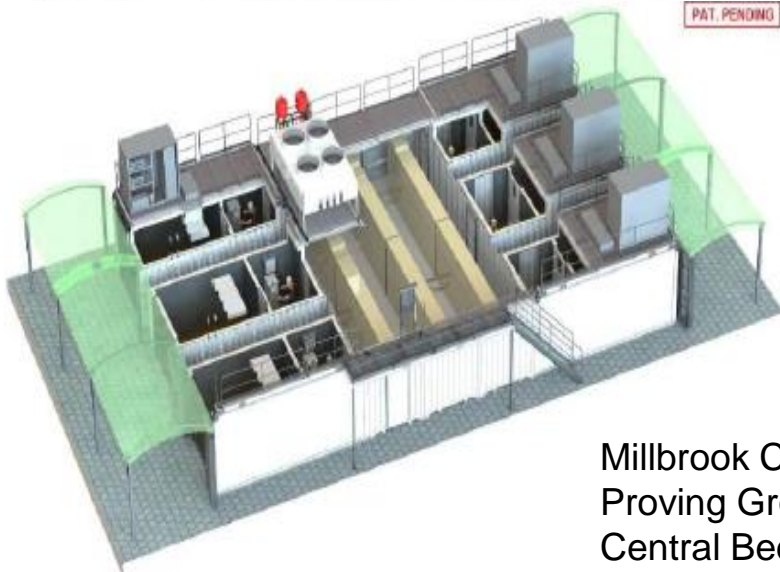
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...and is unique in the testing facilities that it provides



PAT. PENDING



Millbrook Central
Proving Ground,
Central Bedfordshire



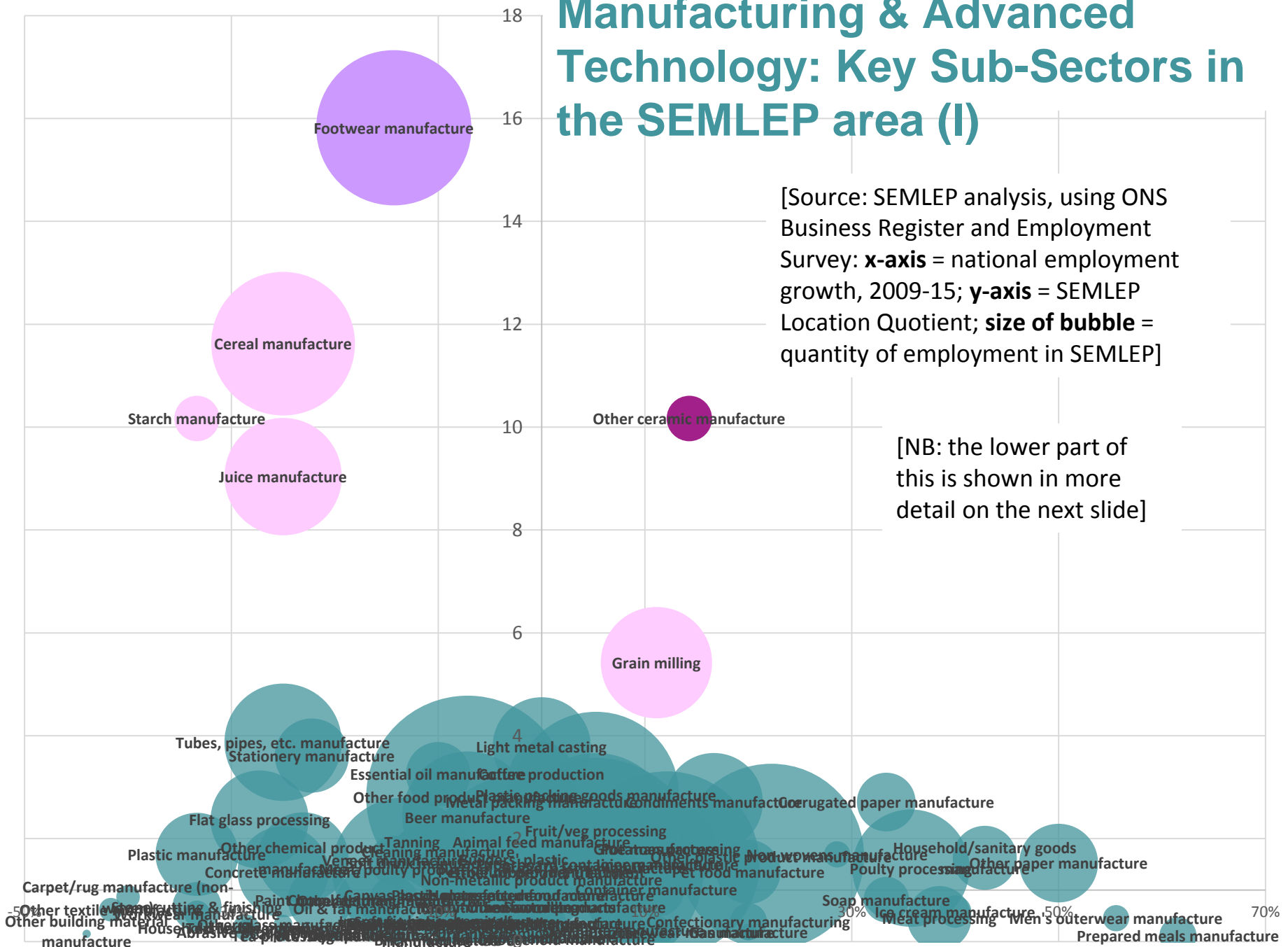
MAHLE Real Emissions Testing Centre,
Northampton



Manufacturing & Advanced Technology: Key Sub-Sectors in the SEMLEP area (I)

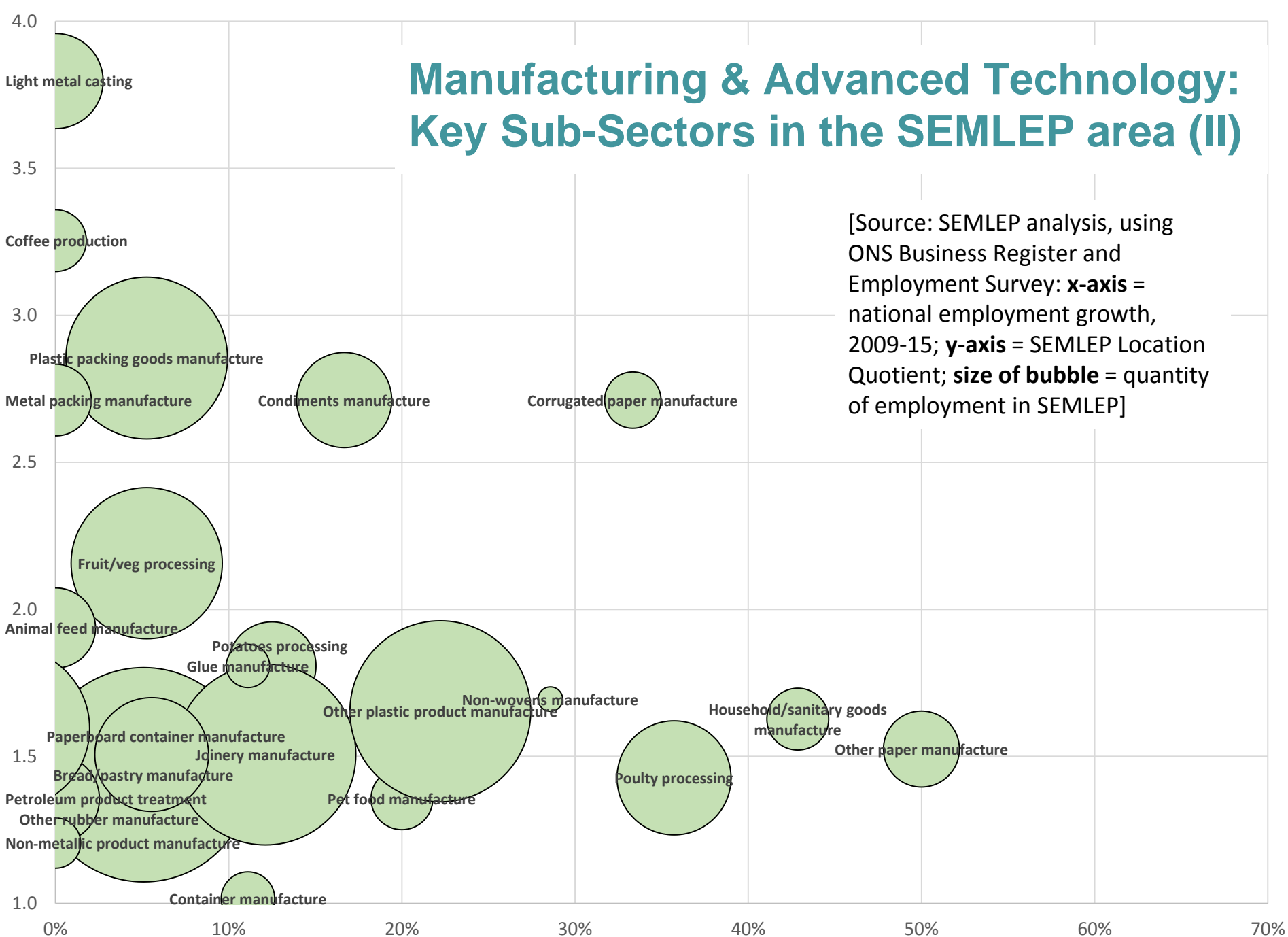
[Source: SEMLEP analysis, using ONS Business Register and Employment Survey: **x-axis** = national employment growth, 2009-15; **y-axis** = SEMLEP Location Quotient; **size of bubble** = quantity of employment in SEMLEP]

[NB: the lower part of this is shown in more detail on the next slide]



Manufacturing & Advanced Technology: Key Sub-Sectors in the SEMLEP area (II)

[Source: SEMLEP analysis, using
ONS Business Register and
Employment Survey: **x-axis** =
national employment growth,
2009-15; **y-axis** = SEMLEP Location
Quotient; **size of bubble** = quantity
of employment in SEMLEP]



The SEMLEP area has a number of Food & Drink Innovation Assets...

- ▶ **Cranfield University:** research specialities include shelf life, mycology, post-harvest technology, contamination, nutrition and microbiology.
- ▶ **Colworth Park:** home to Unilever's Global Development Centre and R&D
- ▶ **Moulton College:** Food & Drink Innovation Centre (supported by SEMLEP through £3.5m of LGF funding): up-to-date facilities and technology to deliver high quality skills development.
- ▶ **Aylesbury Woodlands:** site of the Aylesbury Vale Enterprise Zone, specialising in agri-food and human health.



Moulton College Food & Drink Innovation Centre

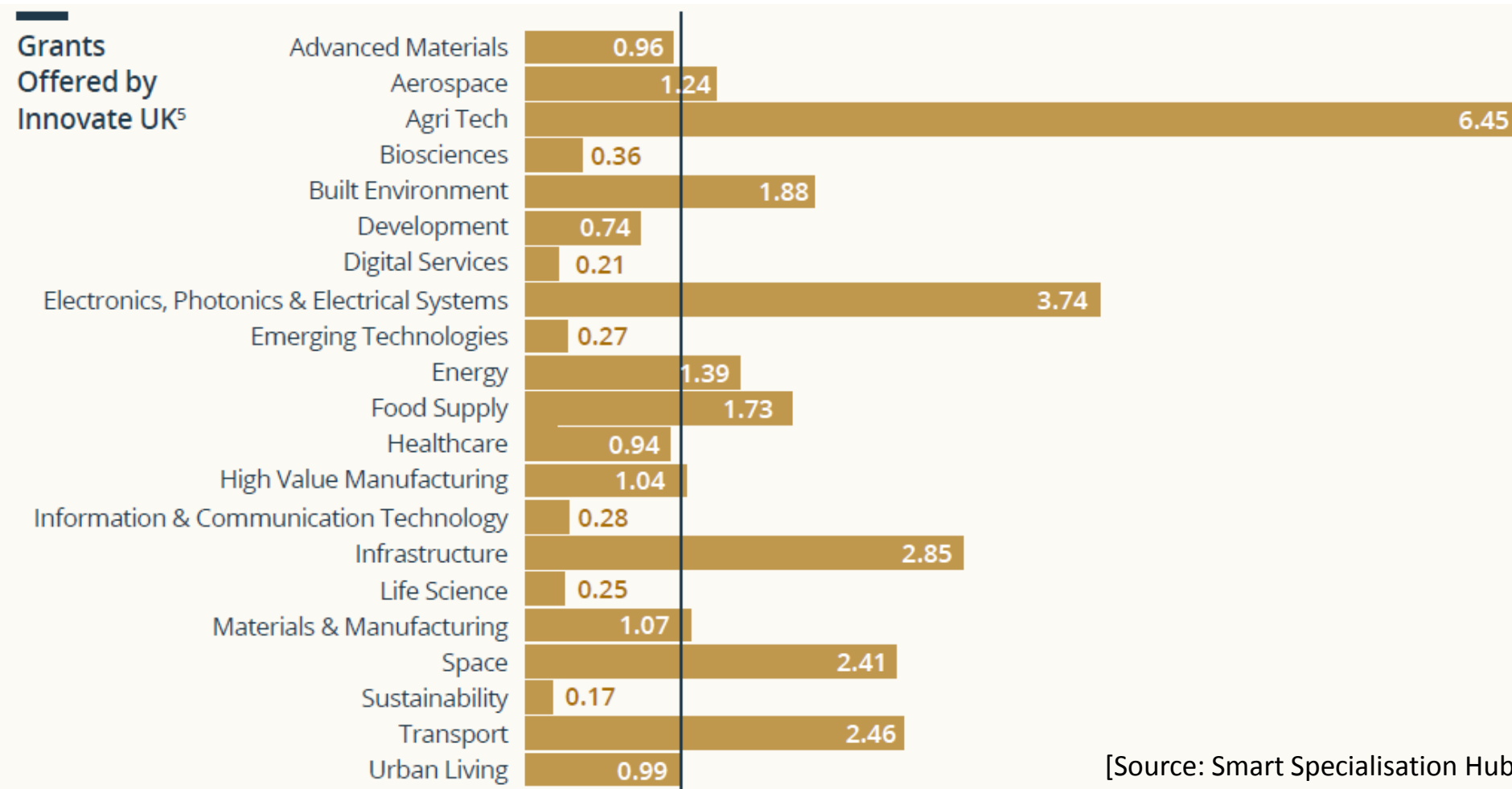
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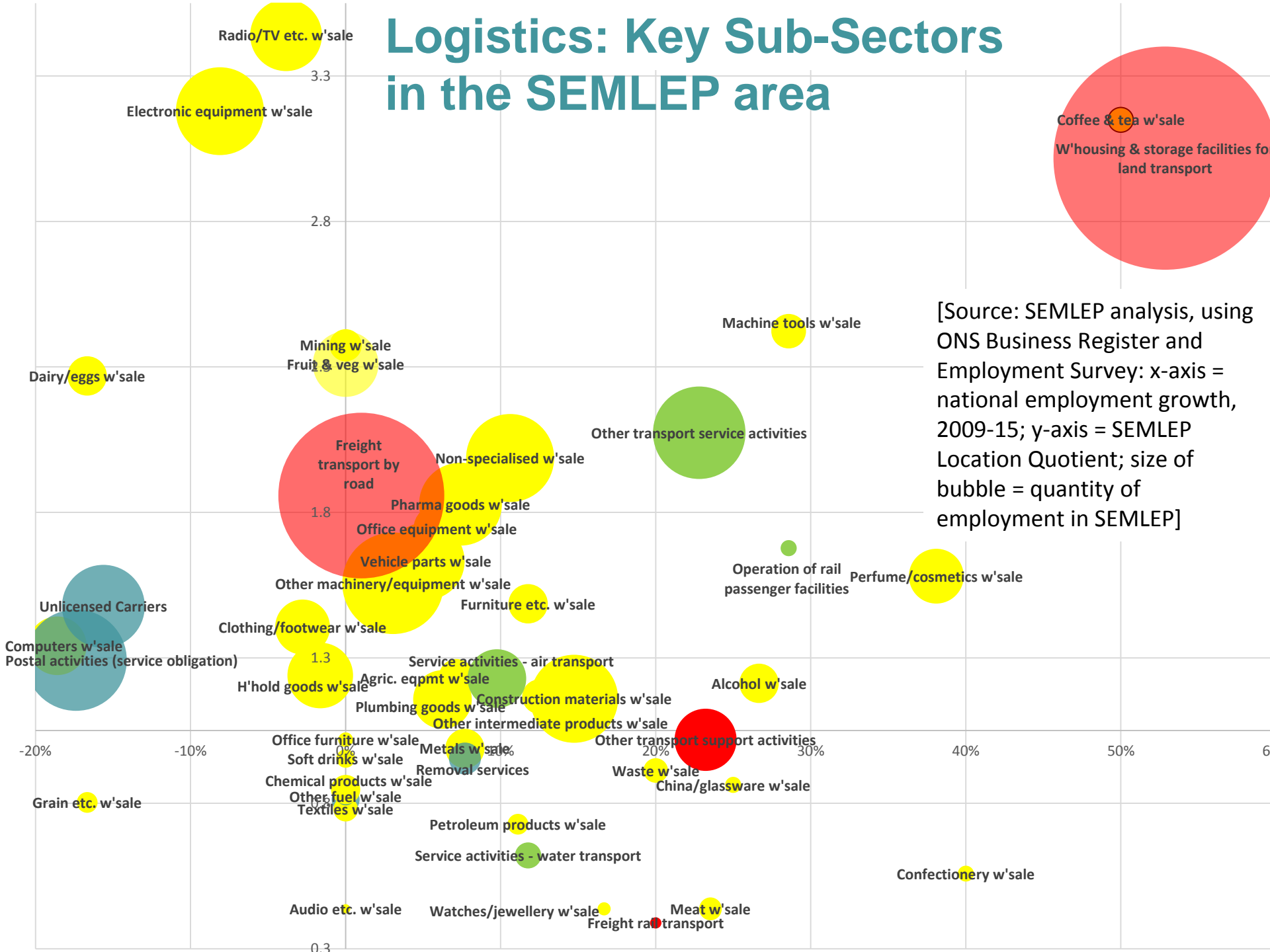
...and specialism within the Agri-Tech sector

Grants offered by Innovate UK: SEMLEP vis-à-vis other LEPs (Average=1)



[Source: Smart Specialisation Hub
LEP Profiles. Mar 2014-18 period.]

Logistics: Key Sub-Sectors in the SEMLEP area



The Logistics sector is not as innovative as other parts of the SEMLEP economy

	Total	Creative and Cultural Sector	High Performance Technology Sector	Logistics	Manufacturing and Advanced Technology
Number of interviews (unweighted)	2,359	358	125	217	73
	%	%	%	%	%
Introduced new products, services, patents or processes in the last 12 months	25	28	17	13	13
Expect to introduce new products, services, patents or processes in the next 12 months	31	36	17	15	20
Links with universities or colleges for research and development purposes	8	9	6	3	7

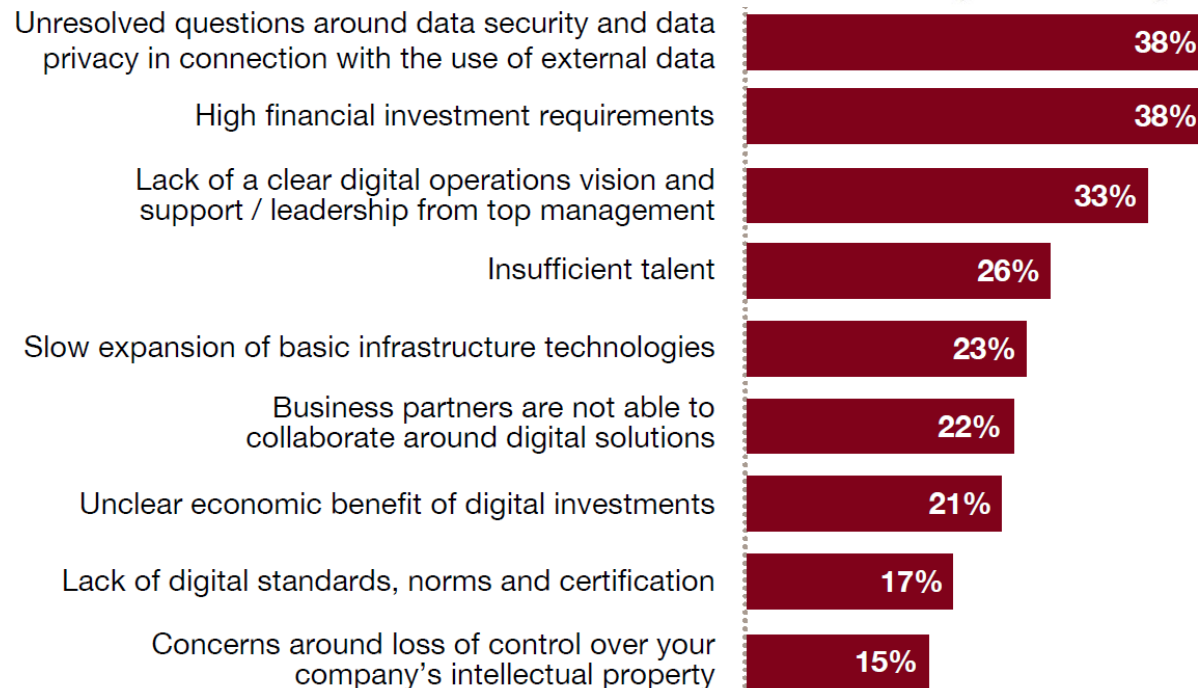
[Source: SEMLEP 2017 Business Survey]

At the national level, the Logistics sector is facing a major challenge from a lack of digital culture & training

Q: What are the biggest challenges or inhibitors for building digital operations capabilities in your company?

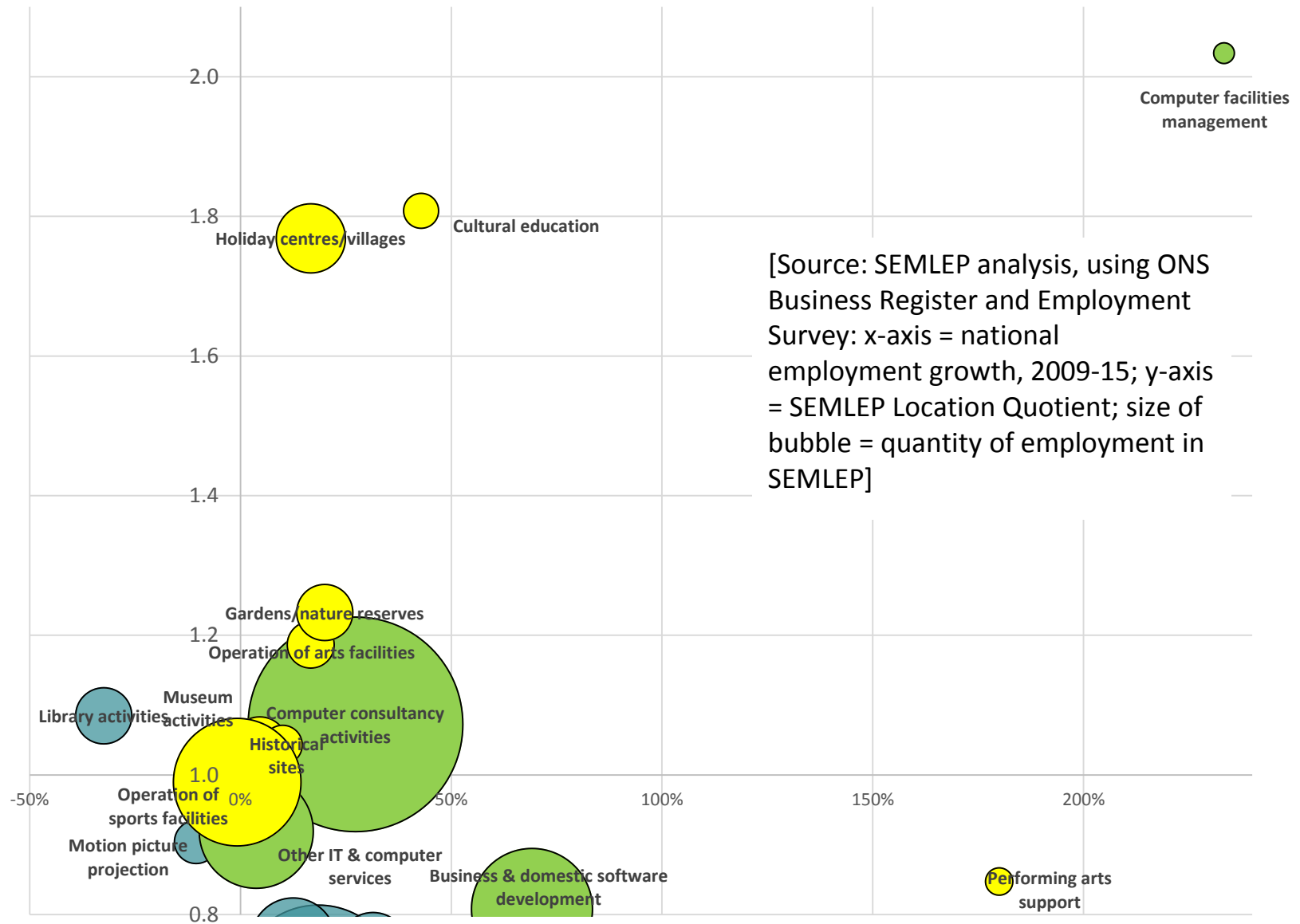


“The next few years will be critical: companies that don’t start soon [on investing in digital culture and training] risk being left behind permanently.”

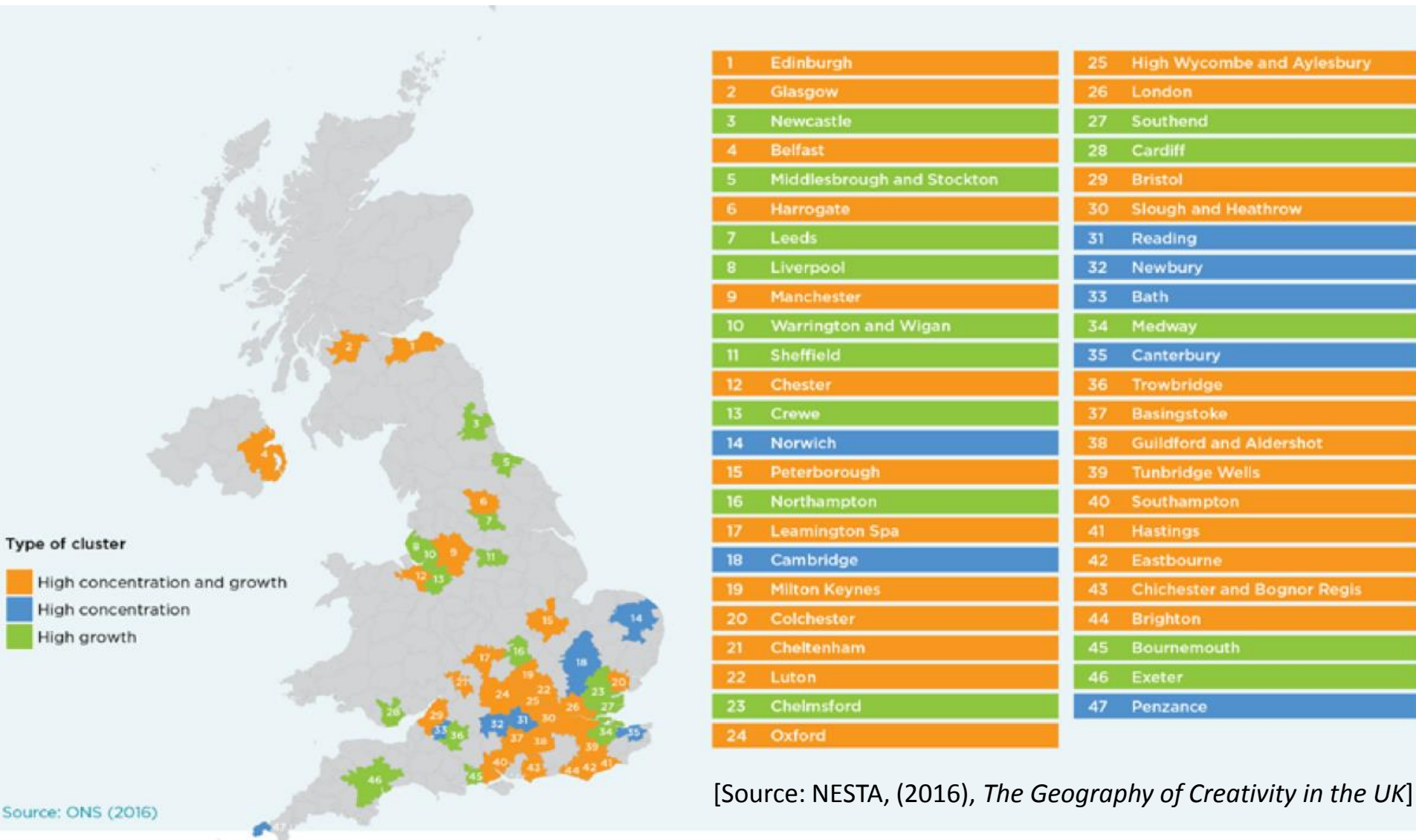


[Source: PwC, (2016), *Shifting Patterns: The Future of the Logistics Industry*]

Creative & Cultural: Key Sub-Sectors in the SEMLEP area

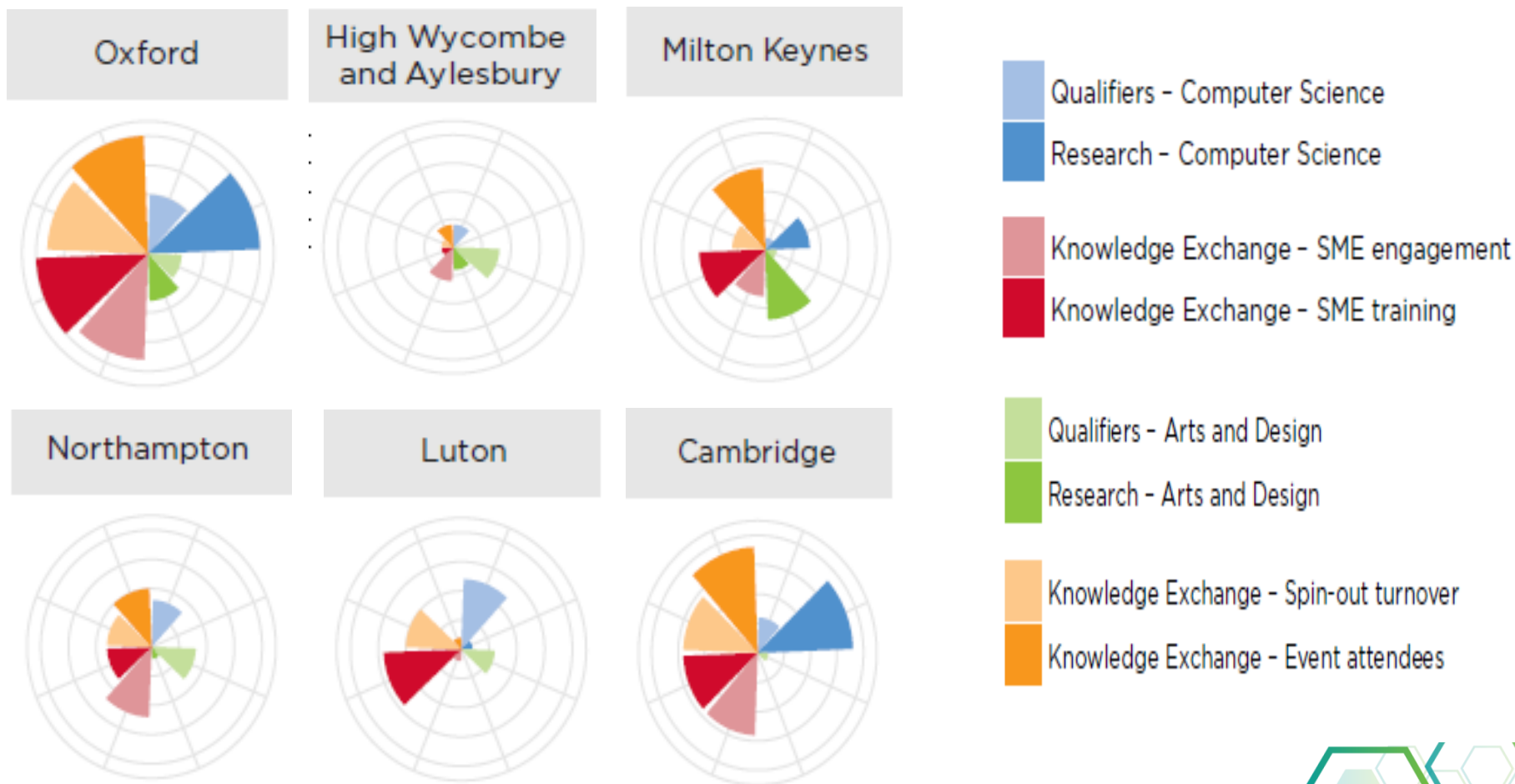


There are a number of Creative Clusters operating across the Growth Corridor



[Source: NESTA, (2016), *The Geography of Creativity in the UK*]

Across the Corridor, the SEMLEP area has relative strengths in computer science qualifications and arts & design

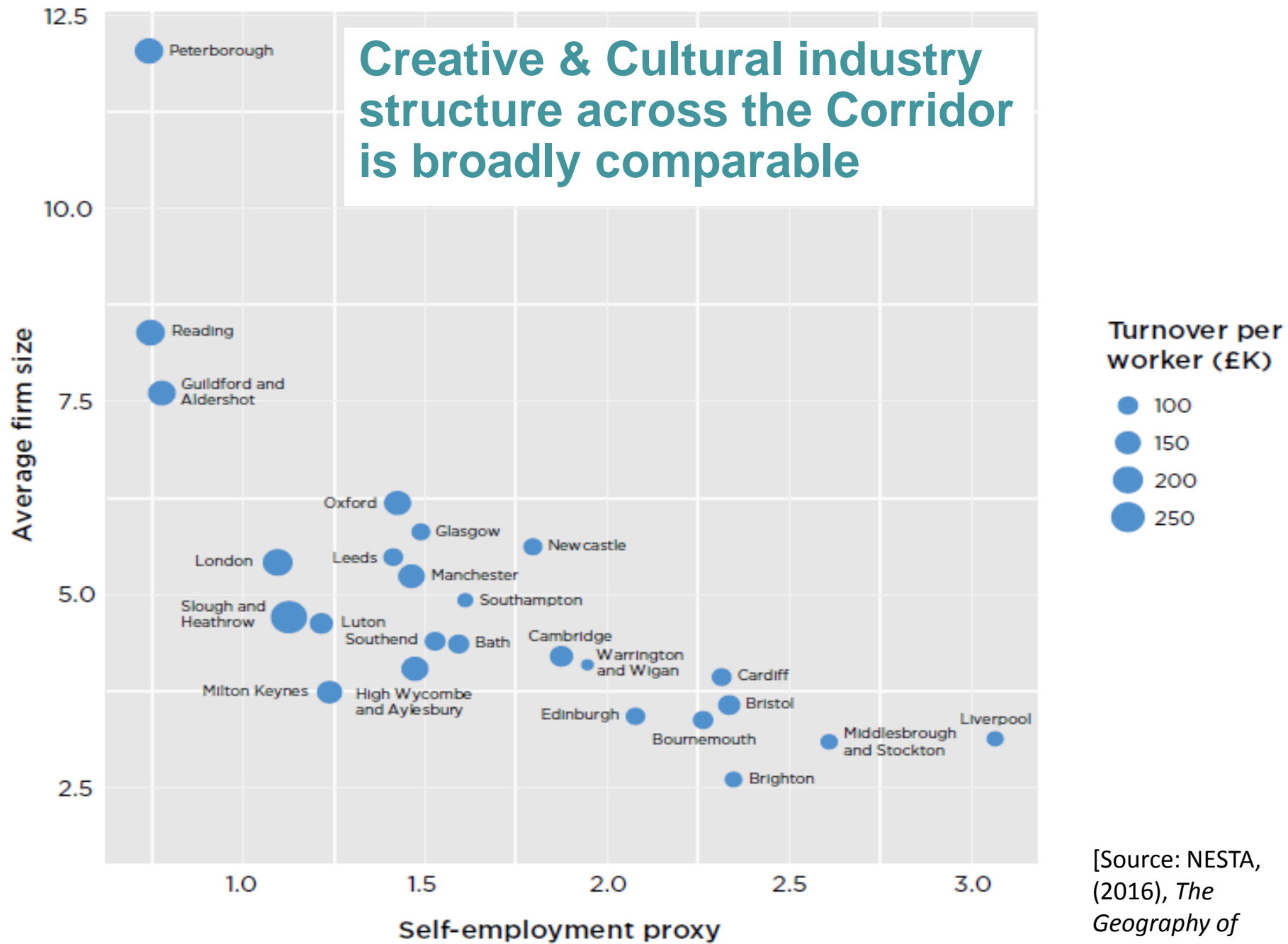


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[Source: NESTA, (2016), *The Geography of Creativity in the UK*]





[Source: NESTA, (2016), *The Geography of Creativity in the UK*]

There might also be more that could be done to foster greater networking and links within and between the scientific and creative industries

“The intersection between the digital world and the creative industries offers great potential, for example, and will depend on a workforce that is recalibrated to mix creativity with technical coding and programming skills, as well as knowledge of STEM subjects.”

The National Skills Academy for Creative and Cultural

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These various industrial strengths are reflected in the Foreign Direct Investment realised within SEMLEP in 2017/18

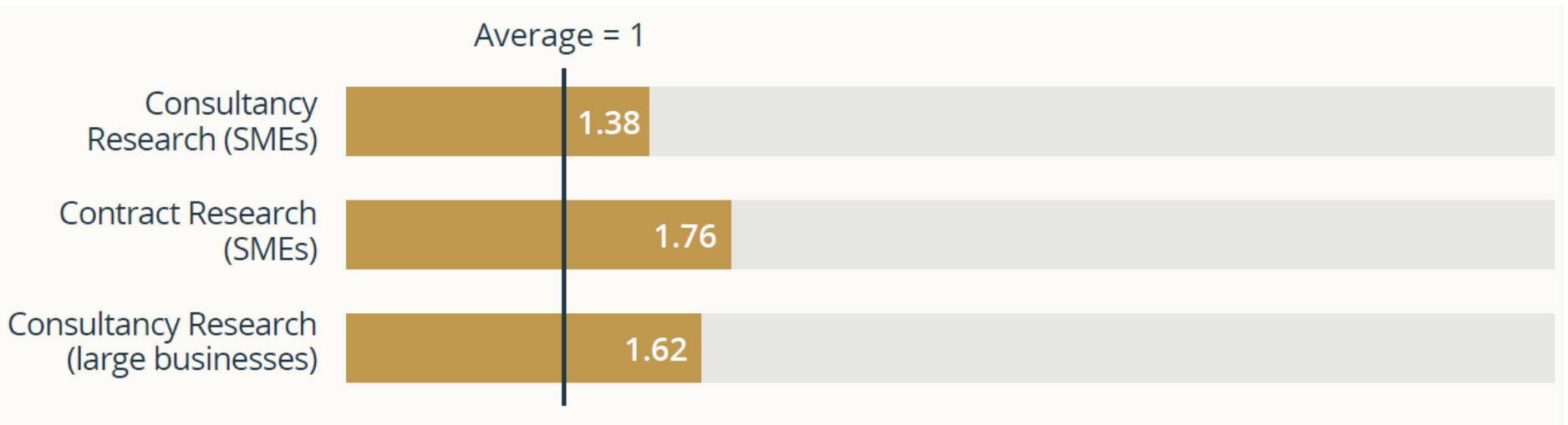
- ▶ 69 successful FDI projects in SEMLEP in 2017/18
- ▶ 2094 new jobs created and 896 jobs safeguarded
- ▶ Plus 7 'multi-region' FDI projects

Key Sectors	Project #s
Electronics and communications	8
Automotive	7
Software and computer services	6
Food and drink	5



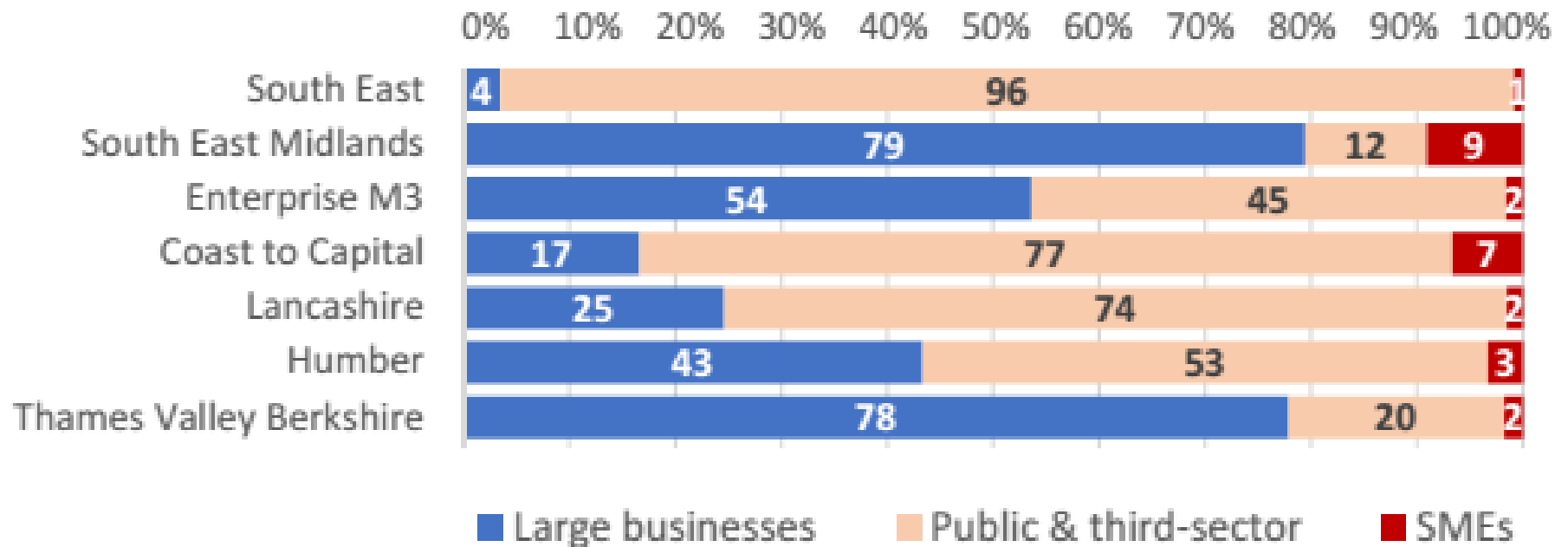
The SEMLEP area compares favourably with other LEPs on interactions between HE Institutions and Business

Interaction between HE Institutions and Business,
SEMLEP vis-à-vis other LEPs



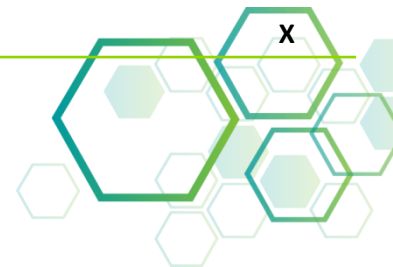
However, there is still room for improvement, particularly in terms of interaction between HE Institutions and SMEs

Contract Research – annual average 2010/11-2012/13 – % split in income: ‘large businesses’, ‘public & third sector’ and SMEs



Research groups in the area specialise in innovation in Manufacturing, Engineering, Transport and Energy technology...

Name	Location	Advanced Manufacturing and Engineering	Agri-food and Drink Manufacturing and Production	Creative Design and Digital Sector	Energy and Low Carbon Technology	Healthcare Life Sciences and Translational Medicine	Transport Technology
British Hydromechanics Research Group	Central Bedfordshire	X					
Buckingham Institute for Translational Medicine, University of Buckingham	Aylesbury Vale					X	
Centre of Excellence for Telehealth and Assisted Living	Aylesbury Vale	X					
Engineering Materials Laboratory, Open University	Milton Keynes						
EPSRC CDT in Sustainable Materials and Manufacturing, Universities of Warwick and Cranfield	Multi-site	X					
EPSRC CDT in Engineering for the Water Sector, Cranfield University	Central Bedfordshire				X		
EPSRC CDT in Renewable Energy Marine Structures, Cranfield University	Central Bedfordshire				X		
Space Research Centre, University of Cranfield	Central Bedfordshire						X
Tech Mahindra	Milton Keynes				X		
Transport Systems Catapult	Milton Keynes						X



...while industrial R&D assets are also strong in the Agri-tech and Creative industries

Name	Location	Advanced Manufacturing and Engineering	Agri-food and Drink Manufacturing	Creative Design and Digital Sector	Energy and Low Carbon Technology	Healthcare Life Sciences and Translational Medicine	Transport Technology
Astra Zeneca	Luton					X	
Axillium Research	Daventry						X
Blue Bear	Bedford						X
Chartered Institution of Wastes Management	Northampton				X		
Clear Communication Associates	Milton Keynes			X			
Cosworth	Northampton						X
Cummins	Wellingborough				X		
Mercedes AMG Petronas F1 Team	South Northamptonshire						X
Motor Neurone Disease Association	Northampton					X	
Nissan Technical Centre	Central Bedfordshire	X					
Oxford Medical Diagnostics	Cherwell					X	
Prodrive	Milton Keynes	X					
Reaction Engines	Aylesbury Vale	X					
RPC Bebo	Corby		X				
Schueco	Milton Keynes				X		
Silverstone cluster	South Northamptonshire						X
Technical Software Consulting	Milton Keynes			X			
Unilever	Bedford		X				



The SEMLEP area faces global competition in some of its 'showcase sectors' (I)

Automotive Sector

- **California** based firm Tesla is at the forefront of innovation in electric and connected/semi-autonomous vehicles.
- Autonomous taxis are already being trialled in **Singapore**.
- Analysis suggests that by 2021, nearly 3 million cars will be built yearly in the Middle East and Africa (especially **Algeria, Nigeria, Egypt, and Iran**).

Food and Drink

- **Wageningen University Research:** the largest agri-food centre in Europe with 11,000 students, 8,500 staff and a budget of over £500m per annum. Wageningen is now ranked number 1 globally in the QS rankings (2016) for Agriculture and Forestry.



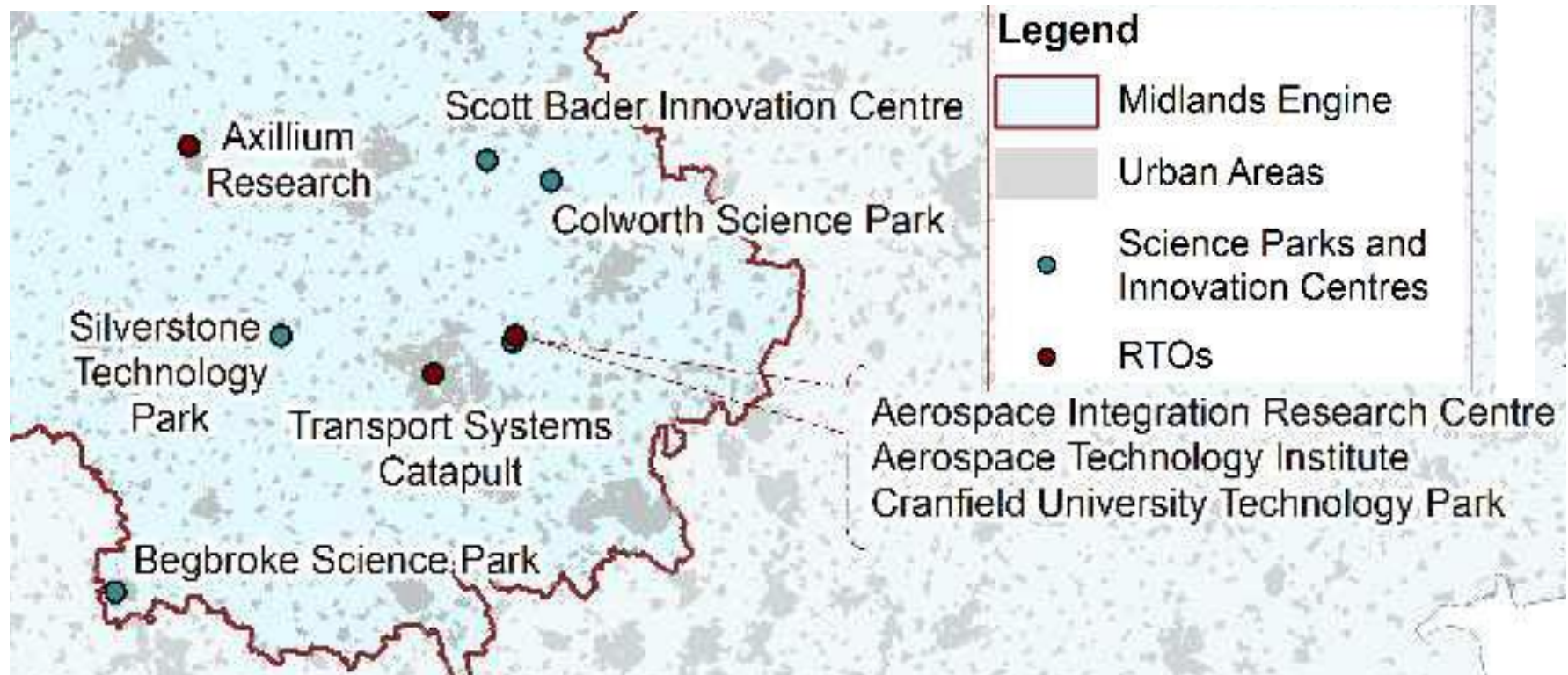
The SEMLEP area faces global competition in some of its 'showcase sectors' (II)

Aerospace Sector

- **US:** Washington state for Boeing, Ohio for GE Aviation, Connecticut for Pratt & Whitney
- **Germany:** Munich for MTU Aeroengines
- **France:** many locations for Safran Aero Engines
- **China:** announced the formation of its own integrated aero engine company, its HQ is in Beijing but it has many subsidiaries all over China.
- **Poland:** 'aviation valley' in Podkarpackie Voivodeship
- There are also emerging clusters in the **Middle East, India** and South-East Asia where **Singapore** in particular aims to attract aerospace projects with a similar profile to those the UK wants to attract (i.e. high technology R&D and advanced manufacturing).



The SEMLEP area has several Science parks, Innovation centres and Research and Technology Organisations to support further innovation



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[Source: The Midlands Engine Science & Innovation
Audit, BEIS (2016)]

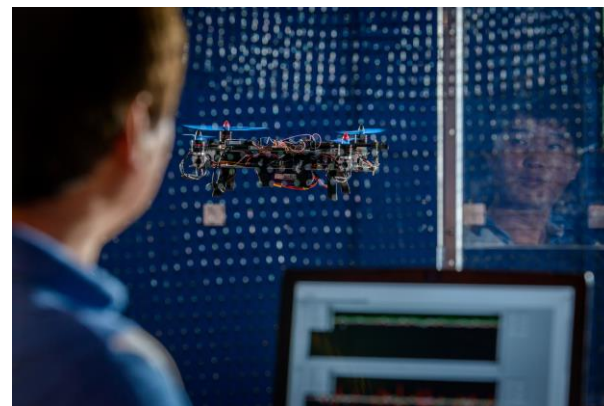


The area has significant HE strengths, which are nationally and internationally significant in some areas

Cranfield University has Partnered with BAE Systems to provide a world-leading Professorship in Autonomous Systems and Artificial Intelligence.

Professor Iain Gray, Director of Aerospace at Cranfield University, said:

“Underpinned by our global research airport, Cranfield has a suite of world-leading facilities that support our work in autonomous systems and artificial intelligence. This partnership ... will be critically important to the defence and aerospace sectors over the coming years.”



Cranfield University's UAV lab

University	Subject area	UK Power ranking	UK Quality ranking
Cranfield University	Aeronautical, Mechanical, Chemical and Manufacturing Engineering	2	8
Open University	Earth Systems and Environmental Sciences	6	-

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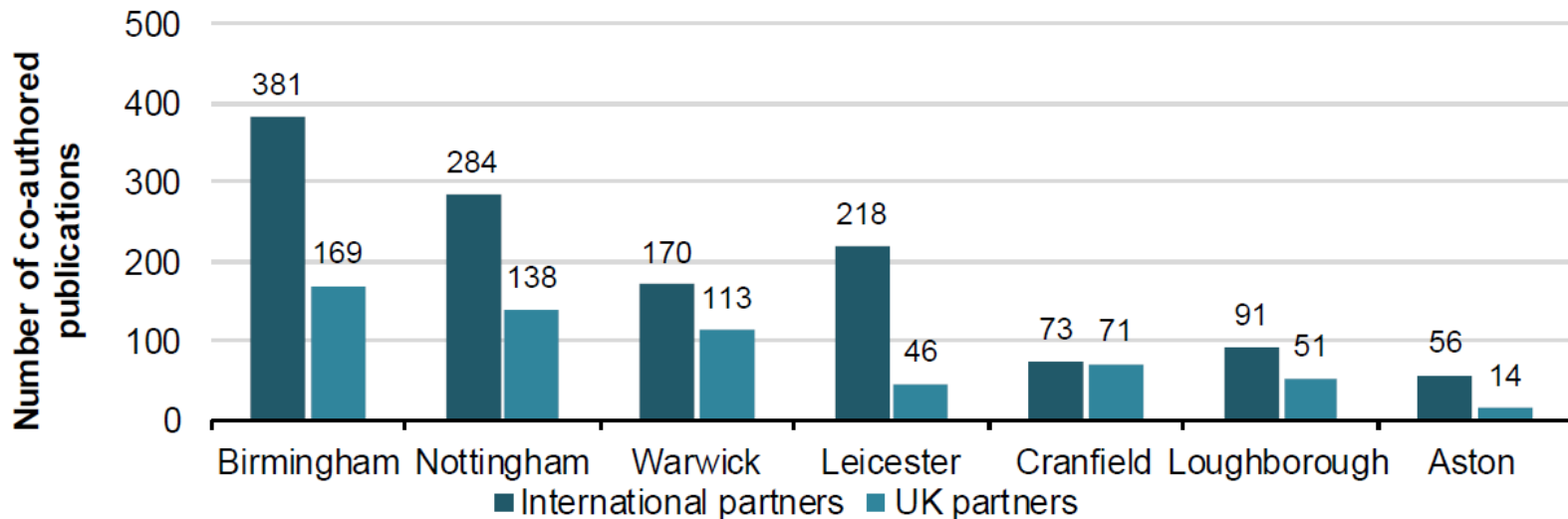
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[Source: Cranfield University, 2018 & The Midlands Engine Science & Innovation Audit Annexes, BEIS (2016)]



Cranfield University has performed well in terms of collaborating with industry, both locally and internationally, despite being smaller than other Midlands HE institutions.

Co-authored publications with industry for the 'Midlands Innovation' universities and Cranfield University (2013-2015)



- Cranfield University **produced 144 co-authored publications with industry**, more than half of which were international, more than Loughborough University (142).
- This is despite **Cranfield being less than a third the size** of Loughborough (in terms of students enrolled).



And universities in the SEMLEP area have had a good track record in collaborating with large businesses

Figure 6-2: Examples of collaborations leading to co-authored publications between firms and universities in the Midlands Engine (2013-15)

University	Rolls-Royce	AstraZeneca	Unilever	IBM	JLR
Aston University		✓	✓		✓
Birmingham City University	✓				
Coventry University				✓	✓
Cranfield University	✓		✓		✓
De Montfort University				✓	
Harper Adams University College	✓			✓	
Keele University		✓			
Loughborough University	✓	✓	✓	✓	✓
Nottingham Trent University		✓			
Open University Milton Keynes	✓			✓	
Staffordshire University				✓	
The University of Buckingham		✓			
University of Birmingham	✓	✓	✓	✓	✓
University of Derby	✓			✓	
University of Leicester	✓	✓	✓	✓	
University of Lincoln				✓	
University of Nottingham	✓	✓	✓	✓	✓
University of Warwick	✓	✓	✓	✓	✓





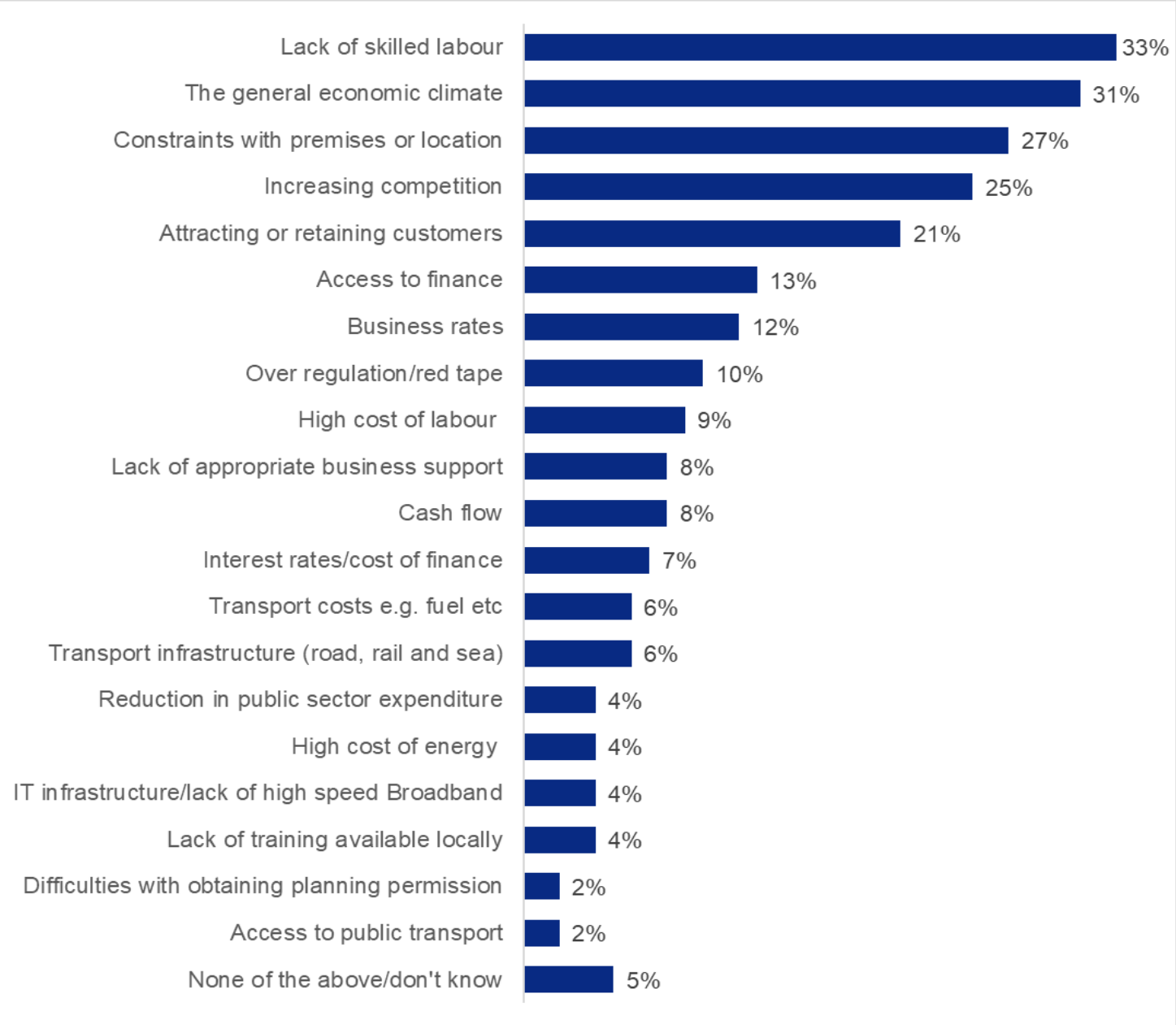
Current Business Constraints

Skills and Employment premises both act as significant constraints on local business growth

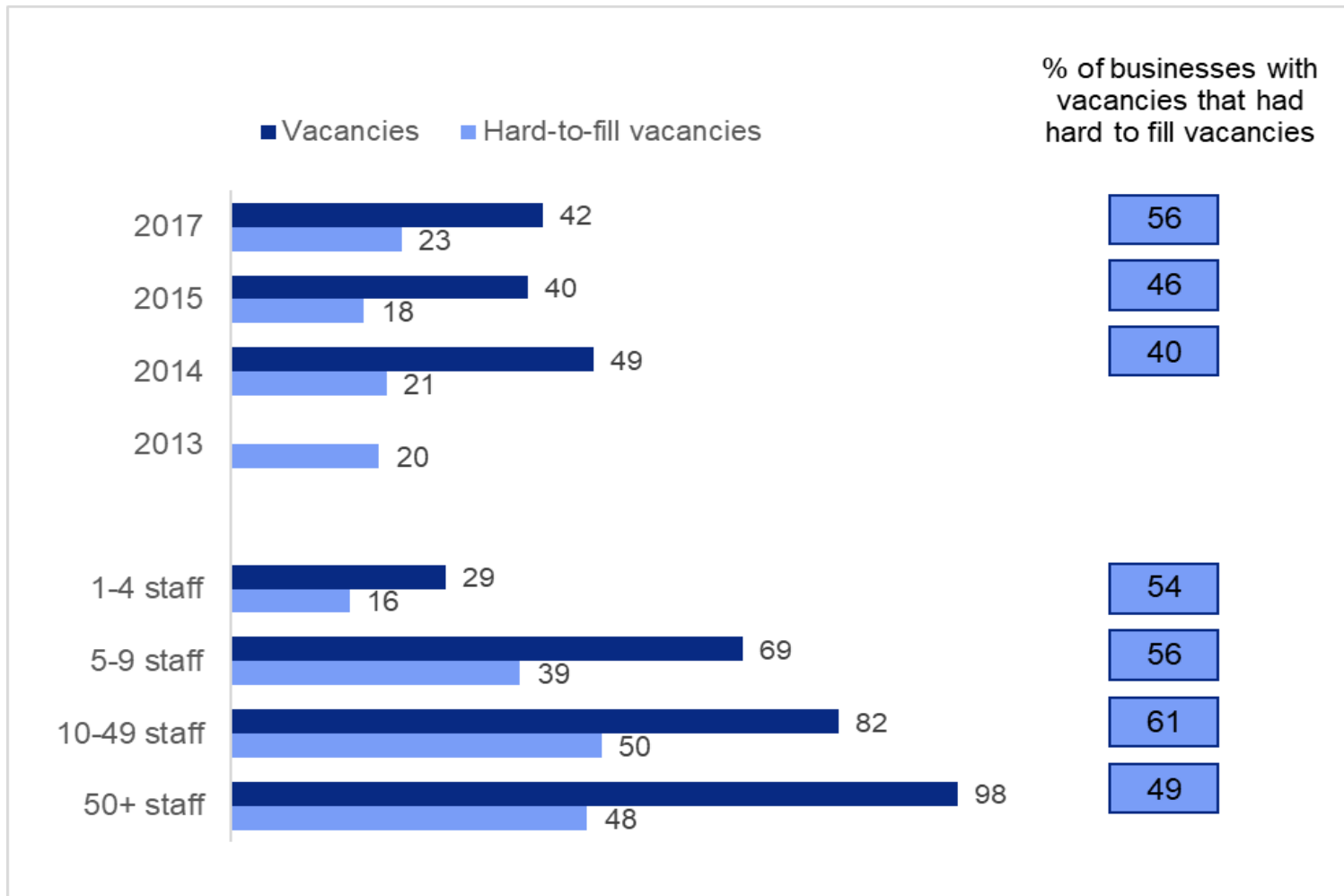
[Number of respondents: 2,353.]

Question asked:
What do you consider to be constraints on your business growth?
(Prompted list).]

[Source:
SEMLEP 2017
Business
Survey]



Skills shortages are a key business constraint in the SEMLEP area, particularly for SMEs (I)



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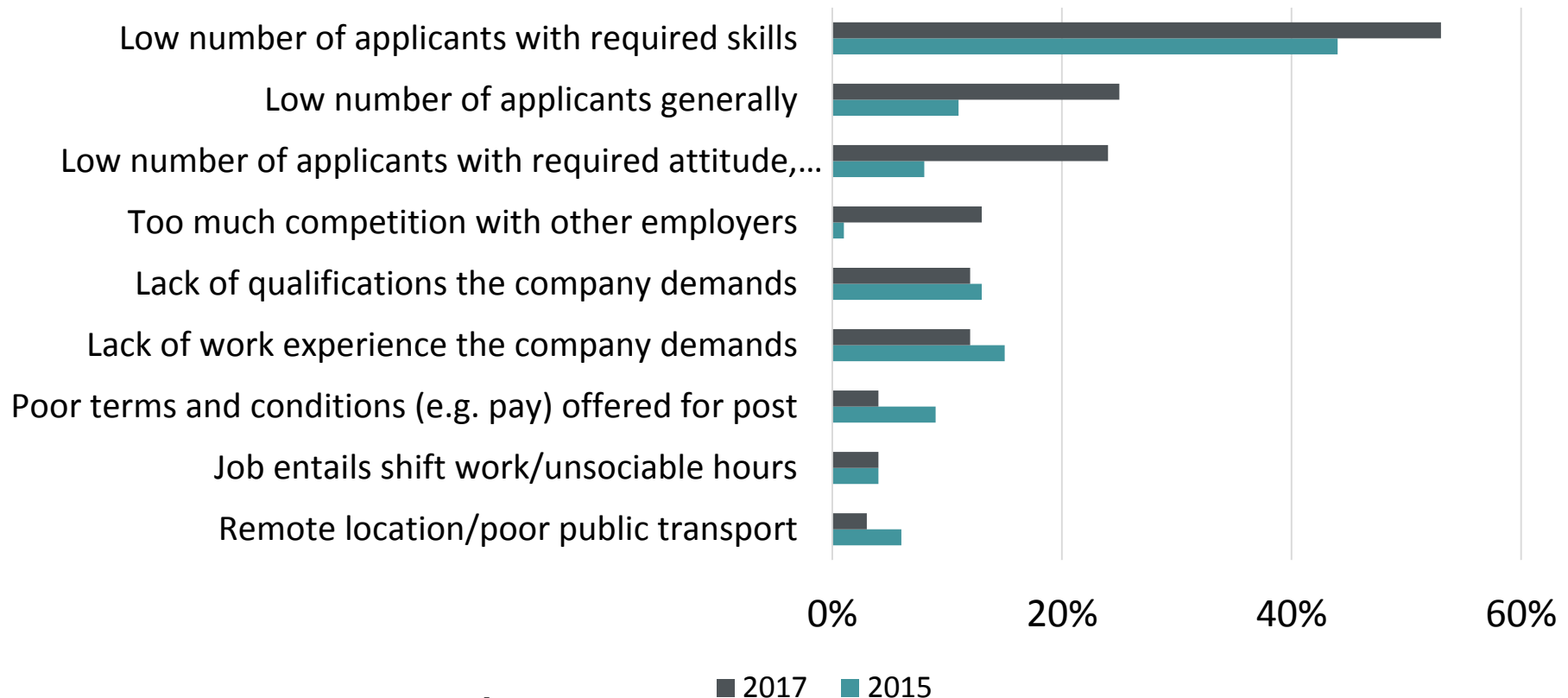
[Source: SEMLEP 2017 Business Survey]



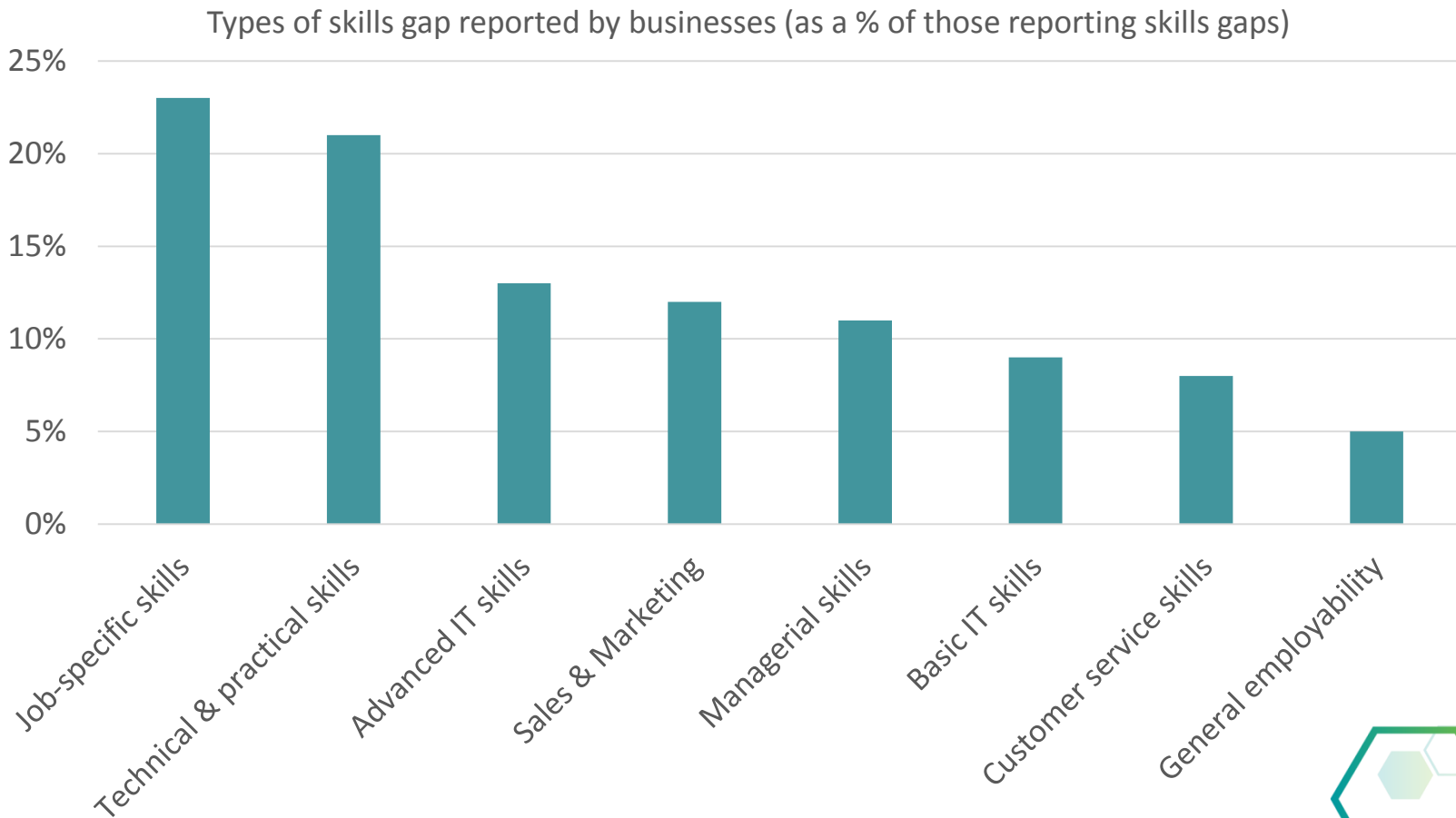
Skills shortages are a key business constraint in the SEMLEP area (II)

Of those businesses that had hard-to-fill vacancies in 2017, 85% attributed this to skills shortages

Reasons for having hard to fill vacancies



Within the existing workforce, businesses are most likely to report a lack of job-specific and technical and practical skills



A number of specific skills shortages by sector and occupation have been identified

Manufacturing	Transport & storage	Wholesale and retail trade	Construction	Information and communications	Accommodation and Food
Engineering and planning/process/production technicians	Skilled drivers	Mechanical technicians and maintenance	Electricians and electronic trades/technicians	IT engineers and technicians	Chefs
Metals, tools and instruments manufacturing	Manufacturing operatives	Manufacturing operatives	Plumbers and pipe fitters	Metals, tools and instruments manufacturing	Catering and bar managers
Electricians and electronic trades/technicians	Engineering and production technicians	Accountancy and finance technicians	Carpenters, joiners and craft woodworkers	Manufacturing operatives	Public services associate professionals
Manufacturing operatives	Accountancy and finance technicians	IT engineers and technicians	Bricklayers and masons	Accountancy and finance technicians	Electricians and electronic trades/technicians



In addition to the Showcase Sectors, there are other sectors with high skills requirements

TRANSFORMATIONAL FOR GROWTH



High-Performance Technology



Advanced Manufacturing



Logistics & Supply Chain



Cultural & Creative

KEY SECTORS WITH GROWTH AND/OR HIGH REPLACEMENT NEED



Health & Social Care



Retail/Wholesale



Education



Business & Financial Services



Accommodation/Food



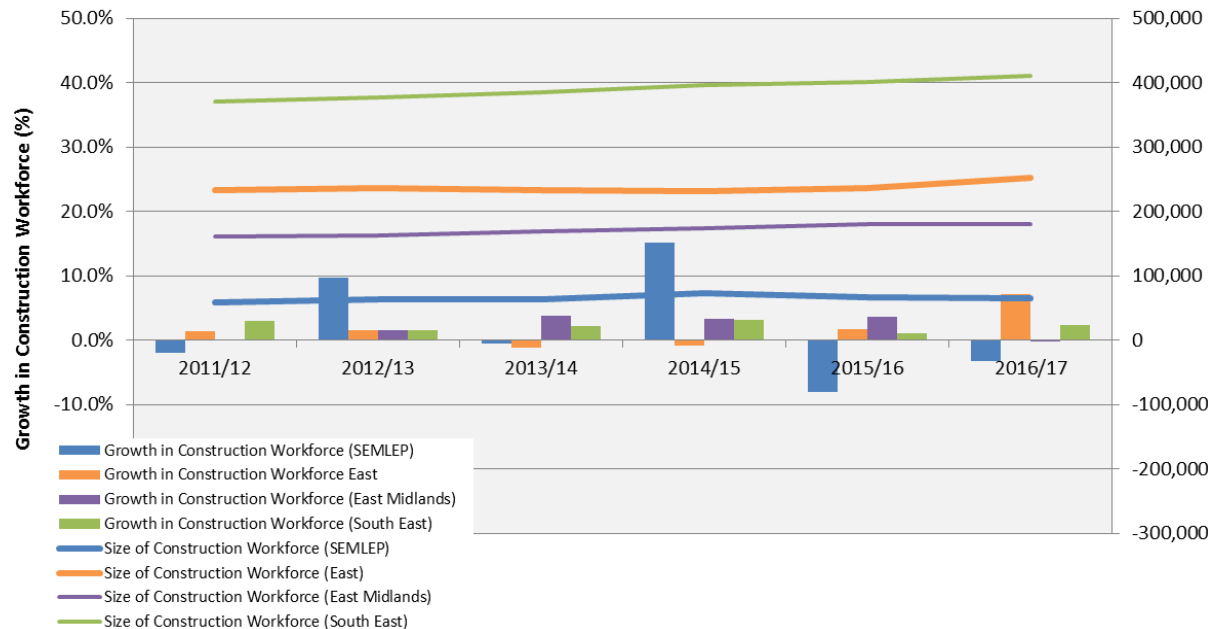
Construction

Construction Labour Market in the SEMLEP area:

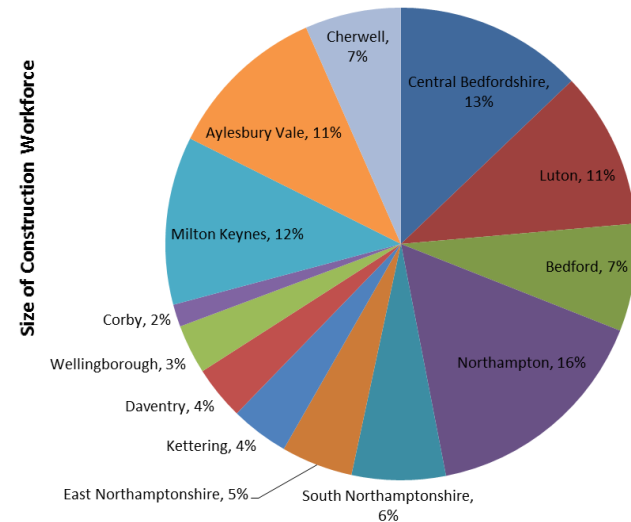
Key facts

- Construction employment in the SEMLEP area grew by 9% from 2011-2016.
- 41% of employment is concentrated in **Northampton, MK** and **Central Bedfordshire**.
- High housing growth (2016-2041) is forecast in **Corby** (38%), **Aylesbury Vale** (34%), and **Central Bedfordshire** (32%)

Year on year change in Construction Employment: 2011/12 - 2016/17



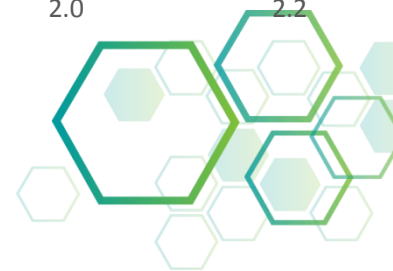
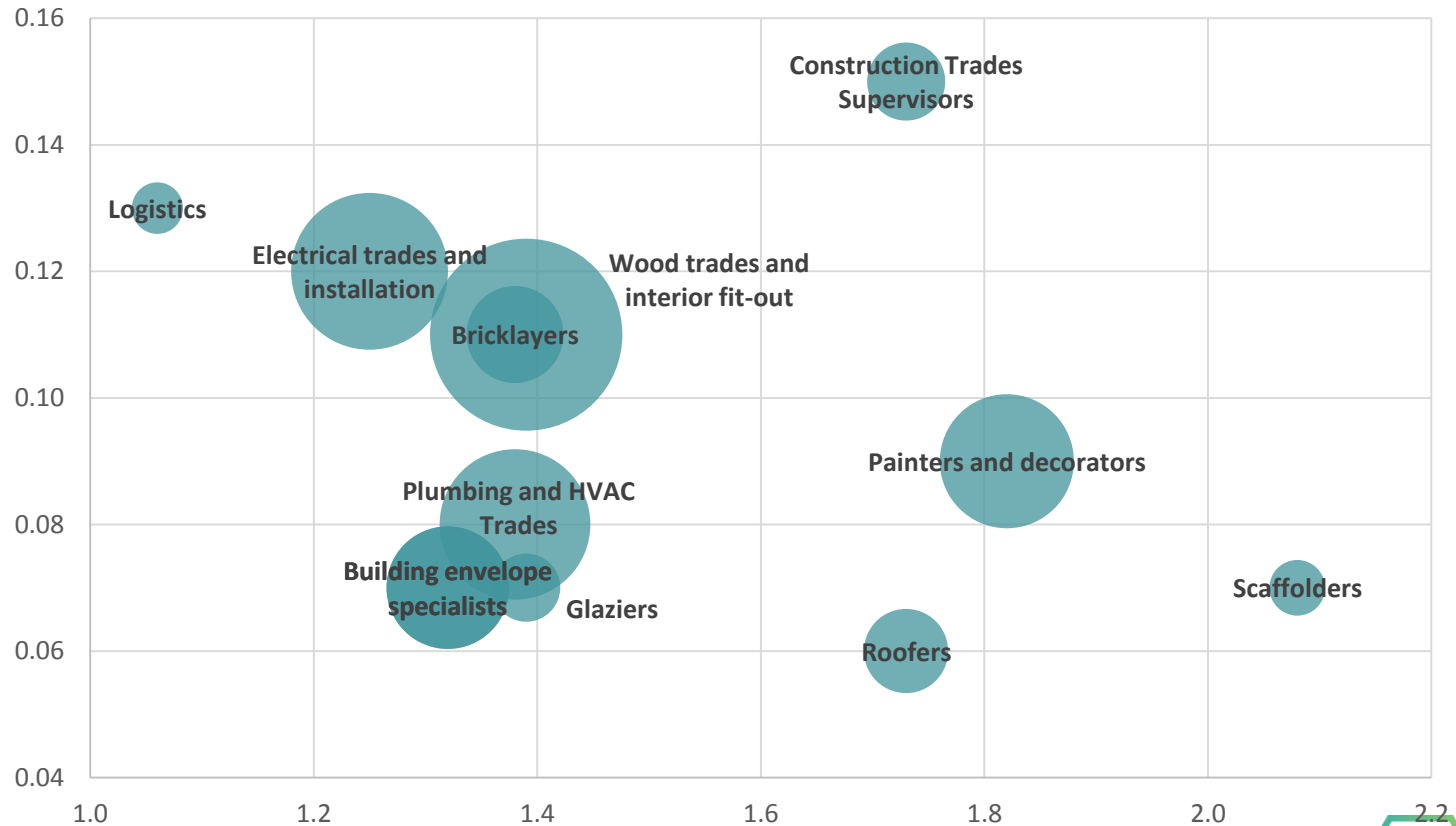
Construction employment by LA within the South East Midlands area



Construction sector: jobs with a high risk of shortages tend to be in areas with low skills achievement rates and high demand

Demand, Skills achievement, and Shortage risks for the most at risk skills in the Construction sector

[x-axis: Skills shortage risk rating (2018 forecast demand over 2016 labour supply)
Y-axis: Proportion of skills attained in SEM as a % of the wider region (East Midlands, South East and East of England)
Bubble size: size of demand]



Growth in skills attainment varies, with some skill achievement rates growing and other contracting

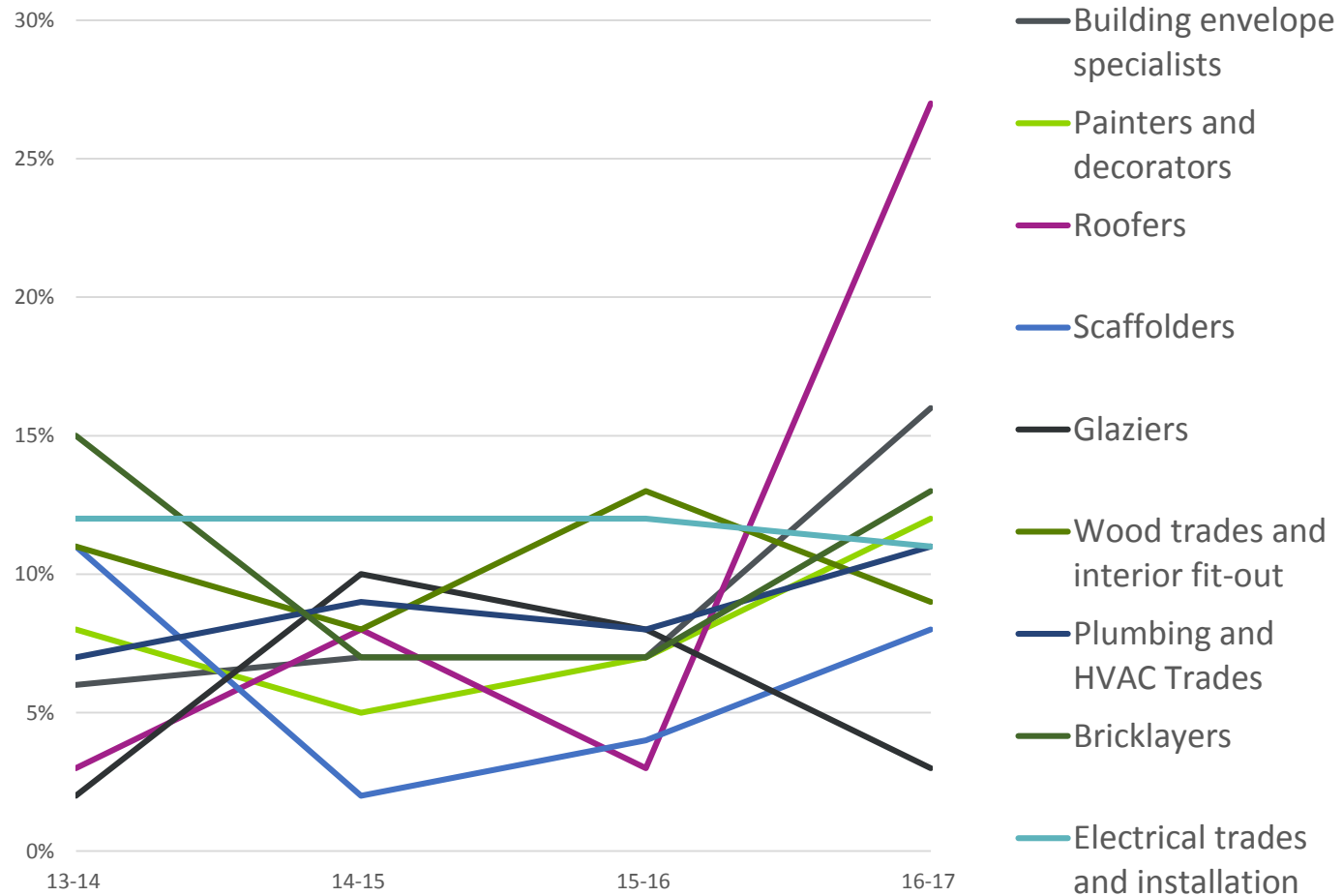
High growth areas:

- 1) Roofers
- 2) Building envelope specialists
- 3) Plumbing and HVAC Trades

Contracting areas:

- 1) Scaffolders
- 2) Wood trades and Interior fit-out
- 3) Bricklayers

[y-axis: % skills attained in SEM compared to East of England, South East and East Midlands combined]



There is also a mixed picture on construction apprenticeships in the SEMLEP area

High growth

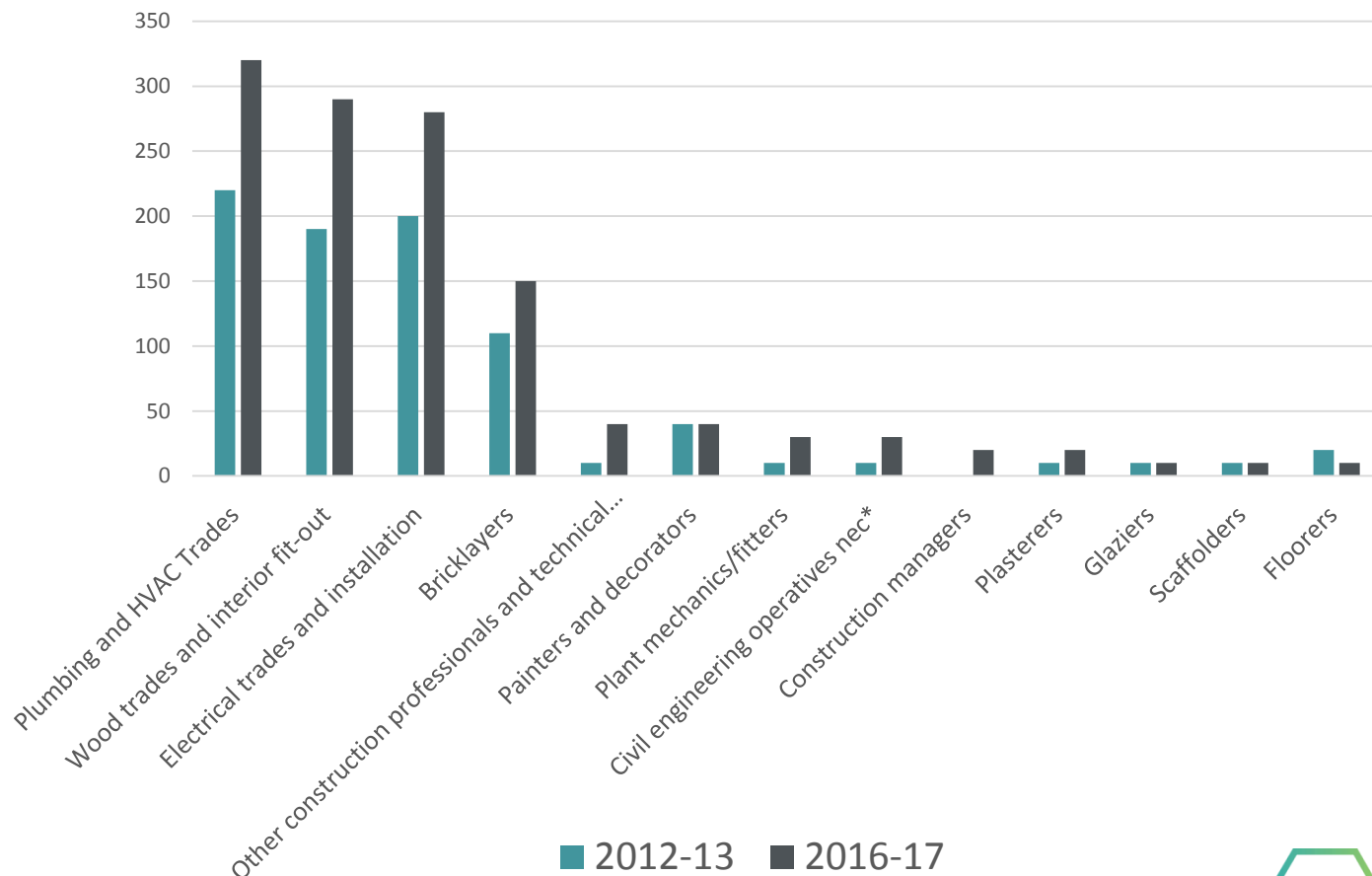
areas:

- 1) Technical staff and other
- 2) Plant mechanics/fitters
- 3) Civil engineering operatives

Contracting / no growth areas:

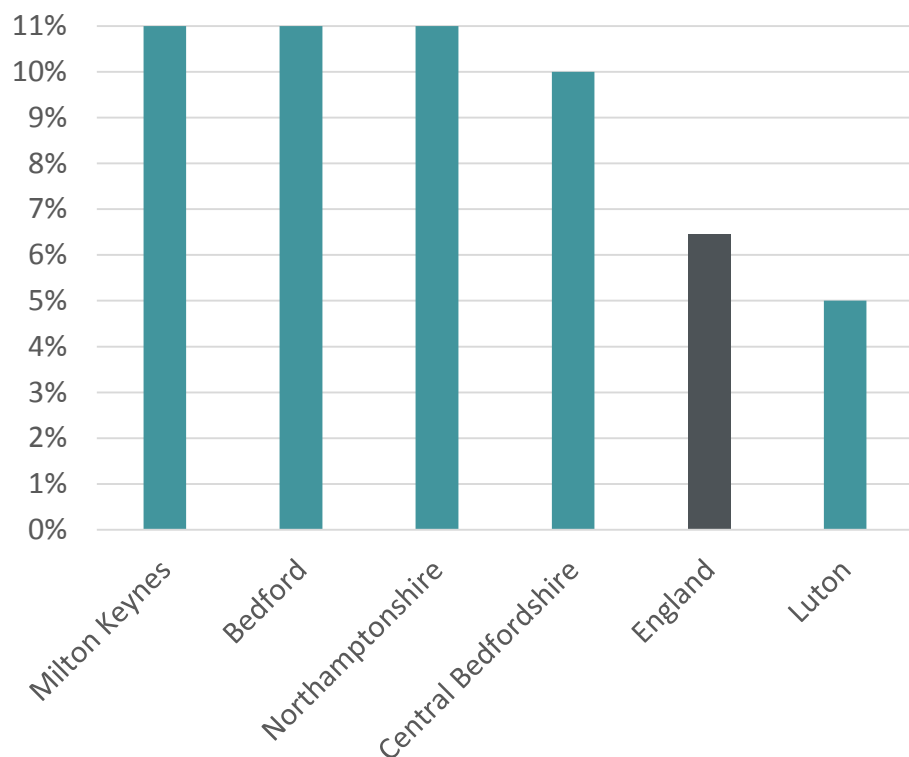
- 1) Floorers
- 2) Scaffolders
- 3) Glaziers

Change in unique apprenticeship starts



Health and Social Care: the SEMLEP area has a substantial vacancy issue in this sector, with some of the highest vacancy rates (vacancies as a % of employment) in England

Vacancy Rate (proportion of total posts that are unfilled) by LA, (2018)

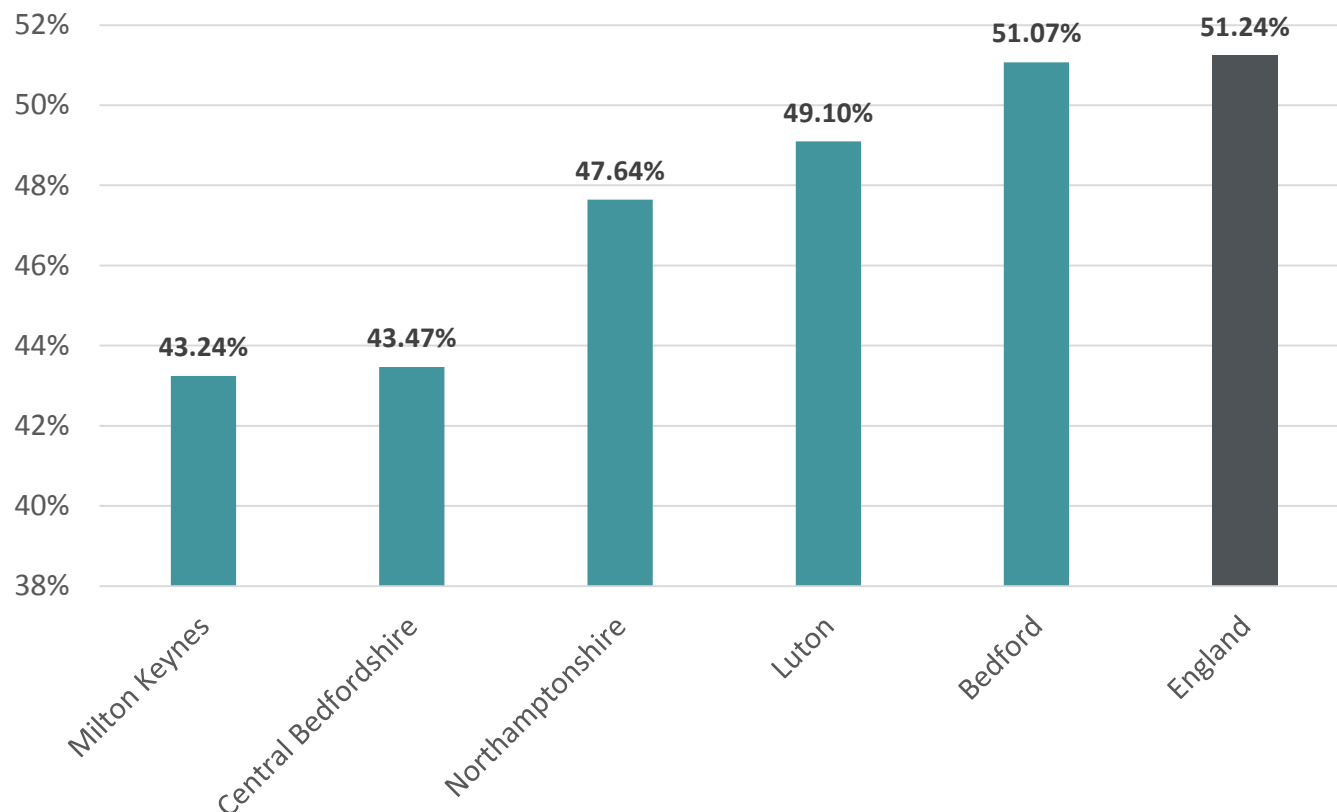


Local Authority	Vacancy Rate	Rank
Barking & Dagenham	16.73%	1st
Slough	15.65%	2nd
Harrow	14.51%	3rd
Hackney	13.85%	4th
Richmond upon Thames	13.20%	5th
Havering	13.10%	6th
West Berkshire	12.92%	7th
Hounslow	11.52%	8th
<u>Milton Keynes</u>	<u>11.28%</u>	<u>9th</u>
Lewisham	11.27%	10th
<u>Northamptonshire</u>	<u>11.06%</u>	<u>11th</u>
<u>Bedford</u>	<u>10.97%</u>	<u>12th</u>
Reading	10.48%	13th
Hertfordshire	10.39%	14th
Ealing	10.14%	15th



Some of this is related to a shortage of relevant qualifications...

Proportion of workforce with a HSC relevant qualification, by LA



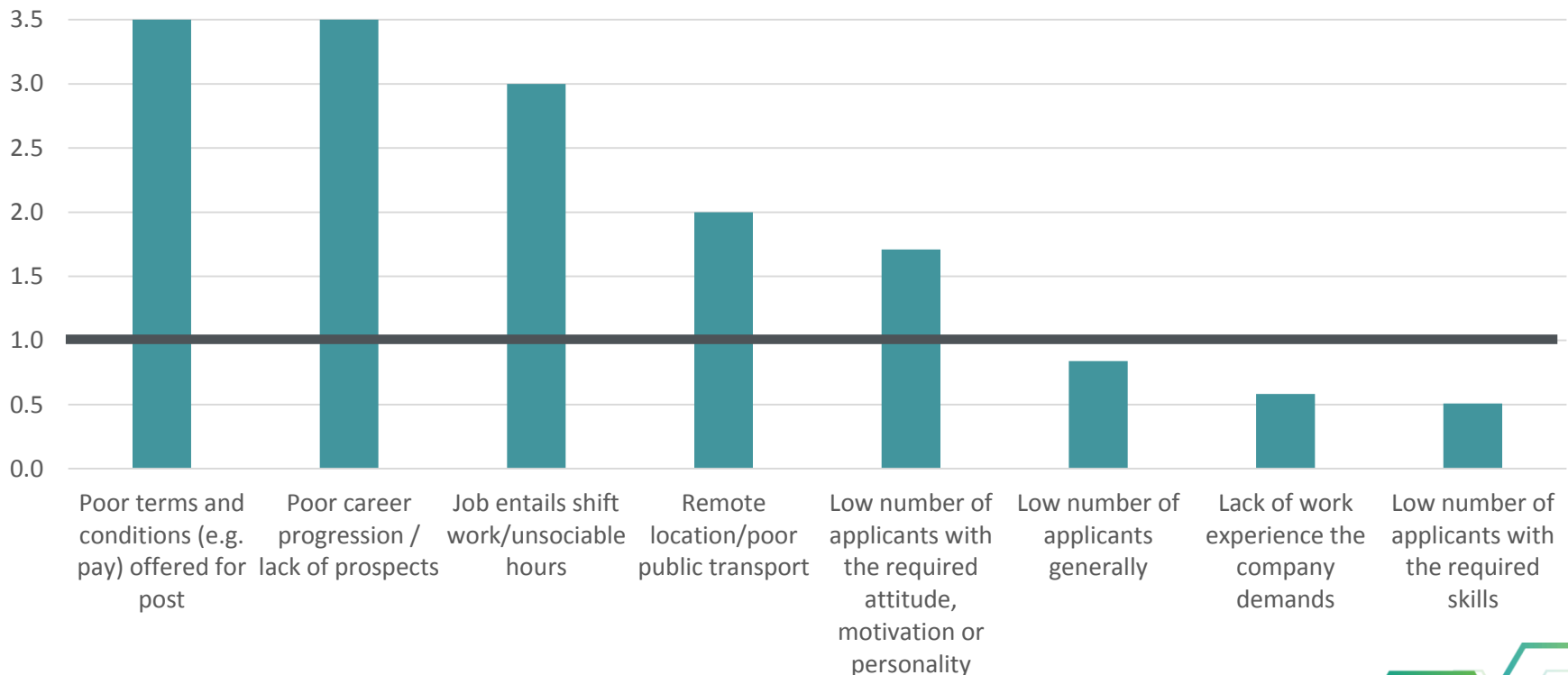
Milton Keynes and Central Bedfordshire are both in the **bottom quintile** of Local Authorities for HSC skill levels in England.

Skills shortages are a major issue in **Milton Keynes and Northamptonshire**, where the dependency ratio is expected to grow significantly

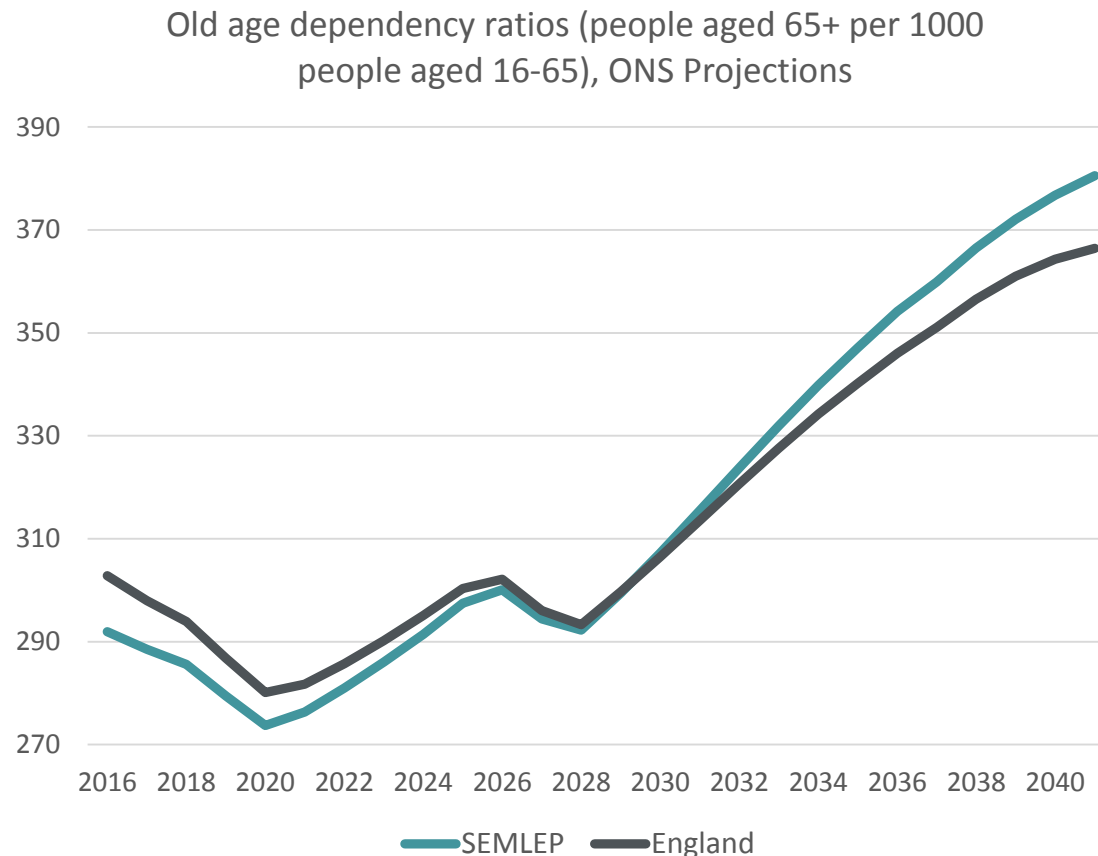


...but poor pay, poor progression prospects, and shift work also play a role

Ratio of the proportion of businesses reporting a given reason for skills shortages in the HSC sector to the SEMLEP average (2017)



Health and Social Care: the old age dependency ratio (number of people aged 65+ per 1,000 people aged 16-64) is expected to rise significantly in the next 10 years, with the SEMLEP area overtaking the average rate in England by 2030



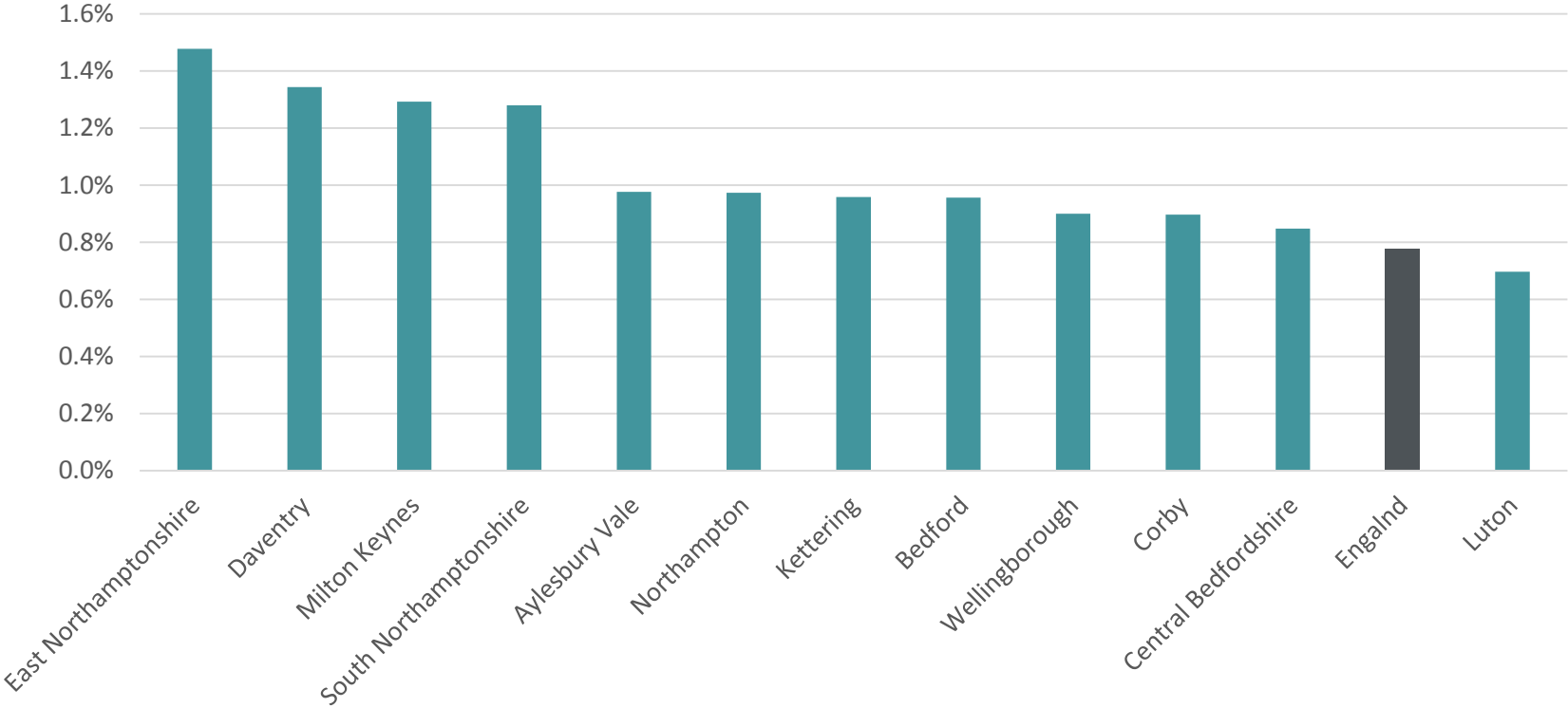
- Across the EU, **individuals aged 50 and over in 2015** consumed **€3.7 trillion of goods and services in 2015**. Protecting the needs of older individuals presents opportunities for growing consumption.
- “As a society we have been **good at improving the quantity of life but we have been less good at improving the quality of life** -especially later life.”

[Source: Ageing Society Grand Challenge, UKIS 2018]

[Source: ONS 2016-based population projections: Population of State Pension age, working age and old age dependency ratios by regions in England - Persons mid-2016 to mid-2041]

Growth in the dependency ratio is projected to be particularly high in parts of Northamptonshire and Milton Keynes

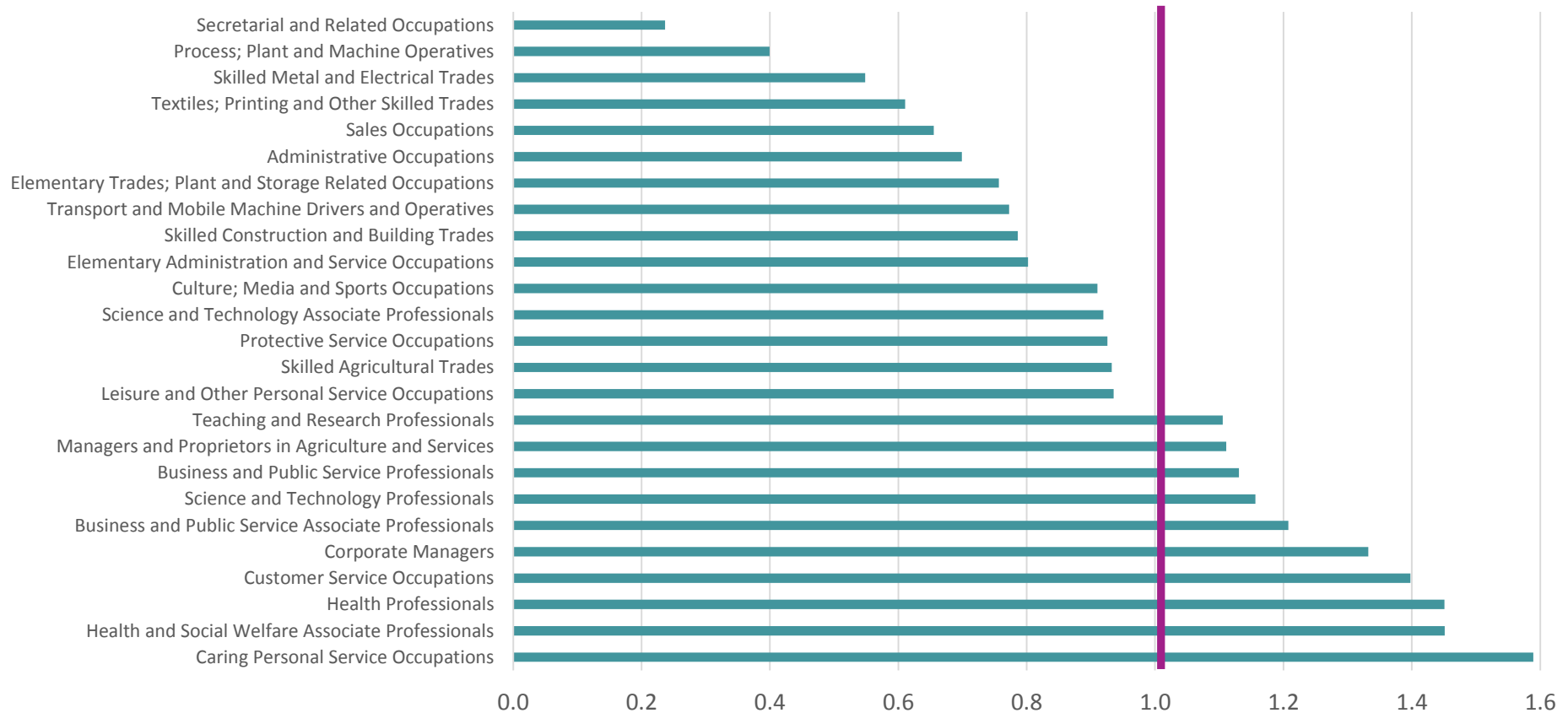
Average compound growth rate in dependency ratio from 2016-2041, by LA



[Source: ONS 2016-based population projections: Population of State Pension age, working age and old age dependency ratios by regions in England - Persons mid-2016 to mid-2041]

Accordingly, Caring Personal Service jobs and HSC jobs are forecast to make up a larger proportion of the workforce in the SEMLEP area by 2045, growing faster than any other occupation

Ratio of Labour market share in 2045 to share in 2018
(>1 indicates an increase in the sector's share of the workforce)



[Source: SEMLEP analysis, using Cambridge Econometrics, East of England Forecasting Model: Skills Module - 2017 baseline results]

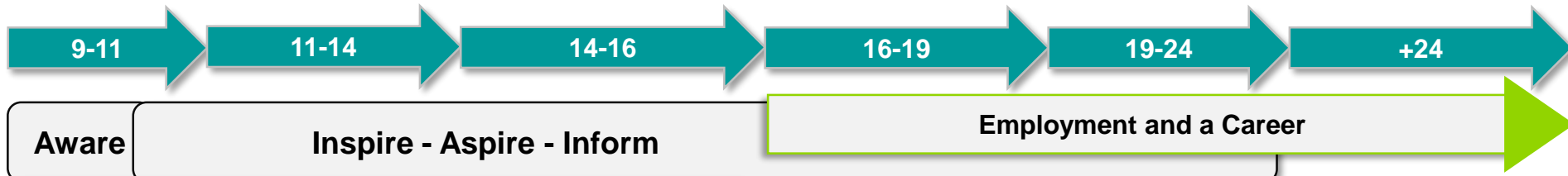
SEMLEP is taking four main courses of action to address these skills issues...

► Four main courses of action – **employer-led approach:**

- Improving Labour Market Information.
- Increasing employer engagement with schools and colleges.
- LGF investment.
- Support for people into and within employment (tackle employment barriers; upskilling; reskilling).



...with the aim of supporting life-long skills development



Develop basic numeracy & literacy

Develop core competencies

- Communication
- Confidence
- Initiative
- Organisation
- Problem Solving
- Resilience
- Teamwork
- Digital Literacy
- Creativity

Attitudes & behaviours

- Work ethic
- Motivation
- Honesty
- Punctuality
- Independence
- Curiosity
- Politeness
- Reflective
- Reliability
- Humility

Continuous Development and Engagement

- CPD
- Up-skilling
- Re-skilling
- Leadership skills
- Enable employment
- Re-engagement
- English & numeracy
- Training Awareness
- Business start up

Develop Key Employability Skills

- Job specific
- Technical or practical skills
- Digital/Advanced IT skills
- Customer service

Talent pipeline:

- ▶ Meets employer needs
- ▶ Through best practice & innovation
- ▶ Has high impact with employer engagement
- ▶ Increases relevant skills & attainment levels

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'Growing People' - aligning activity to employer needs

Alignment of provision relevant to need

- ▶ Capital investment
- ▶ Pathway capacity
- ▶ Provision and LMI

Employer Engagement



Pathways

- Further Education
- Higher Education
- Apprenticeships
- Adult Education
- Skills providers



Secondary Education

- Gatsby Benchmarks
- Core Competencies
- 5 Provision Types
- CV/Interviews
- Relevant Events
- Quality IAG/LMI

- High-Performance Technology
- Advanced Manufacturing
- Logistics
- Cultural and Creative
- Growing and Replacing Sectors

SEMLEP

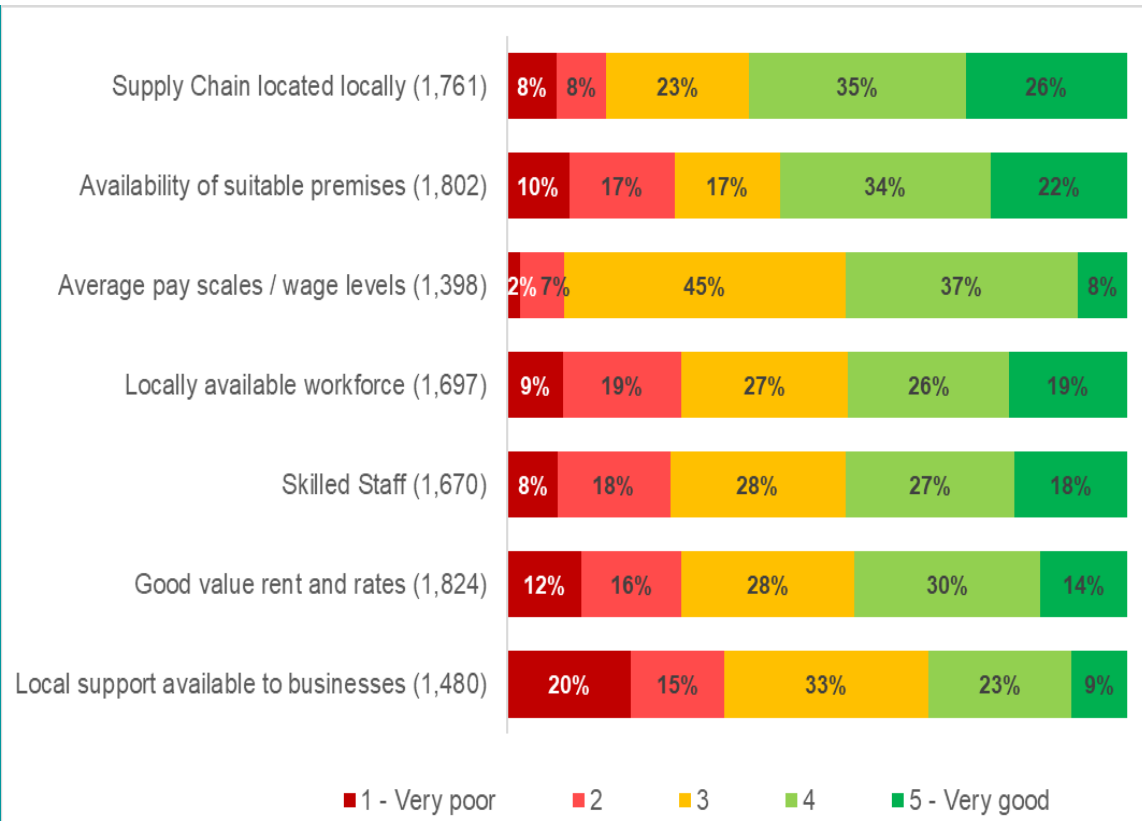
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The availability of suitable premises in the SEMLEP area is not rated well by smaller businesses

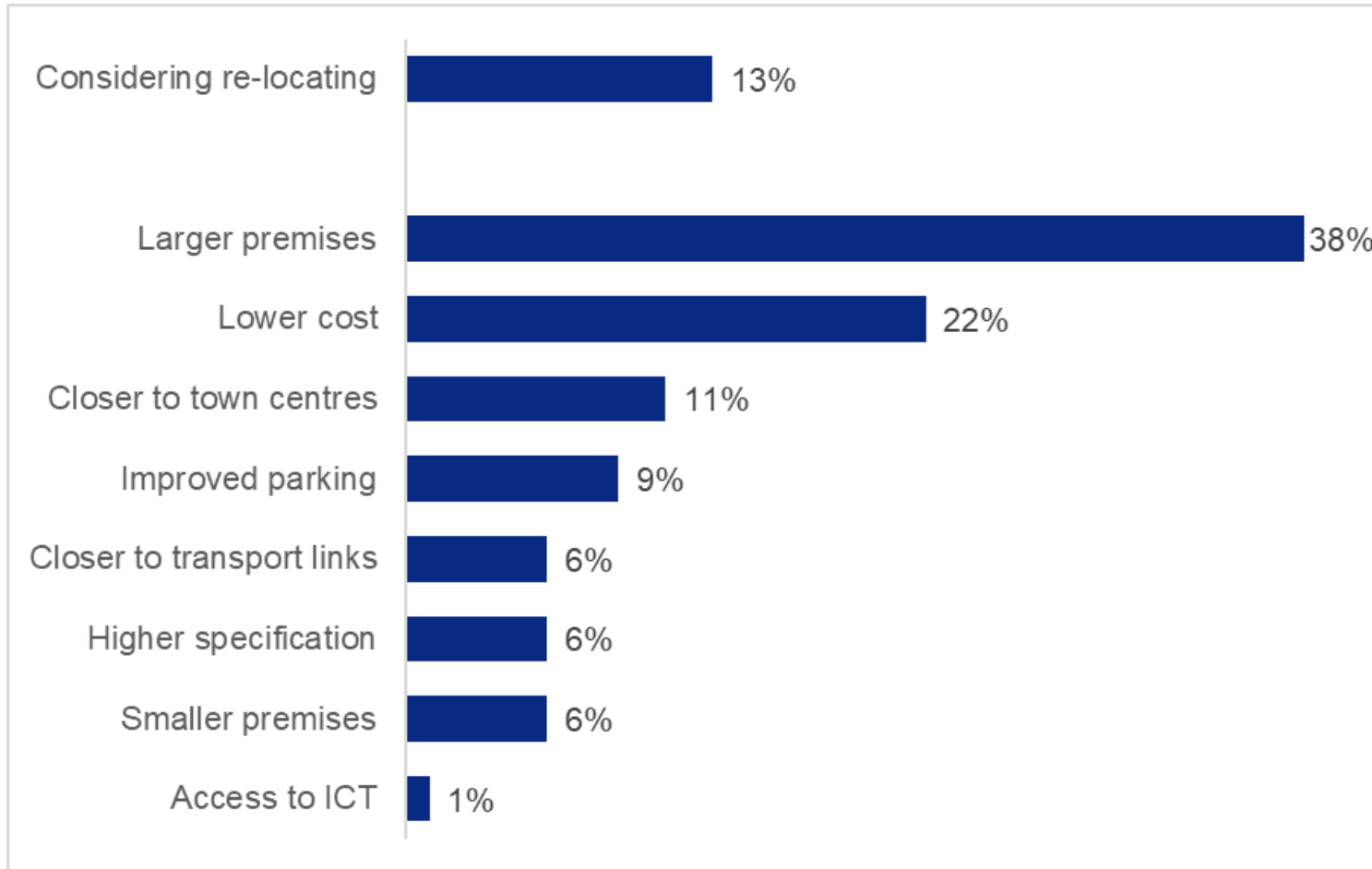
The availability of suitable premises was rated well overall, although it is worth noting that this view was not shared by businesses with 5-9 staff, where just 38% said availability of suitable premises was good and almost as many (32%) rated it as poor.

This suggests that there may be a gap in the provision of premises suitable for these small businesses. This group of businesses were also the least satisfied with the value of the rent and rates (32%, compared to 44% overall)



[Source: SEMLEP 2017 Business Survey]

The most common reason for considering relocation is to move to larger premises



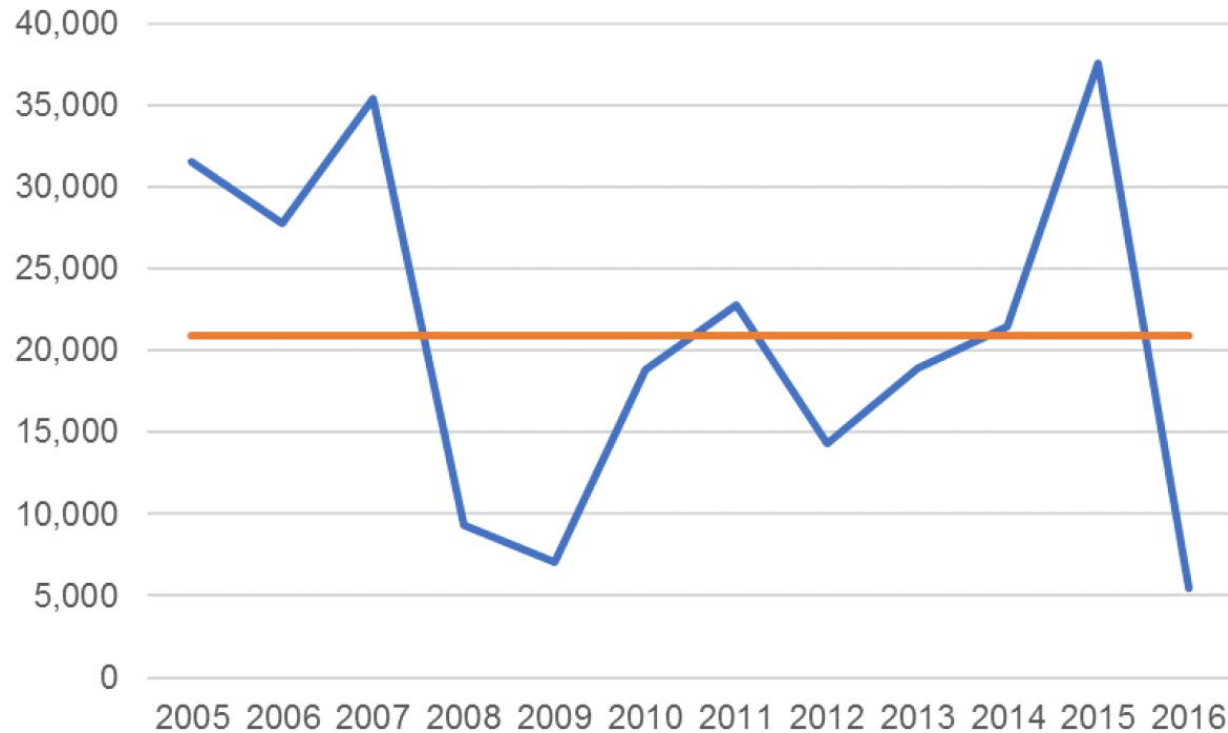
[Number of respondents:
2364 / 305.

Questions asked:
Are you thinking of relocating your business? / Why are you thinking of relocating?]



In Daventry, analysis suggests there is a significant undersupply of small to medium industrial units...

Take-up of industrial units up to 10,000 sqm, Daventry, 2005-16 (sqm)



In 2016, take-up in this section of the market decoupled from the economic cycle. Alongside this:

- ▶ The stock of floorspace has remained virtually unchanged between 2005-16.
- ▶ Vacancy rates are very low.
- ▶ There is significant frustrated demand in the market (estimated at 25,000 sqm).

This suggests that the recent downturn in take-up in Daventry is explained by a supply constraint.



...and that public sector intervention is likely to be needed to realise greater supply

Analysis in Daventry has concluded that, to close the gap between demand and supply, additional land should be provided for industrial development, but that development of small to medium industrial units will only happen if:

- ▶ The land is reserved for small-to-medium units; if it is released for industrial development without this restriction, land is likely to be taken up for large-scale warehousing, which generates higher land values (smaller units are more expensive to build and manage).
- ▶ The investment case for such units can be proven. “At current rents development of small-to-medium industrial development is only marginally viable in Daventry, because in the absence of new development rents have stagnated. Once new units are built we would expect them to let at higher rents, so that development becomes viable and there is comparable evidence to improve investor confidence and encourage further investment.”

Interventions could include:

- ▶ Advance-funding of infrastructure to create serviced plots; and
- ▶ Forward funding of private sector developments through sale and leaseback.



Other areas within SEMLEP are experiencing similar issues...

- ▶ **South Northamptonshire** recently conducted an audit of its 66 Business Parks and found the **vacancy rate was very low, and occupancy high**. [Source: South Northamptonshire]
- ▶ Analysis for the **Corby Employment Land Review** found that smaller **employment units, of up to 5,000 sq ft, are often in poor condition** and nearing the end of their economic life, and concluded that, “in the short to medium term they should be protected, because they already **have the lowest vacancy of any unit sizes, but are not viable to redevelop**. Therefore, if such units are lost there will be no alternatives for occupiers.” [Source: Corby Employment Land Review].



..and employment land analysis suggests that these issues are set to become more acute over time

Office Provision

- ▶ “The overall trend for office property shows demand growing at a faster rate than supply. On past trends, we would expect demand to exceed total supply in the next five to ten years. This trend is more acute around Cambridge, the M1/ M11/M25 intersection settlements and around the Northampton, Bedford and Milton Keynes area.”

Industrial & Warehousing Provision

- ▶ “On current projections demand for industrial and warehousing property in the corridor exceeds supply in the next three to eight years. This is most acute along the M11 and M1 corridors where demand has grown strongly over the past two years.”



Moreover, SEMLEP stakeholders frequently highlight that there is insufficient commercial property to service investment enquiries

SEMLEP Inward Investment Group: “there is a lack of new and even second hand commercial property with which to service enquiries. Investment is being lost and interest unfulfilled without options to propose. In particular, the market is not delivering speculative property supply for grade A premises which could accommodate businesses in some of the SEMLEP Showcase sectors.”

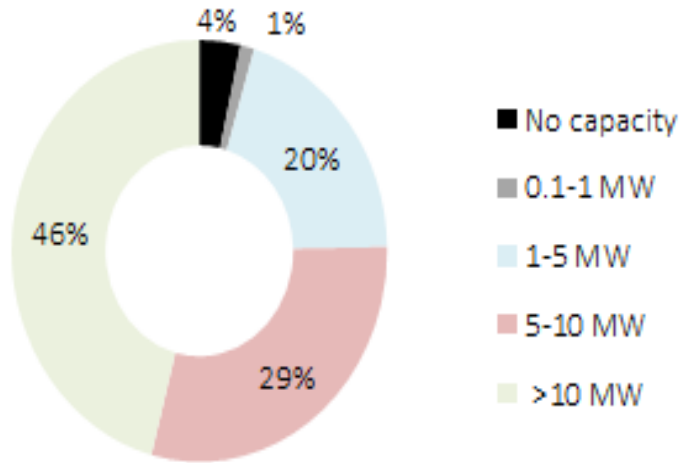
This was identified as a key issue and it was concluded that a need for funding should be communicated through the LIS process.

Food & Drink LEP Network: “there is a lack of food grade, business ready space for businesses to move into. There is a huge growth of SMEs but they are struggling to find the right premises.”



We also know that there are issues around electricity capacity for businesses in certain areas...

Capacity



(a)

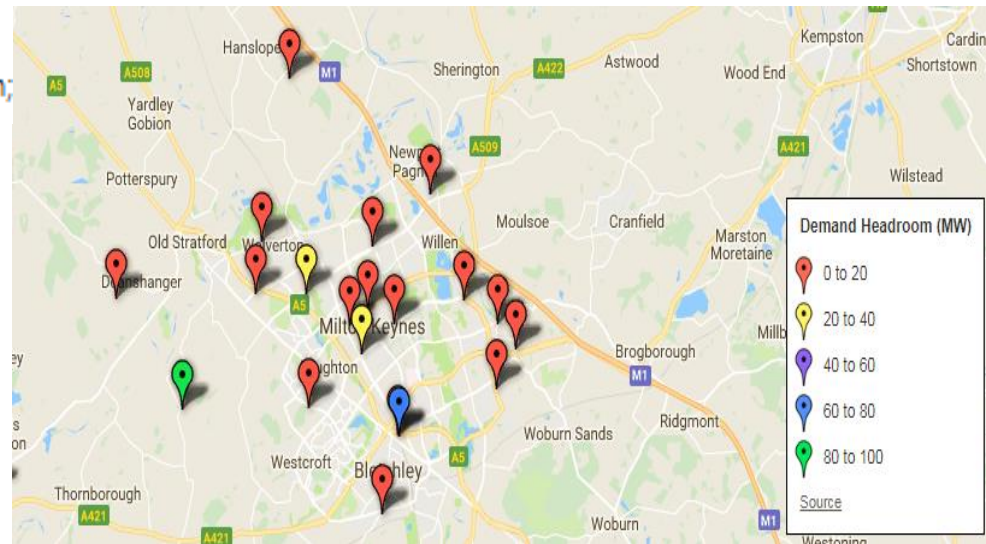
Figure 4: Substation headroom in WPD area: (a) demand headroom;

- ▶ Grid capacity is constrained in certain areas.
- ▶ 5% of the WPD network has zero or little headroom.
- ▶ 20% of substations have demand headroom of less than 5MW.
- ▶ These constraints are already impacting upon individual cases of business expansion and/or investment.

[Source: National Energy Foundation analysis for SEMLEP, using Western Power data]

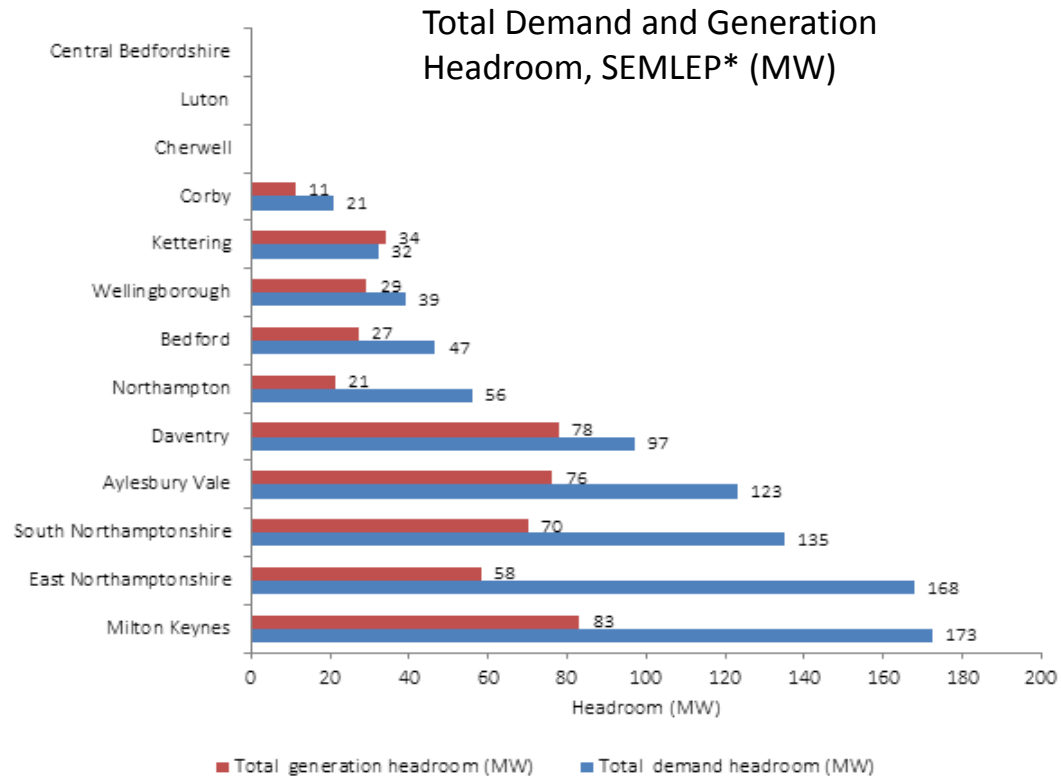
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...and that these issues will become more acute if future high growth is realised in the area

- ▶ The overall spare capacity available in SEMLEP amounts to 911MW, which is around 24% of current network capacity.
- ▶ Across the region as a whole, this represents a relatively healthy position in terms of providing for traditional, incremental growth.
- ▶ However, if higher levels of growth/ major new development is to be realised electricity capacity constraints are likely to be a key issue.
- ▶ The picture is similar when it comes to 'headroom' capacity for connecting distributed generation which, at 500MW for the SEMLEP area, is around half of what has already been installed: a healthy position for incremental growth, but not for major growth.



***NB: No data available for Central Bedfordshire, Luton & Cherwell**

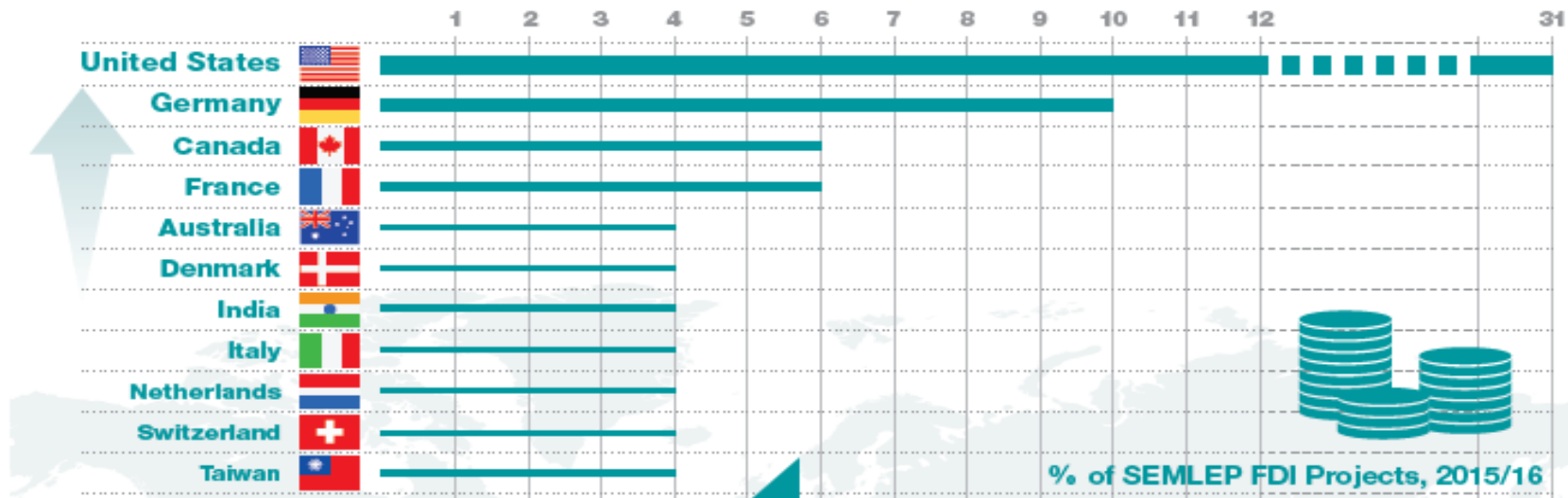
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[Source: National Energy Foundation analysis for SEMLEP,
using Western Power data]



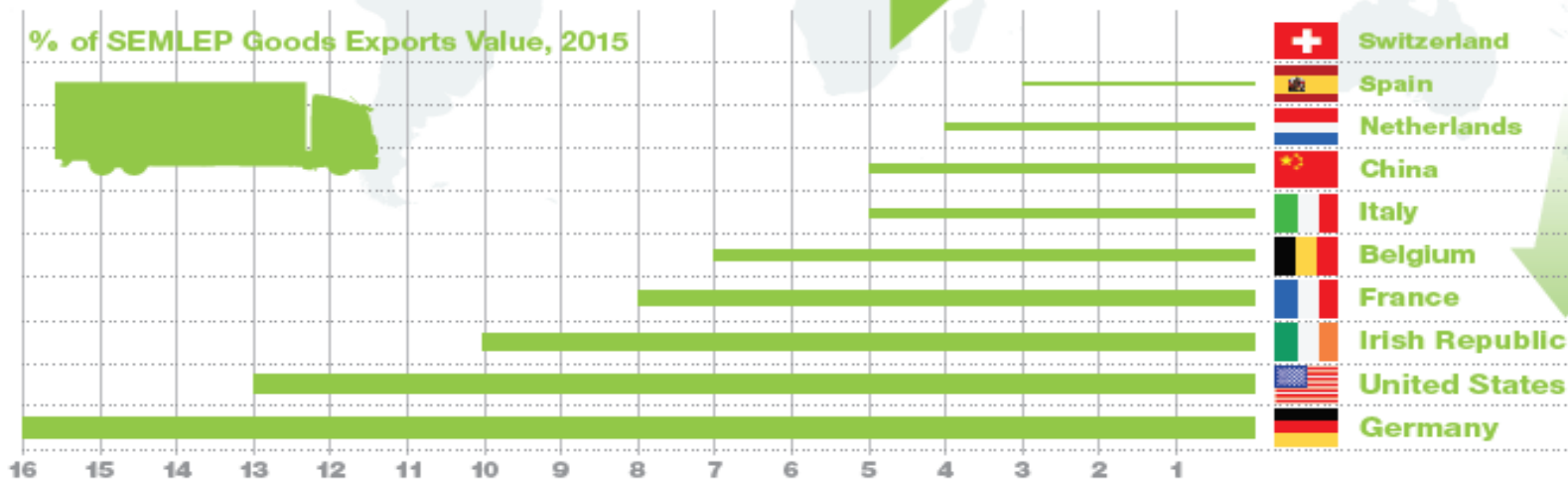
Brexit presents risks (I)



Foreign Direct Investments

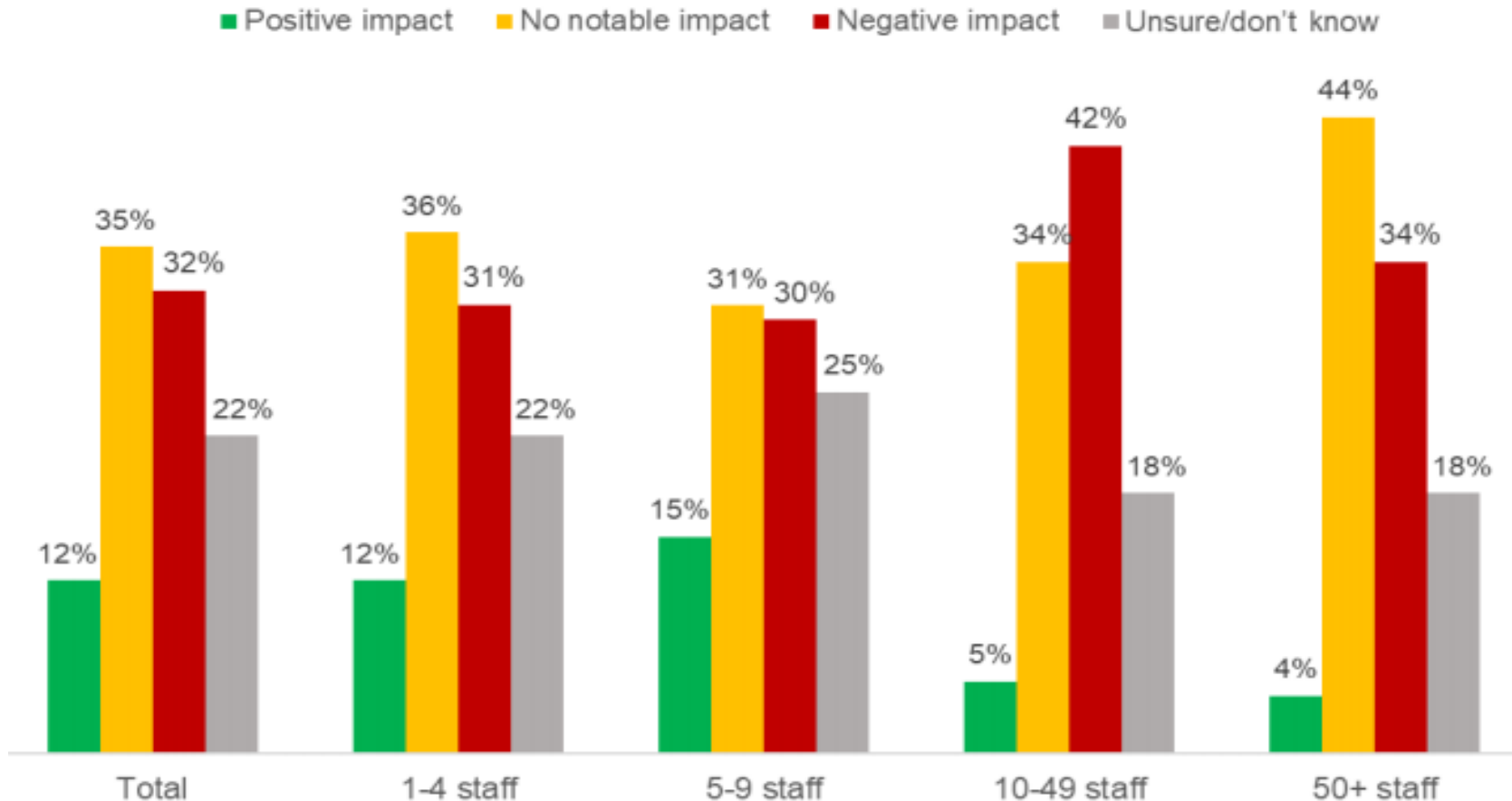
Goods Exports

[Source: ONS and DIT statistics]



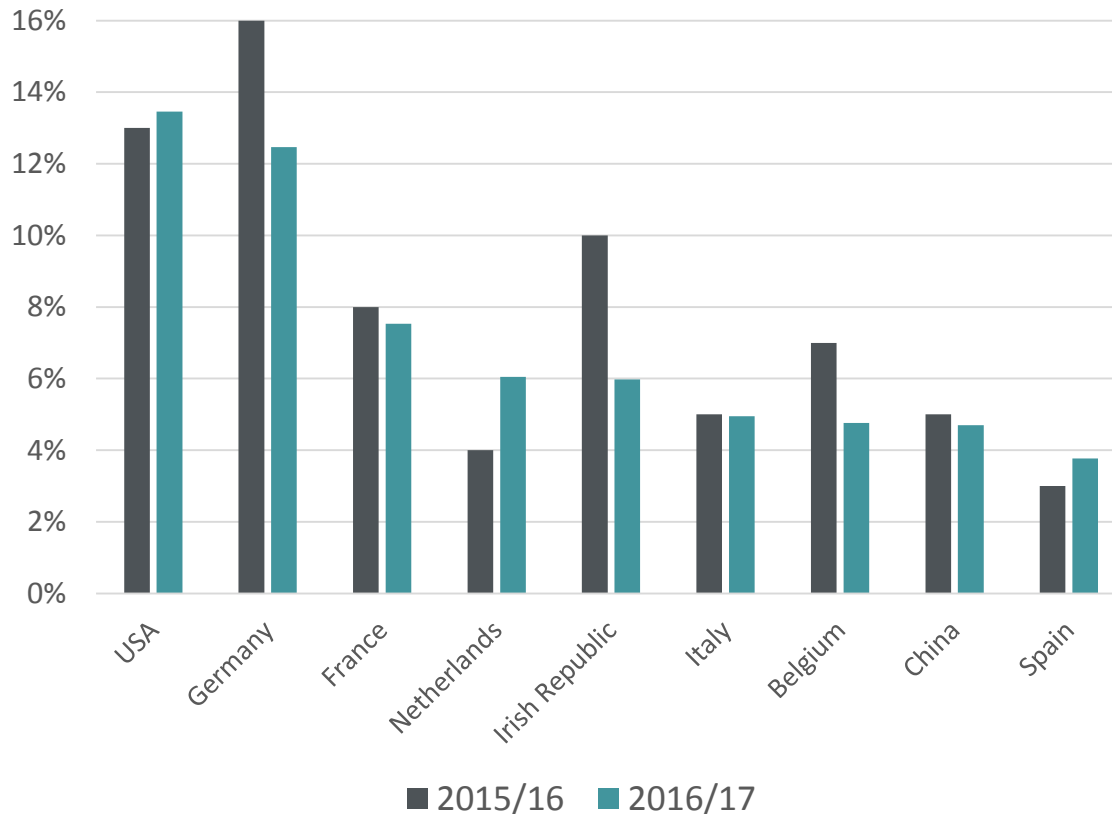
Brexit presents risks (II)

Expected impact of the UK's exit from the European Union by size

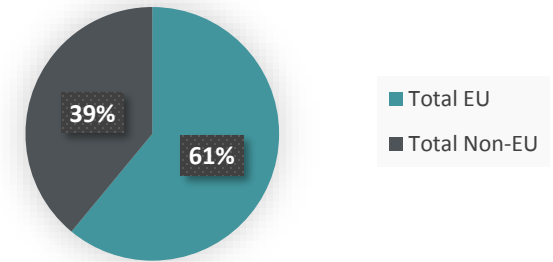


The SEMLEP area has experienced some recent minor shifts in export trade, but total trade with the EU has remained stable

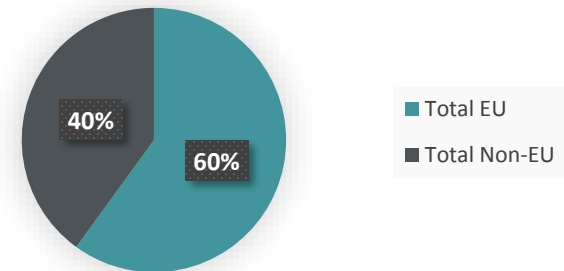
Exports by Partner (weighted)



Share of Exports with EU countries (SEMLEP, 2016)

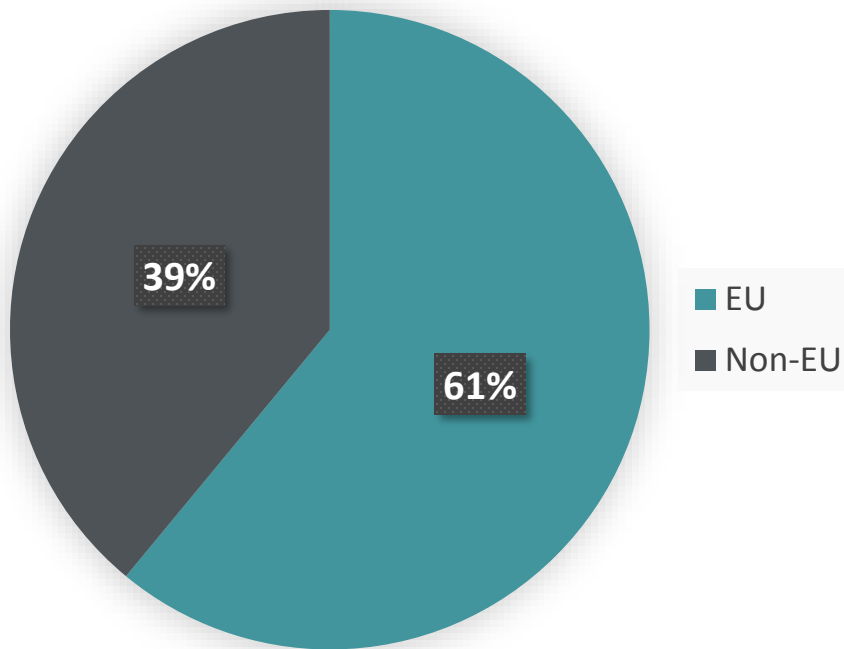


Share of Exports with EU countries (SEMLEP, 2015)

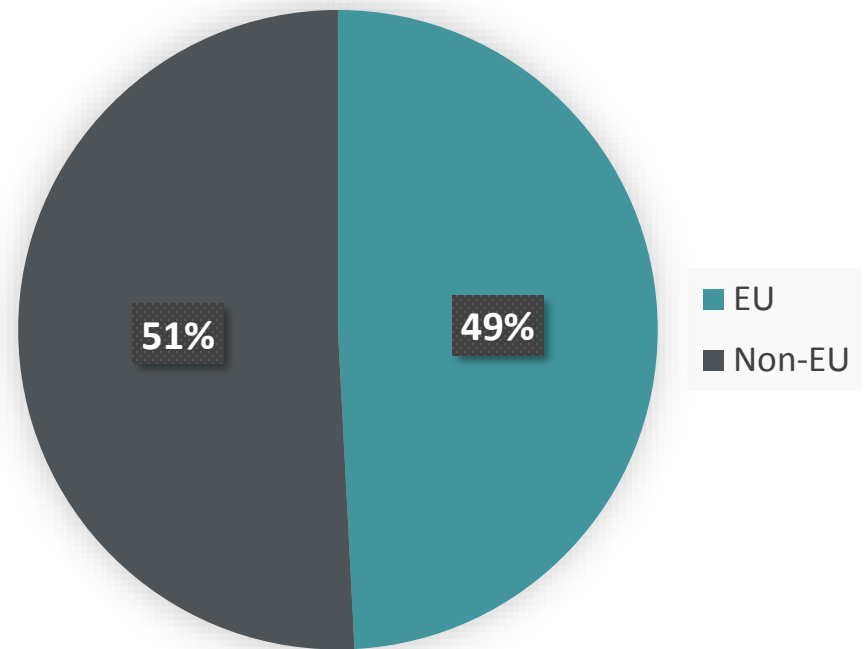


The SEMLEP area is more dependent on exports from the EU than the UK as a whole is

Share of Exports with EU countries
(SEMLEP, 2016)

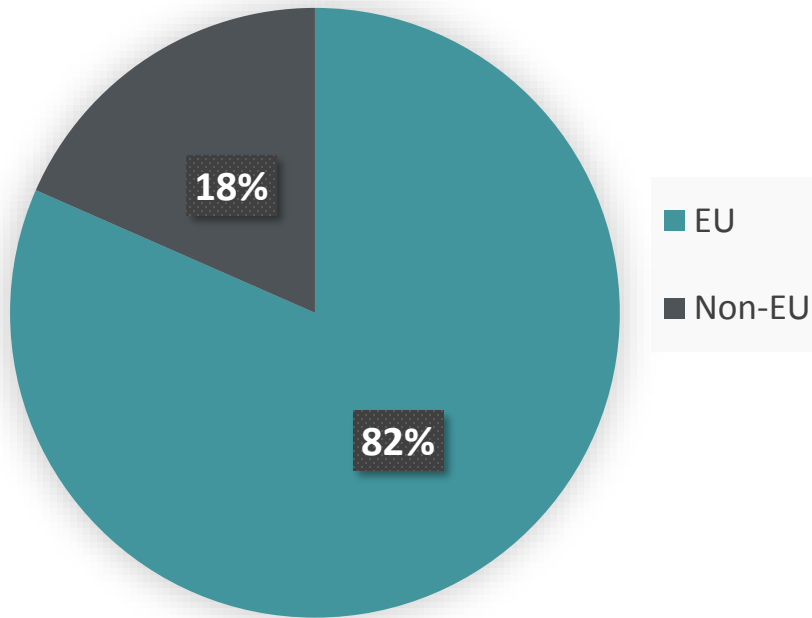


Share of Exports with EU countries
(UK, 2016)

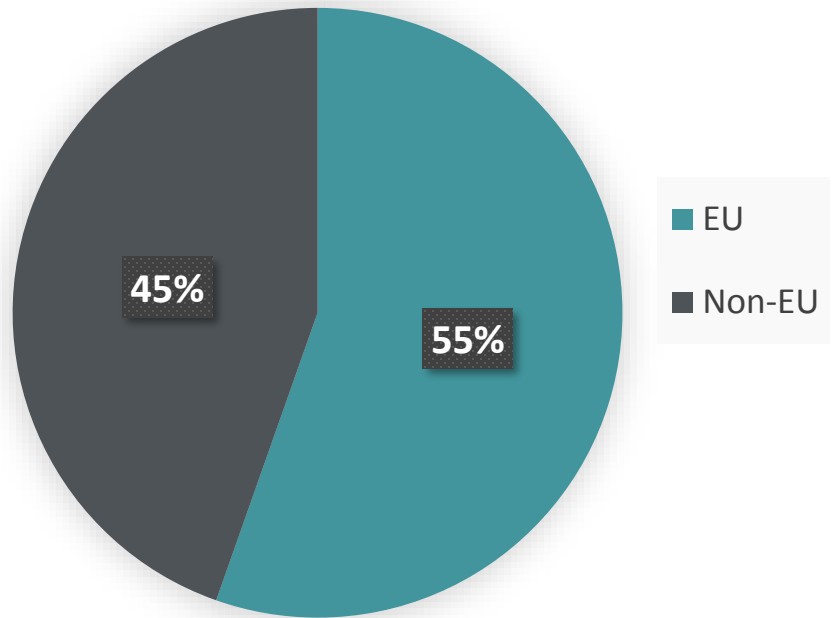


The area is also highly dependent on EU imports, compared to the rest of the UK

Share of Imports with EU countries
(SEMLEP, 2016)

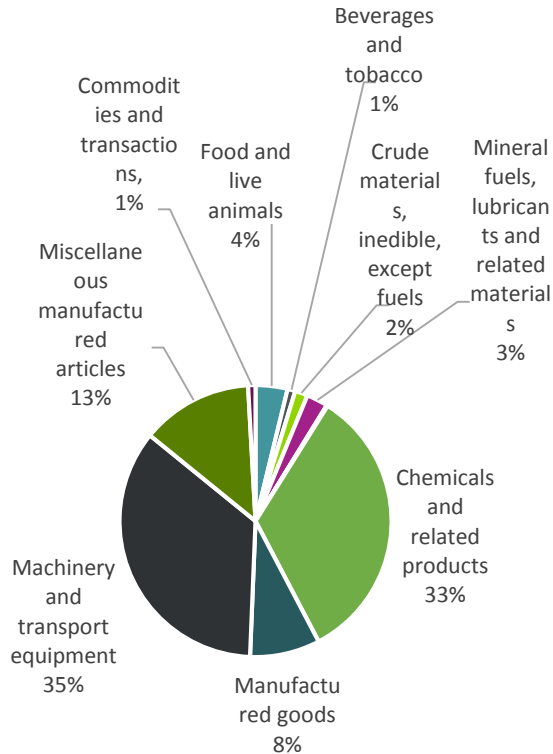


Share of Imports with EU countries (UK, 2016)

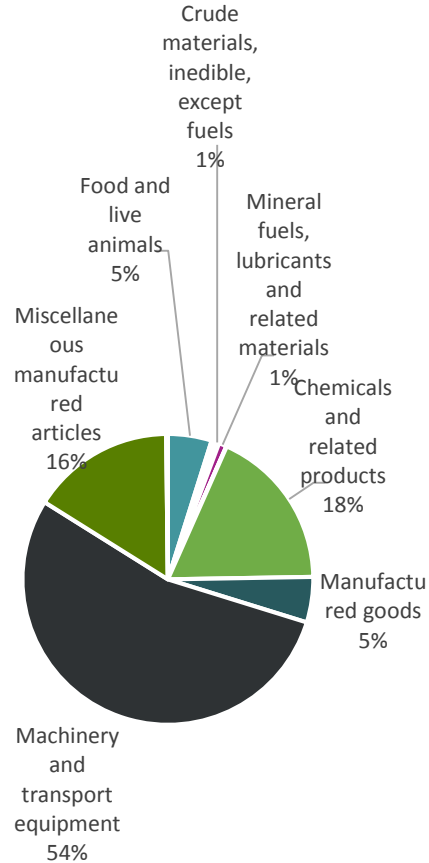


Key EU export goods markets are mainly in Machinery and Transport equipment

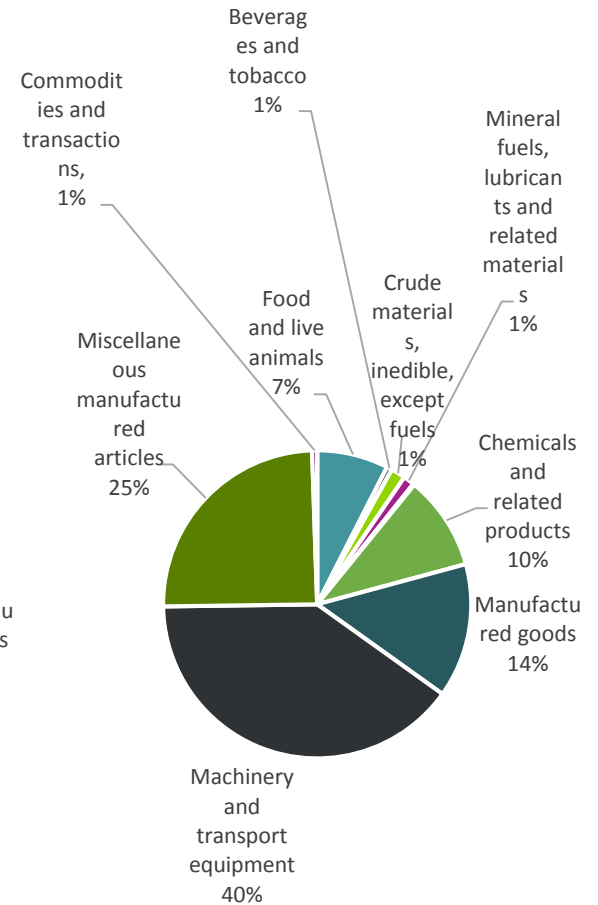
Bedford



Milton Keynes

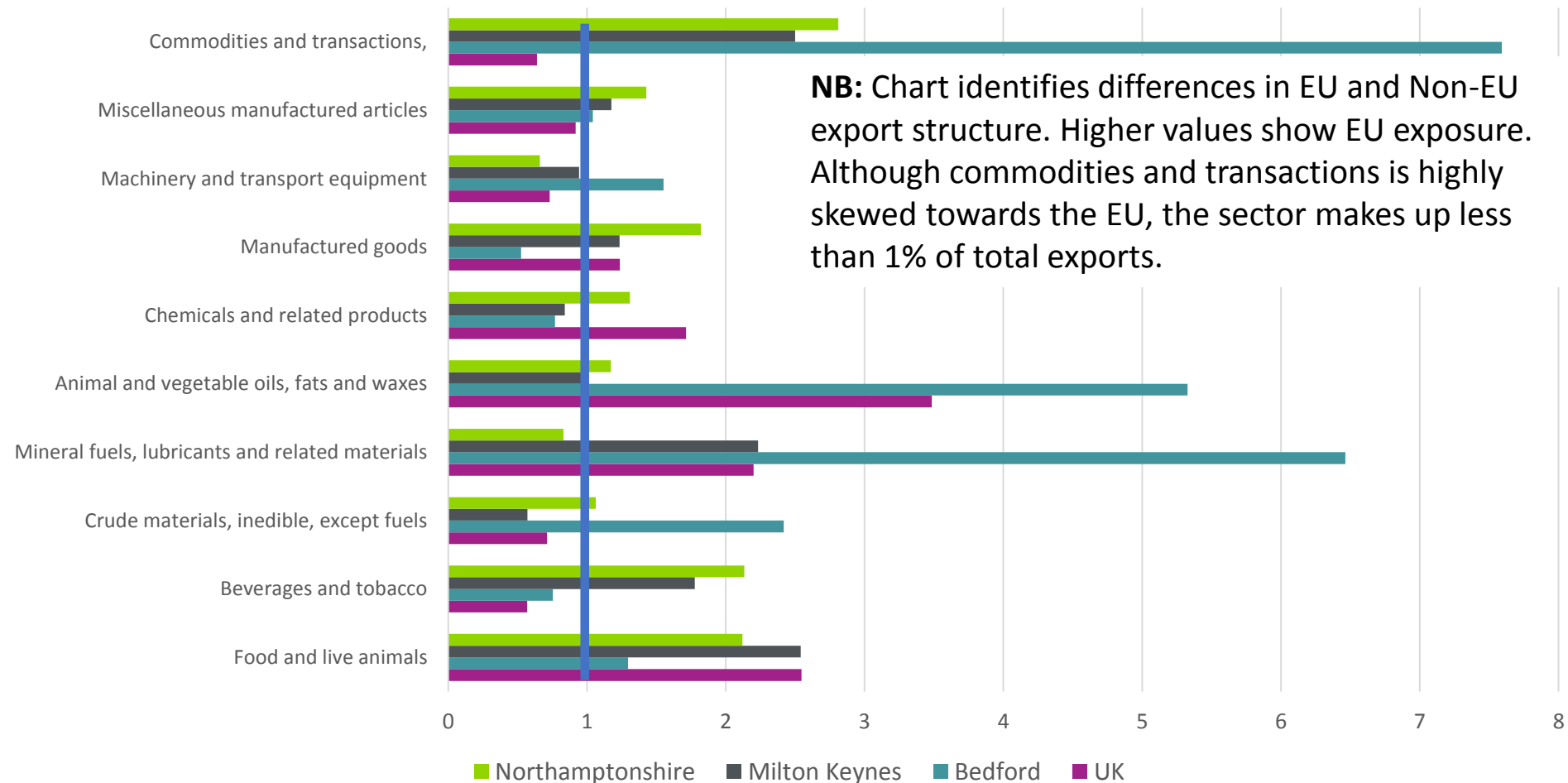


Northamptonshire



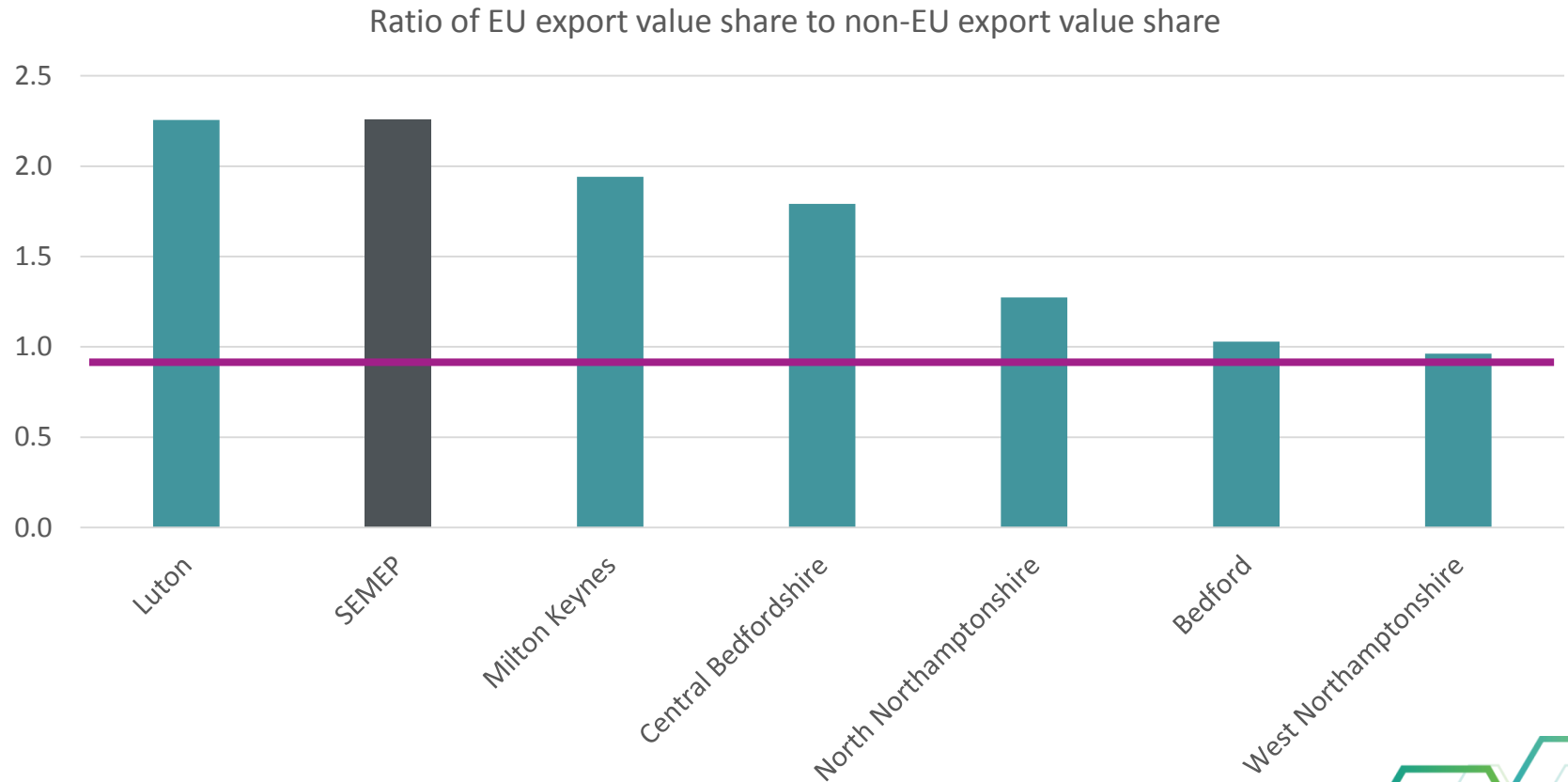
EU Goods Exports: the SEMLEP area is relatively exposed in Machinery and Transport, Plastics (mineral fuels category) and Food & Drink, although there is considerable local variation

Industry EU export share over Industry Non-EU export share (>1 shows EU trade specialization, <1 shows Non-EU specialization, 1 indicates no difference in trade structure between EU & Non-EU))

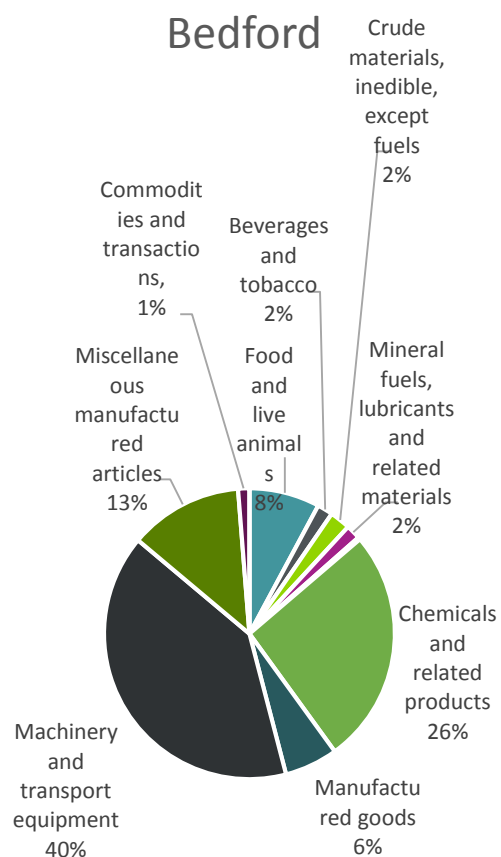


[Source: "Regional Trade in Goods Statistics dis-aggregated by smaller geographical areas" HMRC 2016]

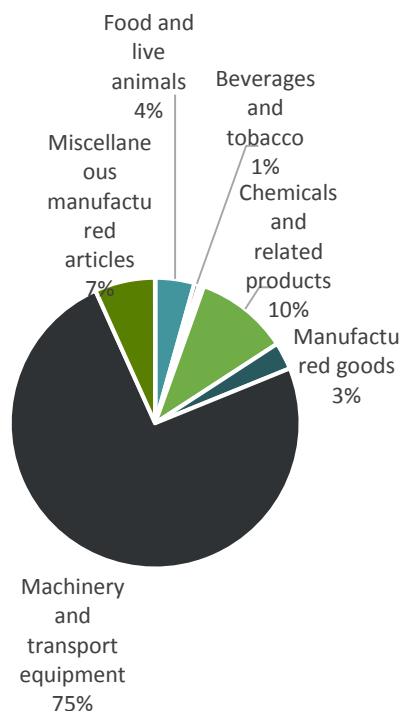
Local areas most at risk are Luton and Milton Keynes, although all areas are more exposed than the UK average



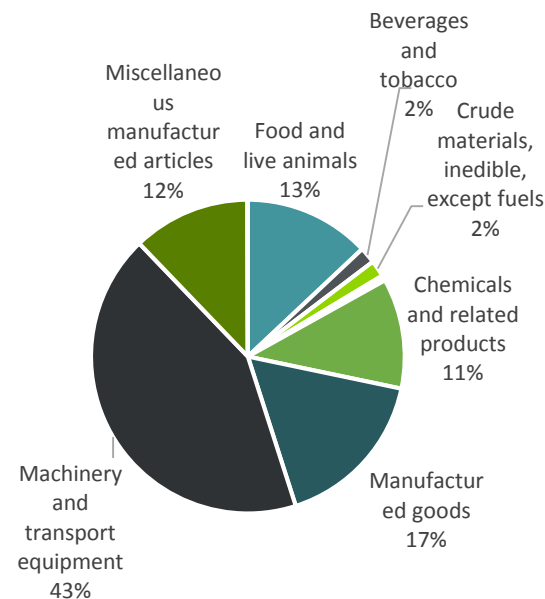
Key EU import goods markets are again mainly in Machinery and Transport equipment



Milton Keynes



Northamptonshire

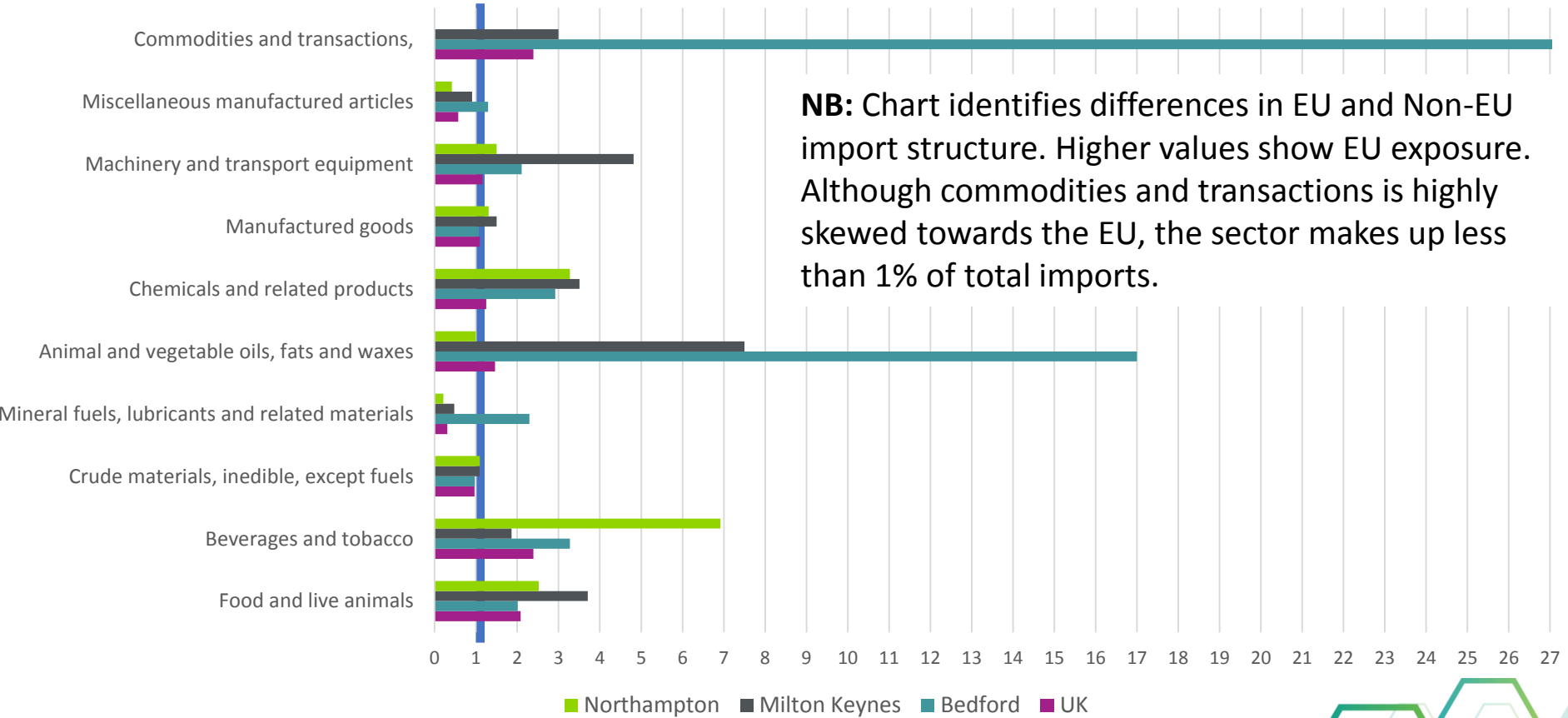


NB: sectors with less than 1% share have had their labels removed to conserve space.

[Source: "Regional Trade in Goods Statistics dis-aggregated by smaller geographical areas" HMRC 2016]

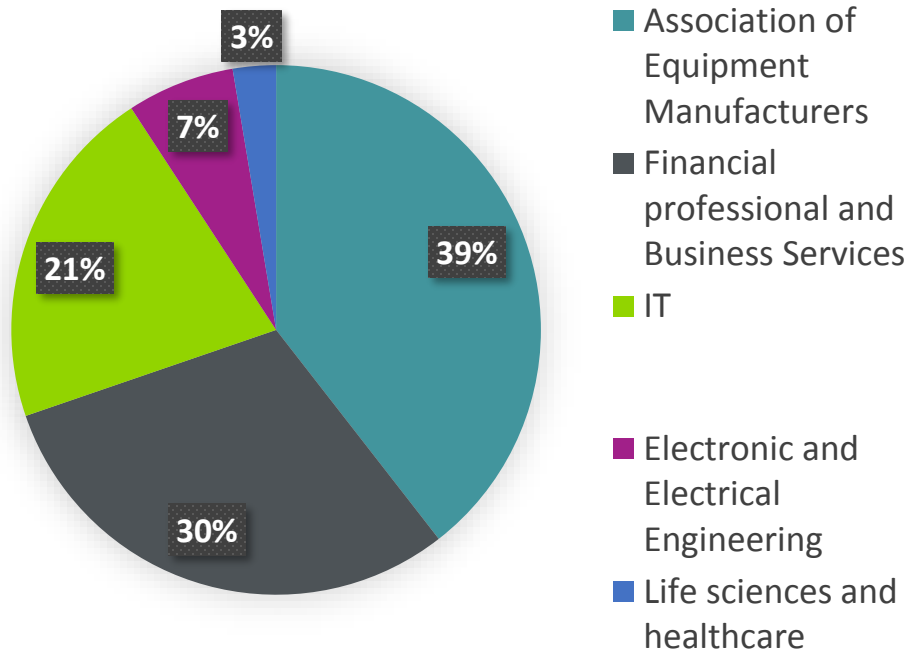
EU Goods Imports: high exposure on crude oil products, natural oils, Machinery and Food and Drink

Industry EU export share over Industry Non-EU export share (>1 shows EU trade specialization, <1 shows Non-EU specialization, 1 indicates no difference in trade structure between EU and Non-EU)

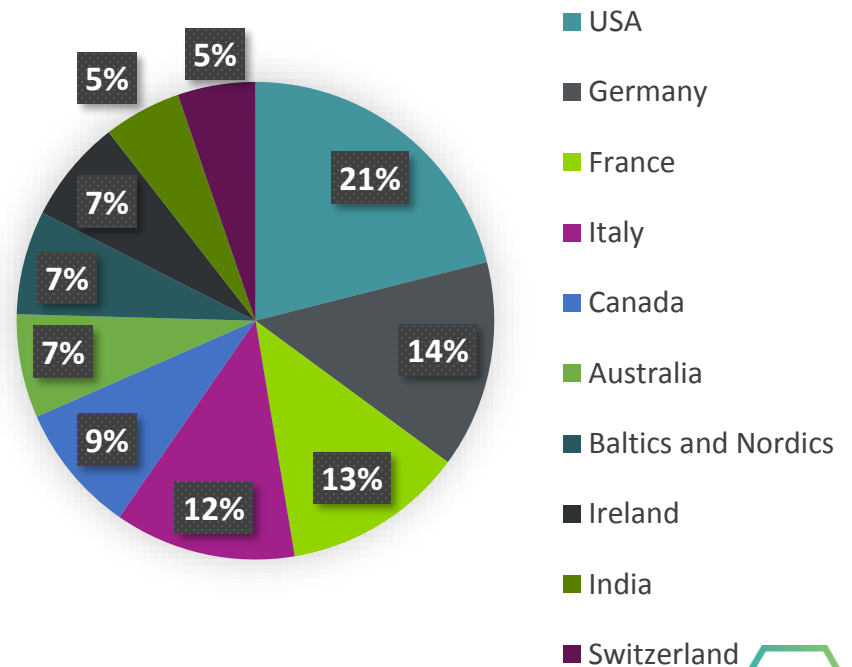


In terms of FDI characteristics, the SEMLEP area has strong ties with the USA and Germany, and attracts FDI in a variety of sectors

Inward FDI by sector, 2017



Inward FDI by partner, 2017



SEMLEP

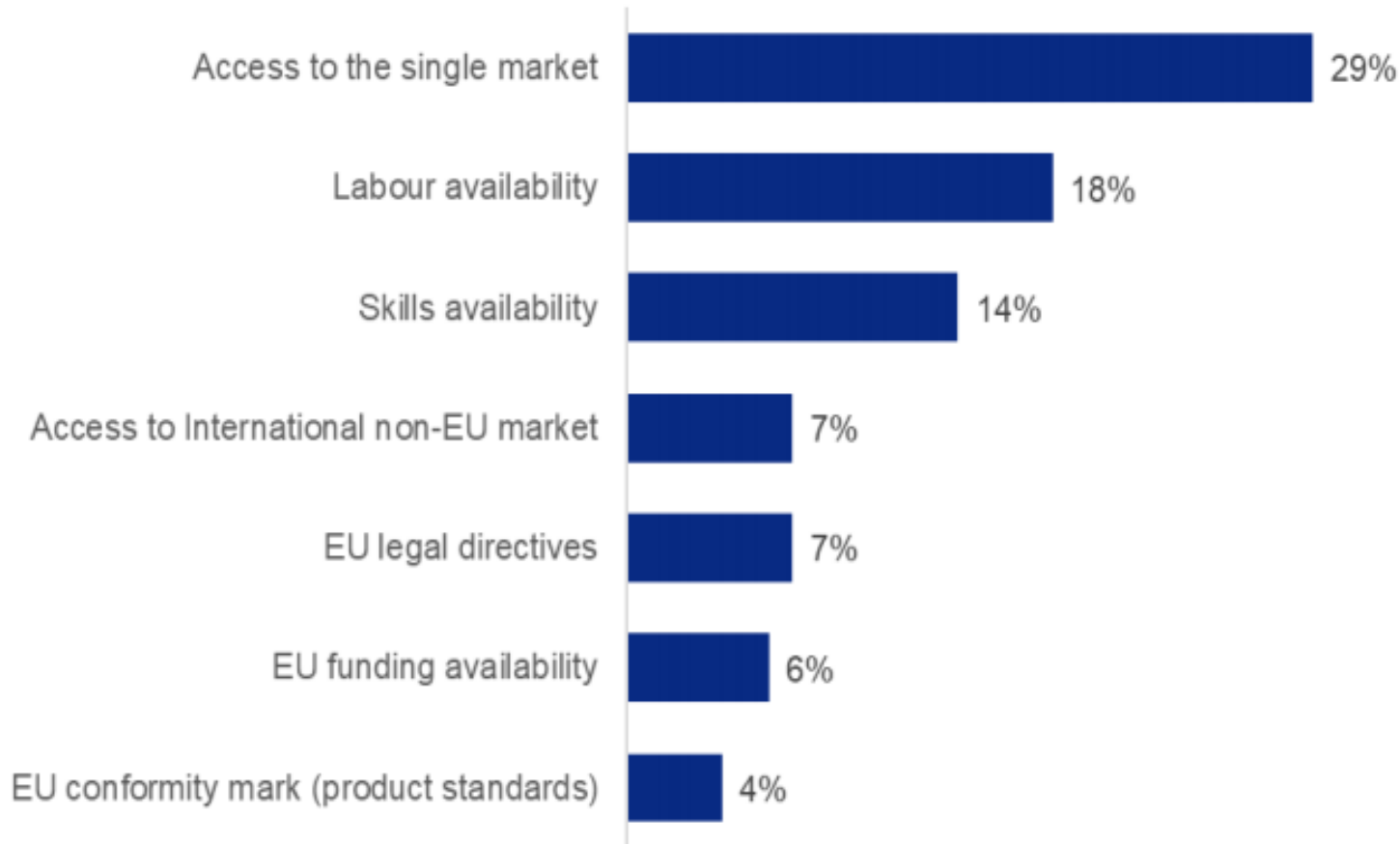
South East Midlands
Local Enterprise Partnership

[Source: DIT, 2017]



Business in the SEMLEP area are most concerned about access to the single market and labour/skills

Key issues for negotiations to leave the European Union



The SEMLEP area has one of the strongest rates of business start-ups in the country

100

Start-Ups per 10,000 population in 2017

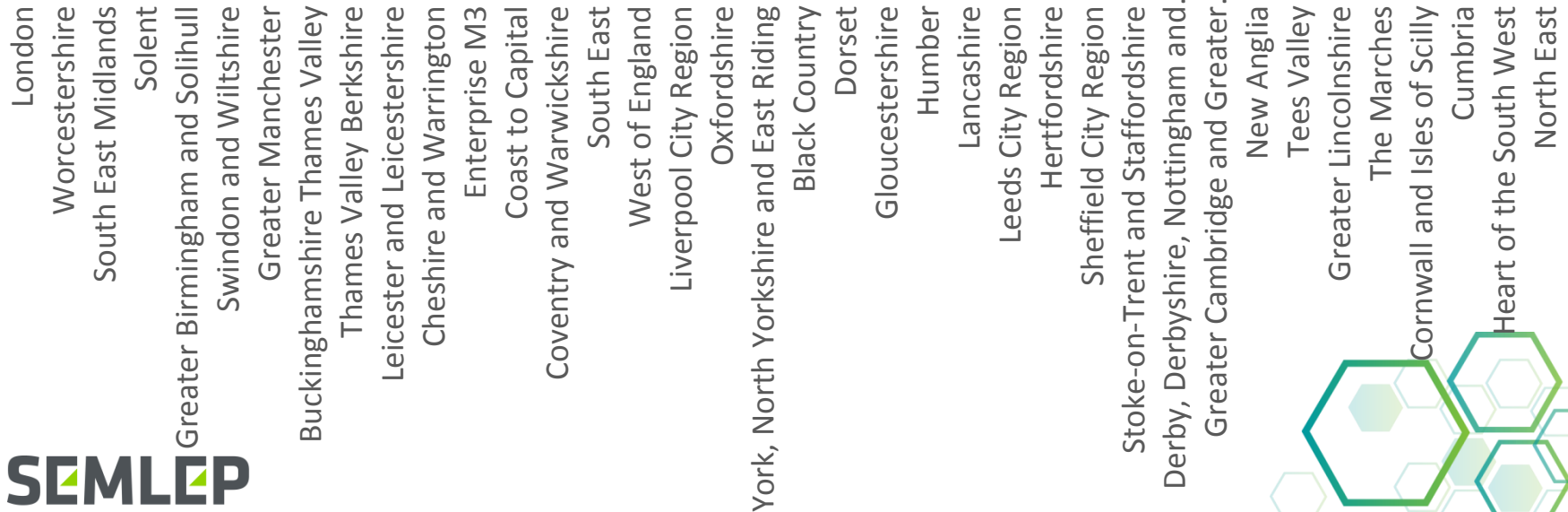
80

60

40

20

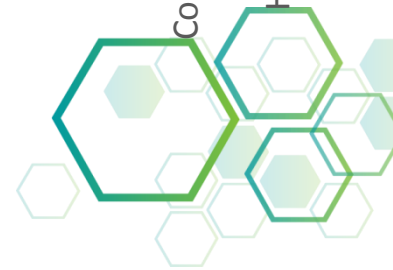
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SEMLEP

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[Source: Enterprise Research Centre, (2018), UK Local Growth Dashboard]



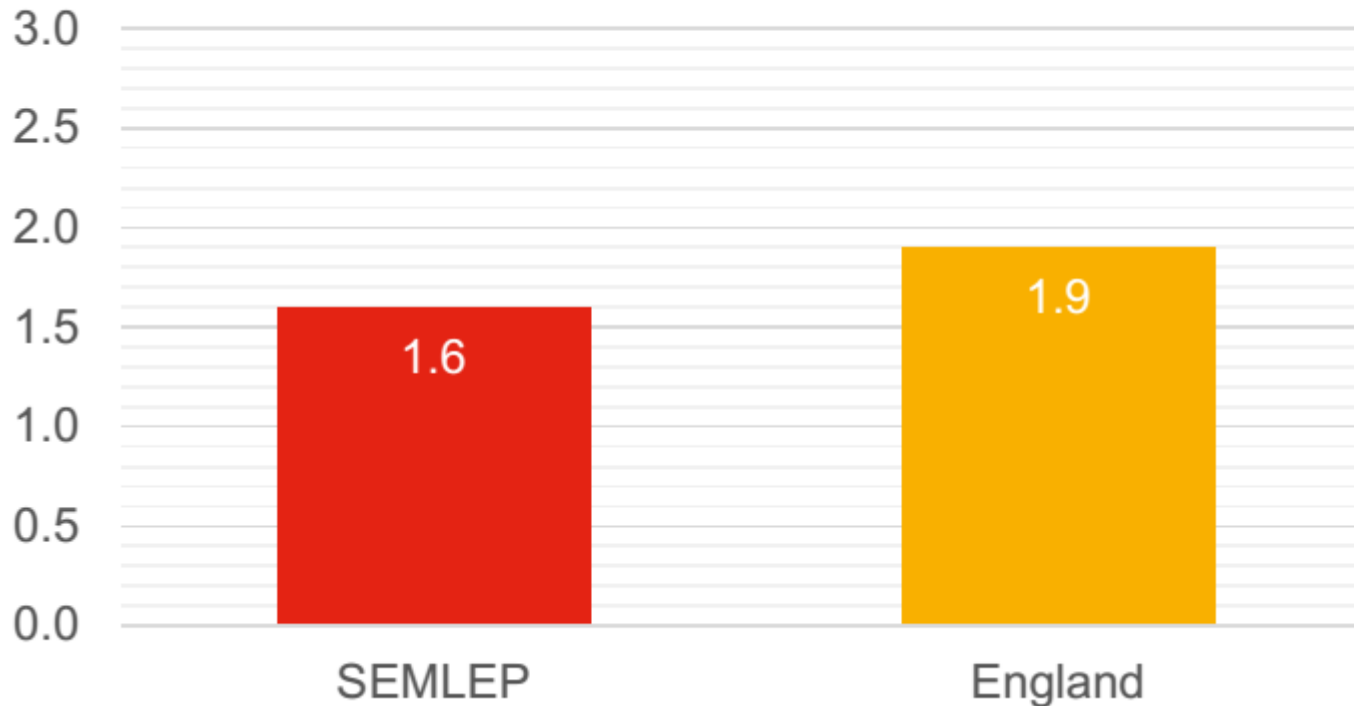
It contains two of the top ten cities in the UK for start-ups

Rank	City	Business start-ups per 10,000 population, 2016	Business closures per 10,000 population, 2016	Churn rate*
10 cities with the highest start-up rate				
1	London	112.3	90.7	3.8
2	Slough	82.9	56.7	6.5
3	Milton Keynes	80.7	62.0	4.0
4	Manchester	78.1	53.2	6.8
5	Northampton	74.3	64.3	2.5
6	Reading	73.5	60.5	2.7
7	Southampton	70.3	52.0	5.5
8	Brighton	69.3	59.3	2.2
9	Basildon	68.2	49.1	4.8
10	Peterborough	65.4	43.1	6.6

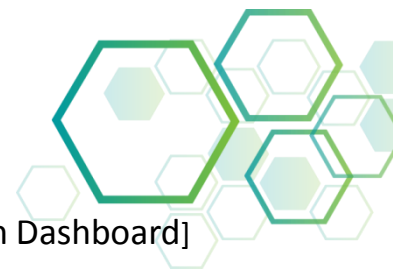


But, while strong on start-ups, the area is a 'cold spot' for 'scale-ups'

Start-ups Scaling <£500k to £1m + in 3 years 2014-17 (%)



In its 2017 Scale-Up Review, the Scale-Up Institute identified SEMLEP as one of nine scale-up 'cold spots' requiring particular attention.



Scale-Up has been identified as a particular issue for the High-Tech Cluster

“For the cluster to realise its potential in the ambit of high performance technology, there needs to be a continuing flow of entrepreneurial new firms; but in addition, more businesses must grow to medium size and beyond.”

5 Broad Priorities for Action

- i) Growth Finance
- ii) Building Leadership Capability
- iii) Routes to Market, and Visibility
- iv) Skills
- v) Infrastructure Provision



Access to skills is a barrier to scale-up across the Growth Corridor

Scale-Up Institute's Assessment of the top three barriers to scale-up in each part of the Growth Corridor



TALENT AND SKILLS

Access to the talent you can hire who can do the jobs you have available



ACCESS TO FINANCE

Access to private equity (eg from Venture Capital)



LEADERSHIP

Leadership development: training and developing the people you have

Oxfordshire



TALENT AND SKILLS

Access to the talent you can hire who can do the jobs you have available



ACCESS TO MARKETS

Access to markets and customers in the UK

Access to larger corporates in supply chains

SEMLEP



TALENT AND SKILLS

Access to the talent you can hire who can do the jobs you have available



ACCESS TO MARKETS

Access to markets and customers in the UK

Access to markets and customers internationally

Bucks



TALENT AND SKILLS

Access to the talent you can hire who can do the jobs you have available



ACCESS TO FINANCE

Access to the right finance for the business (including debt finance, bank loans, credit cards, overdrafts)



ACCESS TO MARKETS

Access to markets and customers in the UK

GCGP (Greater Cambridge and Greater Peterborough)

Scaleups also want new programmes to complement existing provision for key areas, such as:

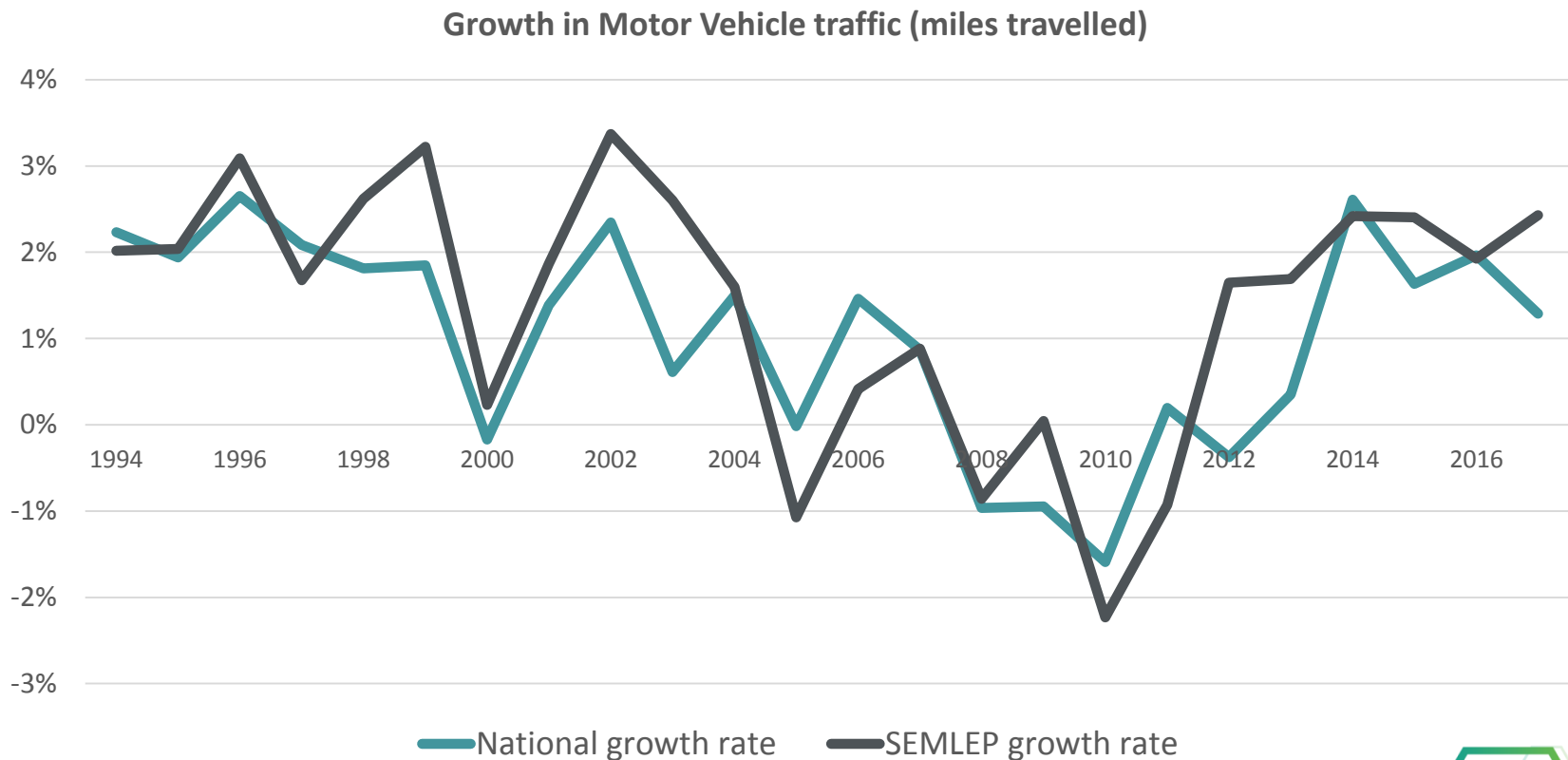
- Overcoming barriers to accessing talent and skills, and finance.
- Better signposting to finance and investment sources, writing applications, and raising the profile of investing to scale.
- Accessing incubator and accelerator programmes across the region, with many businesses unaware of their eligibility for programmes available.

SEMLEP is focused on meeting these needs through their scaleup provision.

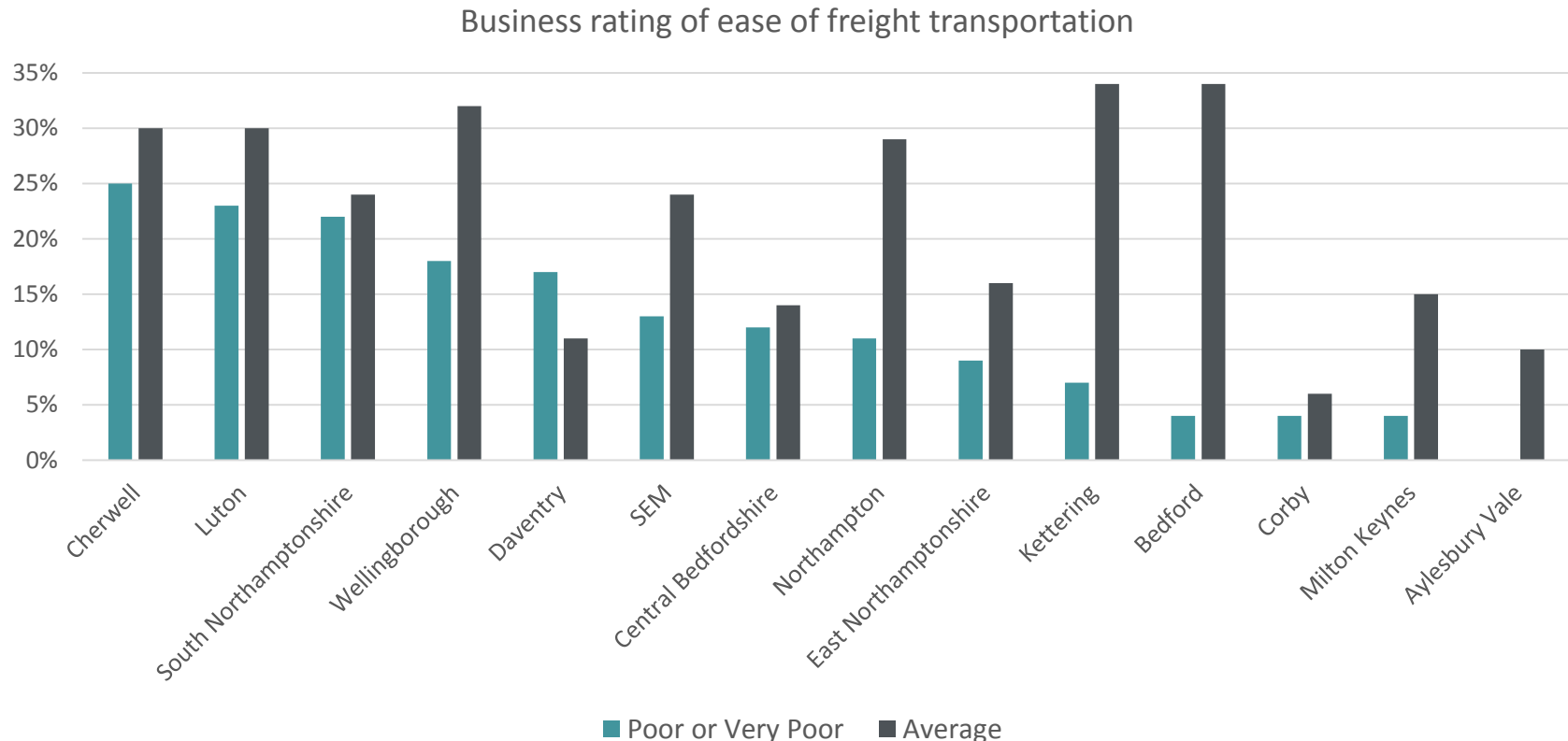
[Source: Scale-Up Institute, (2017), Annual Scale-Up Review]



Motor vehicle traffic has grown faster in the SEMLEP area than the rest of the UK in the last 5 years, but has followed a similar trend

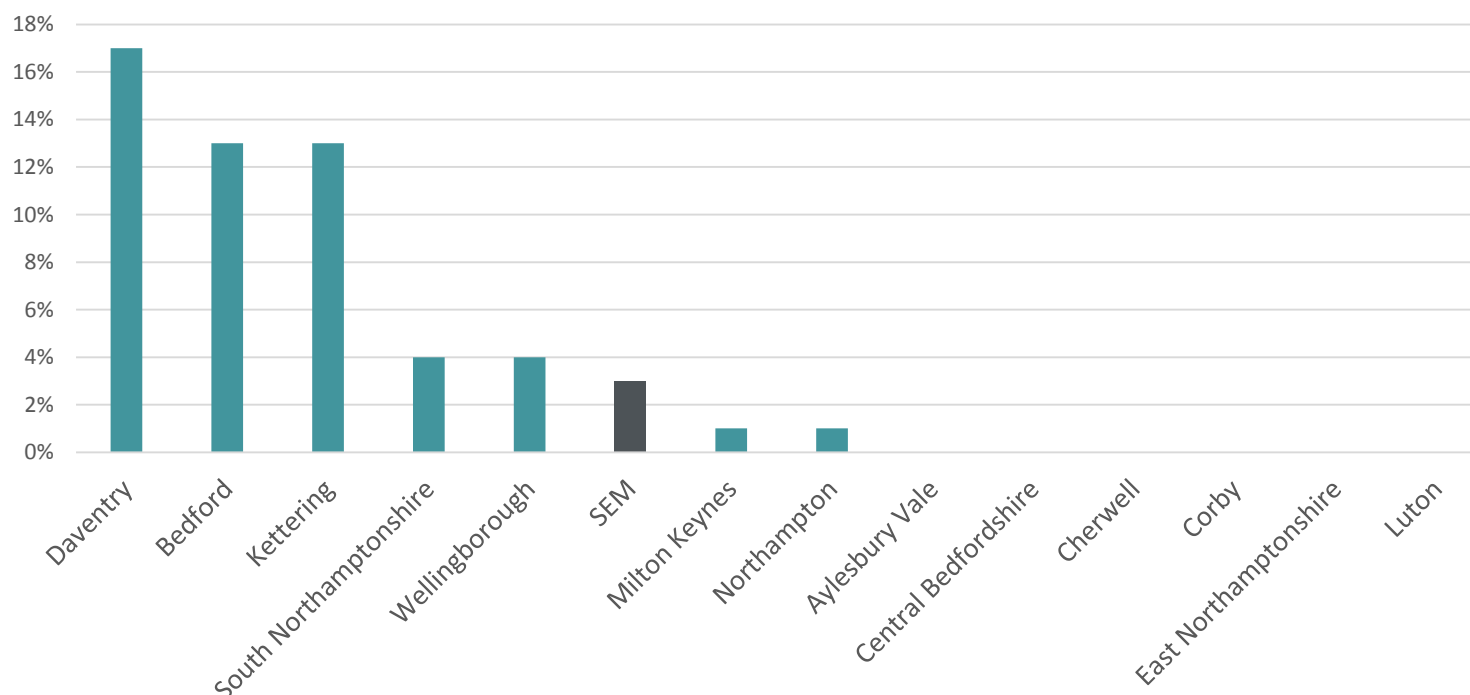


Businesses benefit from the area's strategic location in the transport network, but there is scope for improvement, particularly with regards to freight transportation



In addition, a lack of transport connectivity in some areas is contributing to hard-to-fill business vacancies

Proportion of businesses stating poor transport as a cause of hard to fill vacancies



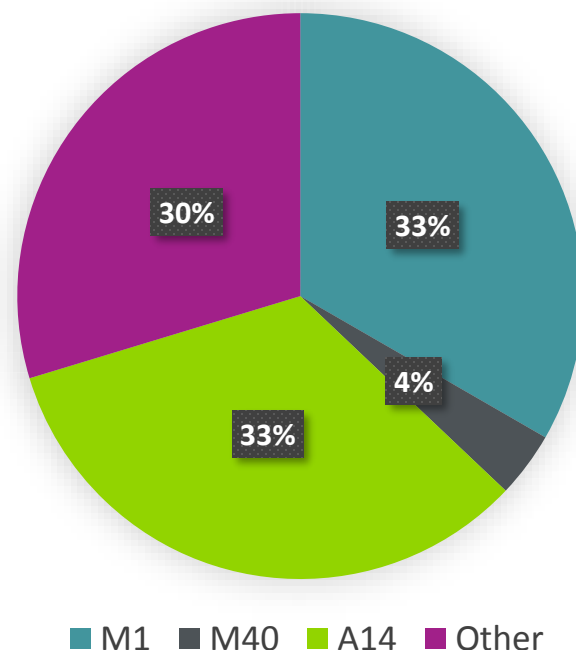
- 4th main reason for hard to fill vacancies in **Daventry** and **Bedford**
- 5th highest in **Kettering**



Northamptonshire's top 10 HGV heavy traffic areas: significant traffic in routes linking Northampton to Milton Keynes, and Northampton to Cambridge

Road	Start Junction	End Junction	Link Length (miles)	HGV density
M1	Milton Keynes	15	4.6	7665.70
M1	15A	16	3.85	6898.35
M1	15	15A	2.73	6824.62
M40	Banbury	Bicester	2.17	4170.65
A14	A5199	A508	4.91	3690.32
A14	Towards Leicester	A5199	5.59	3673.40
A14	8	9	1.99	3619.22
A14	9	10	1.3	3601.28
A14	A6	A43/A4300	2.8	3570.23

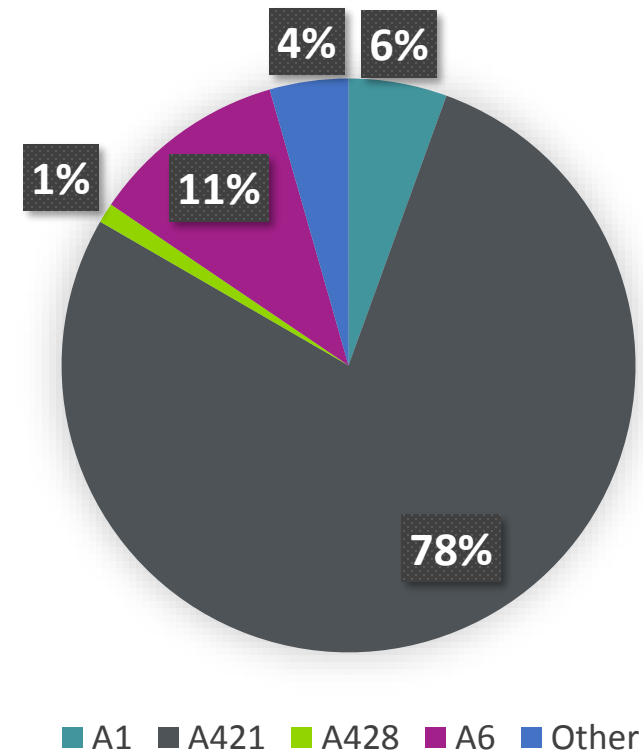
Share of HGV traffic by road



Bedford's top 10 HGV heavy traffic areas: high traffic in routes linking to Cambridge and Milton Keynes

Road	Start Junction	End Junction	Link Length	All HGVs	Density (HGV)
A1	A1 spur	Peterborough LA	0.12	231.65	1930.42
A421	Milton Keynes LA	A5134	2.3	3951.12	1717.88
A421	A600	A603	0.75	1206.38	1608.51
A421	A428(T)	A1(T)	4.72	7102.18	1504.70
A421	A603	A428	2.49	3316.14	1331.78
A1	Cambridge	A421 Chawston	0.68	878.45	1291.84
A5141	A421	A5134	0.56	188.77	337.09
A6	Cut Throat Lane, Bedford	Wellingborough	9.07	2220.28	244.79
A428	A422	A5134	0.68	155.24	228.29

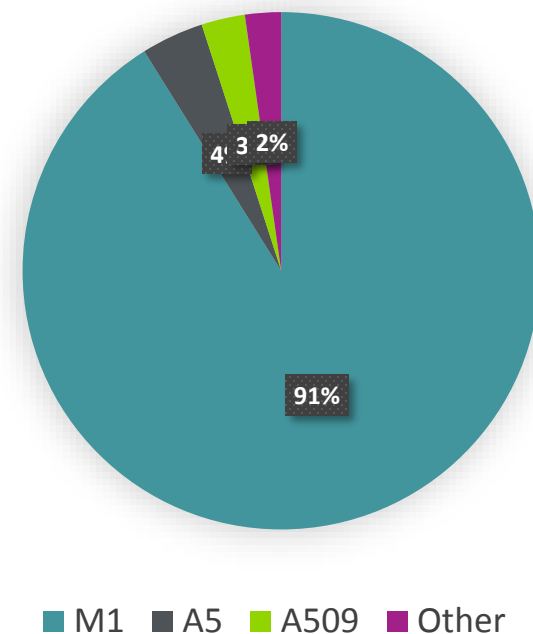
Share of HGV traffic by road



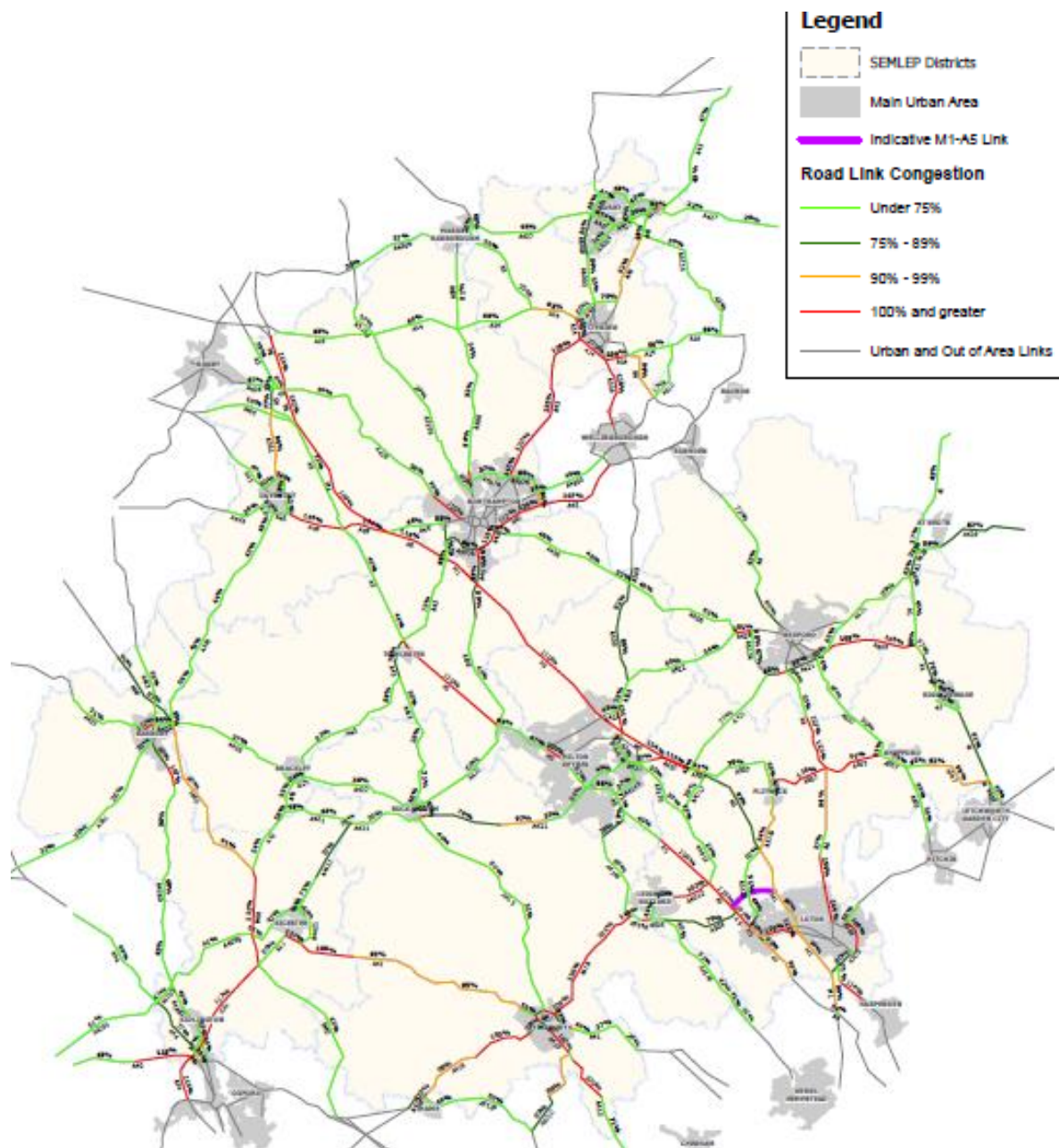
MK's top 10 HGV heavy traffic areas: virtually all traffic connecting MK to Northampton and Luton

Road	Start Junction	End Junction	Link Length (miles)	Density (HGV)
M1	14	Towards Northampton	7.58	7696.906
M1	Milton Keynes	14	2.86	6567.573
A5	A4146N	A4146S	1.12	636.9643
A5	Aylesbury Vale	A422	2.49	598.004
A5	A4146	Luton	2.8	394
A509	B526	A422	1.99	371.1658
A422	B4034	Willen Rd	1.86	341.5269
A421	Rhoscolyn Drive	Grafton St	1.99	317.8543
A422	Willen Rd	A509	0.62	306.5
A509	B4034	Tongwell St	1.74	176.8161
A509	A5(T)	B4034	1.55	173.4
A509	A422	A428	6.15	161.0228
A422	A509	Bedford	4.35	102.6966

Share of HGV traffic by road



And without new investment, East-West congestion is expected to worsen, particularly around Northampton, Milton Keynes and Luton



[Source: WYG Group, 2014 2026 Network Stress Plan Base + Development]

Transport links play an important role in supporting growth, although these benefits take a long time to be realised

Positive effects on productivity

- Evidence from the UK shows that a 10% increase in road network access is associated with a local **increase in employment of 4%**, and a **3% increase in firms**.
- BUT some of this change is due to employees or firms relocating to more gentrified areas

Makes the wider area more desirable to live in

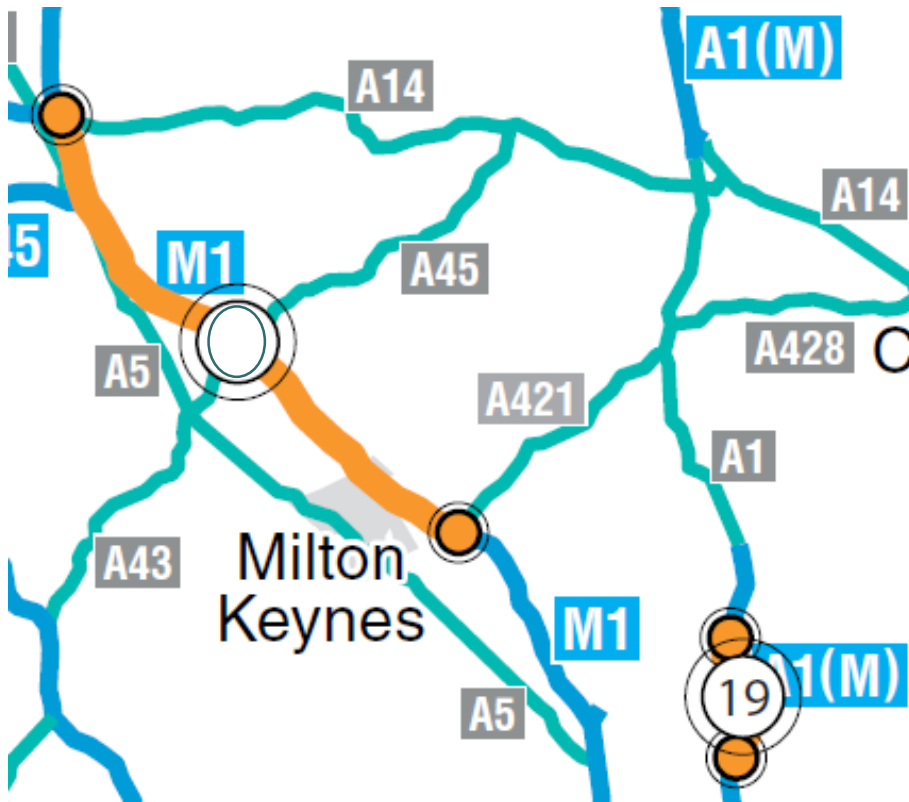
- Evidence from the US shows a **13% increase in property values** for homes 0.25 miles from new networks
- BUT also a **fall of 10%** for homes within 0.2 miles, due to pollution. **The net effect is positive**

But, there are long time-lags in realising these gains. This makes it **vital to start work now in order to realise benefits as soon as possible.**

- Evidence from Germany indicates that productivity **gains only manifested for firms which pre-emptively expanded** in response to improved rail network corridor.
- Evidence from Sweden shows **high growth** for cities connected to rail networks, but **only over a 50 year period**



Potential solutions: Smart Motorways and Expressways



Smart Motorways

A Smart Motorway has been introduced linking M1 J19 to MK South (J13), including hard shoulder running, as part of plans to **improve links between the SEMLEP area and London.**

Expressways

Involves adding motorway-quality infrastructure to major A-roads, to:

- Modernise junctions to improve traffic flow
- Detect incidents faster to speed up clear up.

SEMLEP

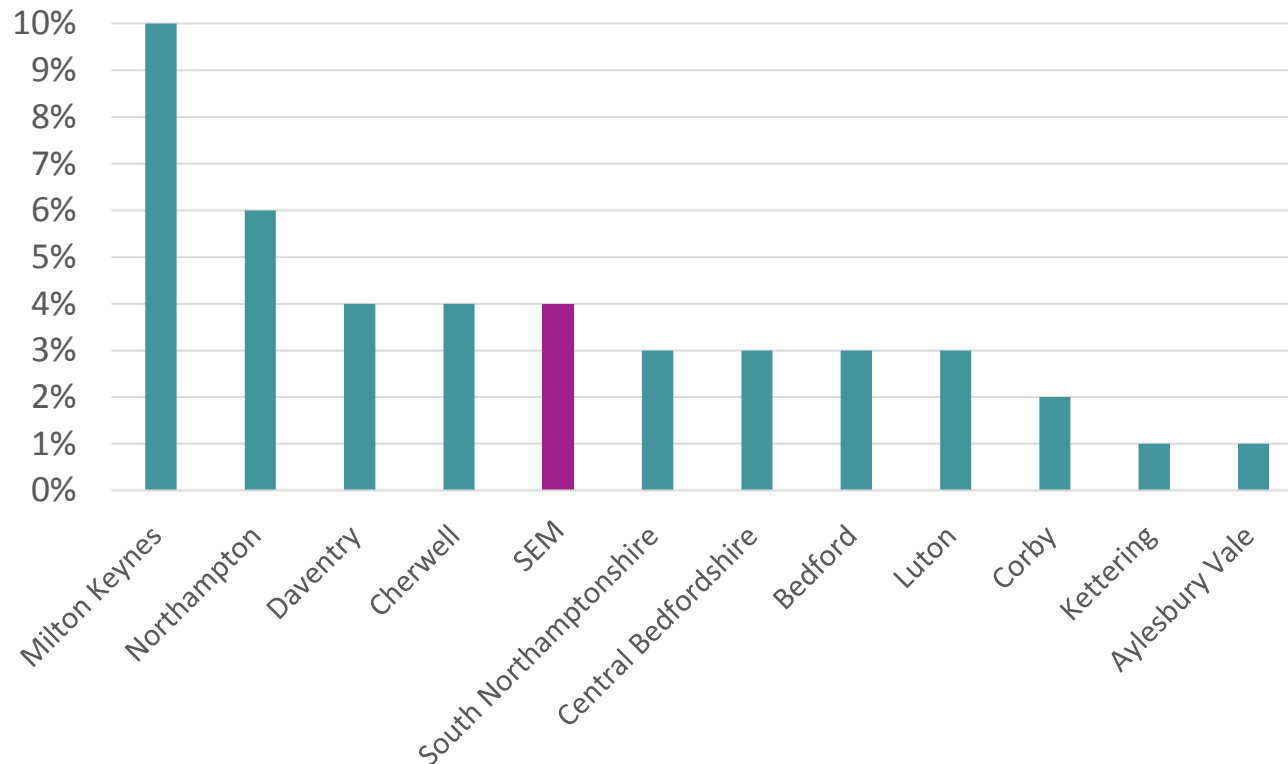
South East Midlands
Local Enterprise Partnership

[Source: Highways England Strategic Business plan 2015-2020]



Digital Connectivity is generally not a constraint for businesses, but remains a significant issue in certain areas.

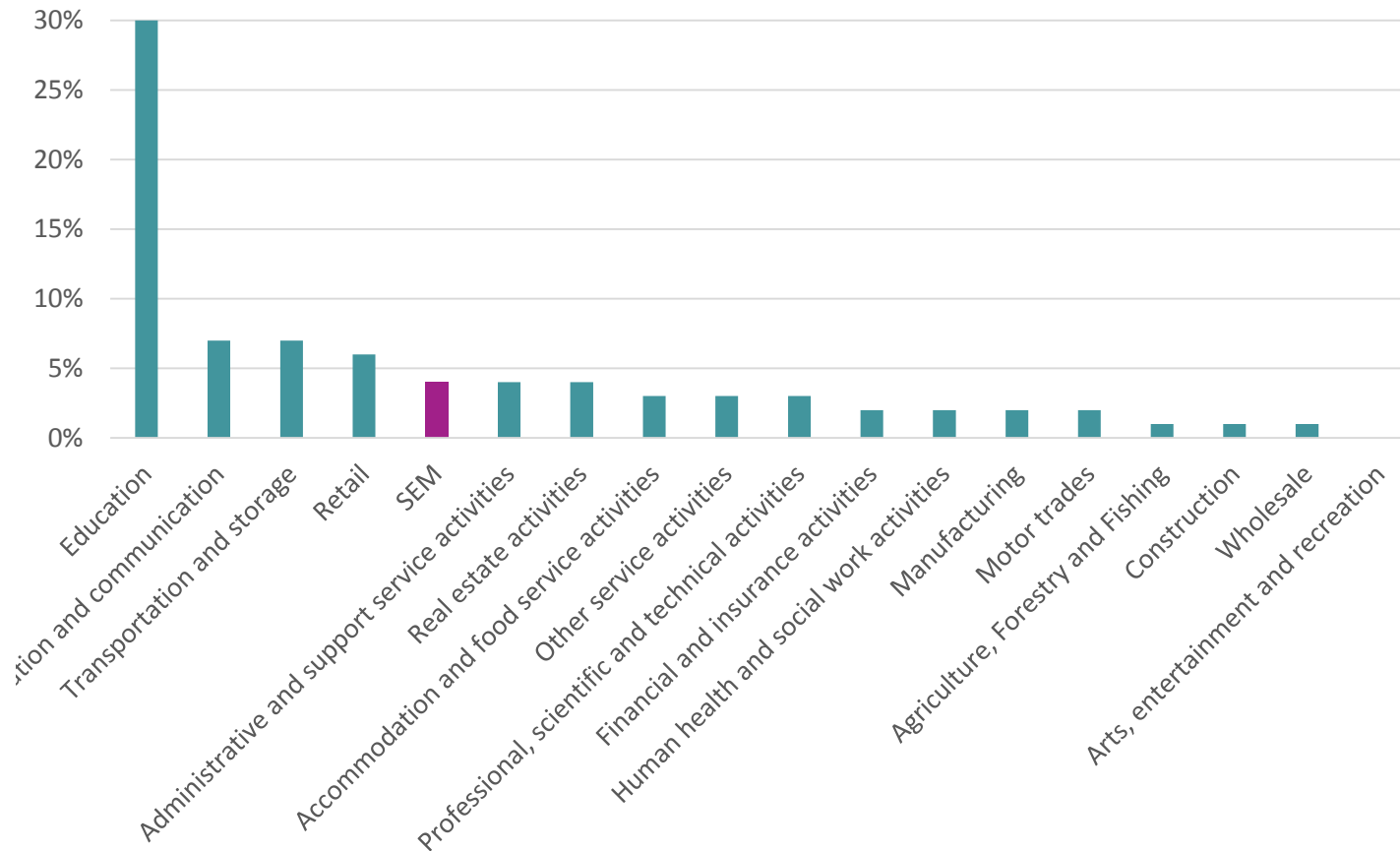
Proportion of businesses stating that IT infrastructure/ Broadband was a constraint on their growth (2017)



- 10th biggest concern for MK business
- 15th biggest concern in Northampton (same rank as in 2015)
- Concern levels in the Milton Keynes area is **more than double the SEMLEP average.**



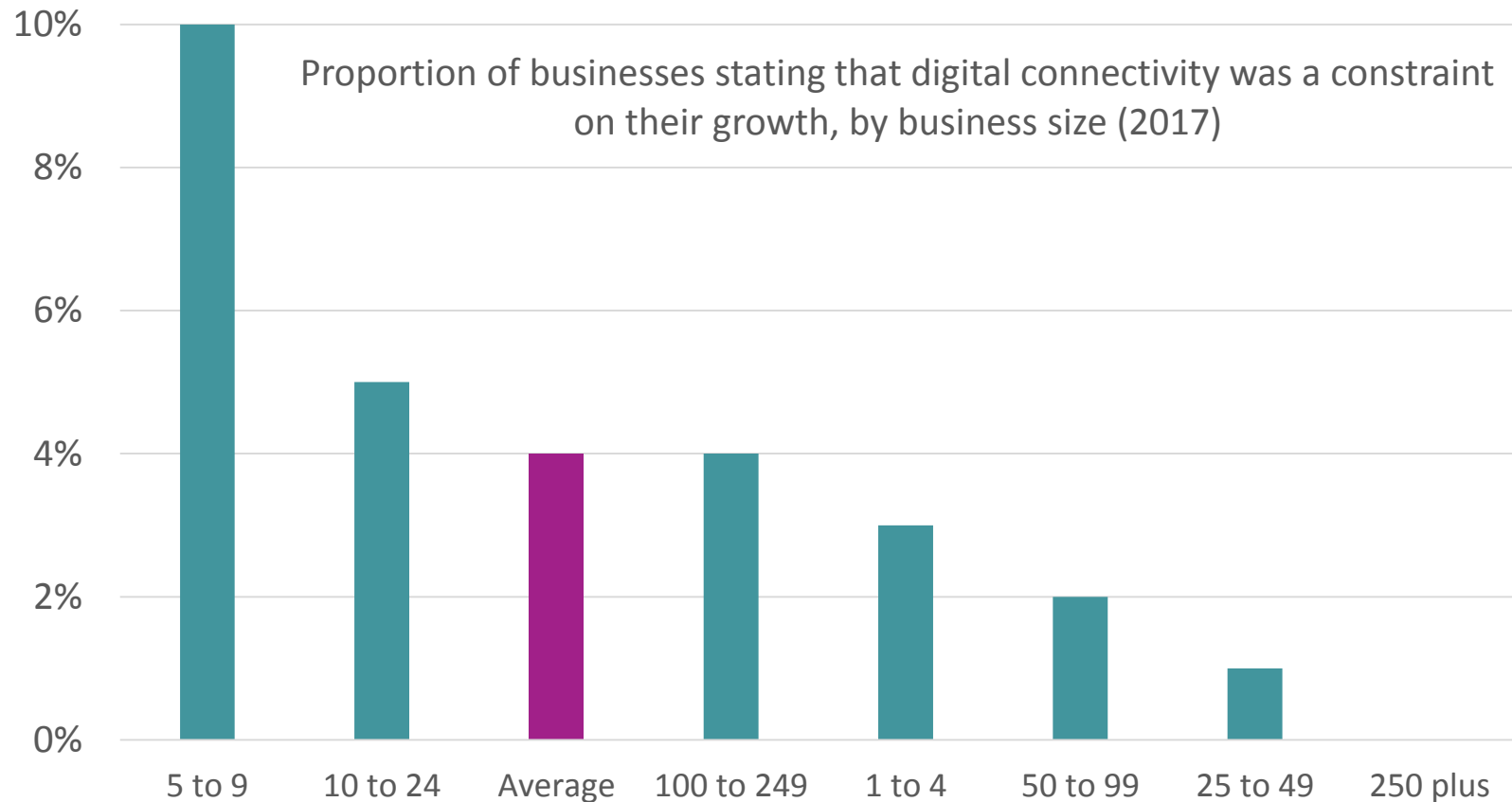
It is a major constraint for the Education sector, which could have implications for skills shortages



- 5th largest constraint for the Education sector
- 13th Biggest constraint for IT sector

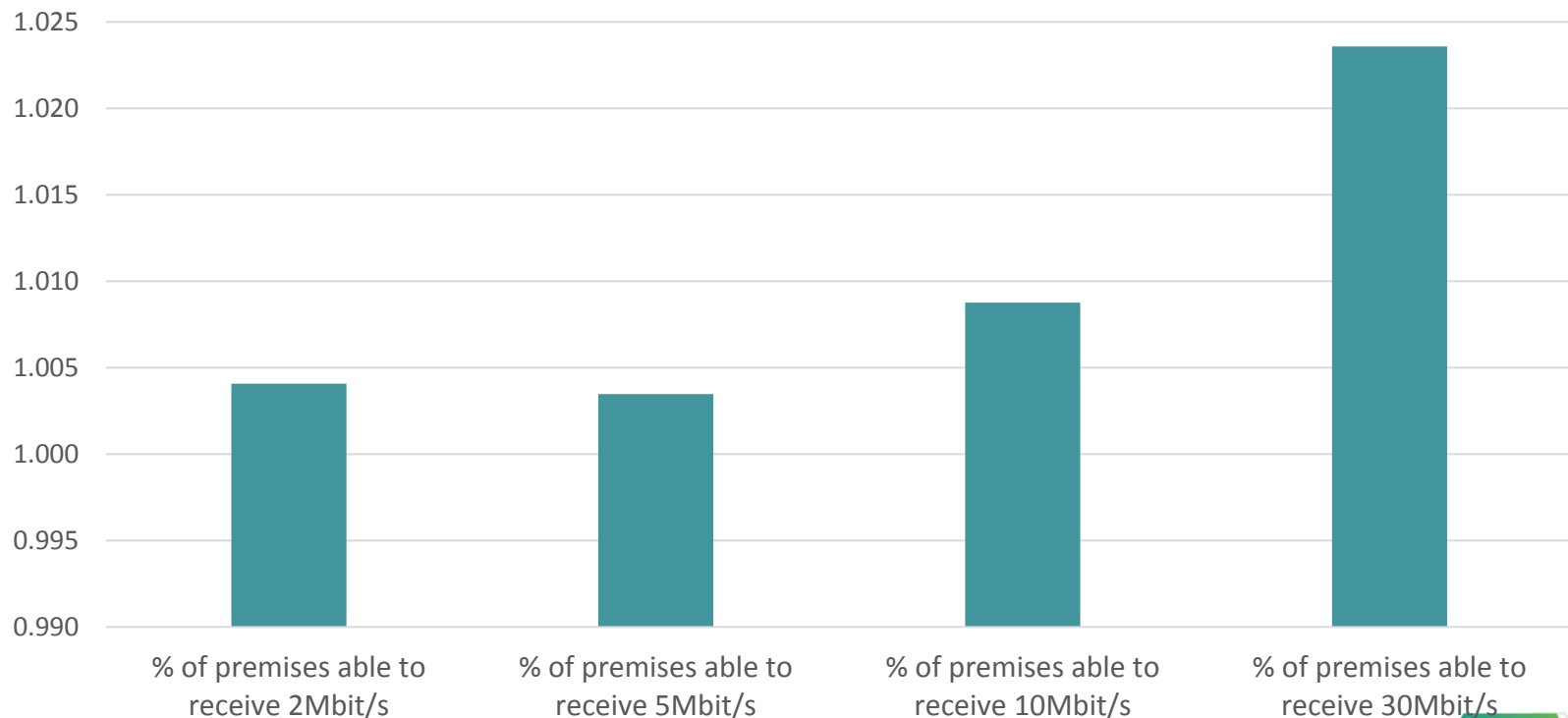


And it mainly negatively impacts businesses with 5-24 employees, the same business size class facing difficulties with scale-up



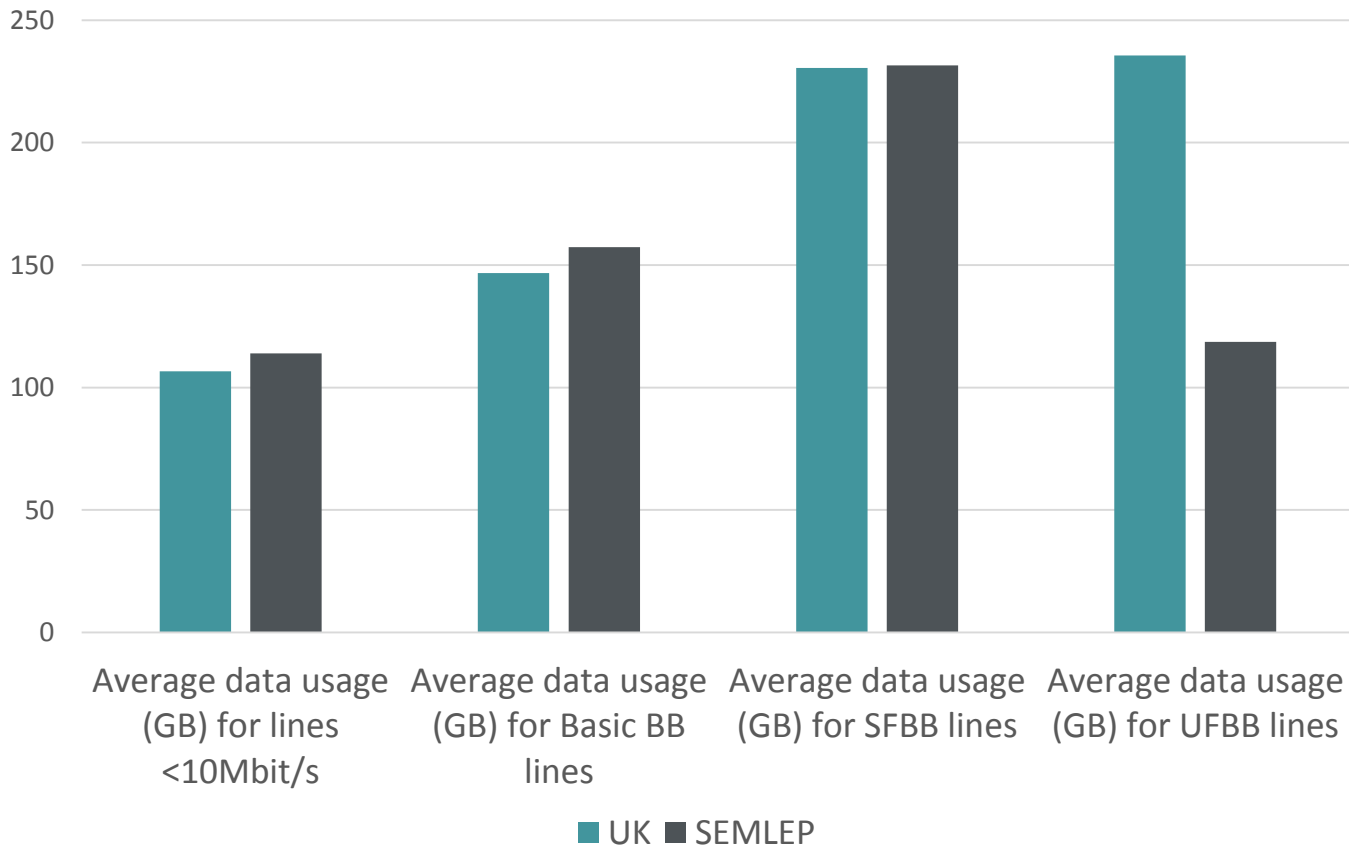
Digital connectivity supply in the SEMLEP area is above the UK average, particularly supply of 30MBps connections

Location Quotient for the proportion of premises with Broadband access, by connection speed (2017)



...but usage of ultra fast connections is below average, and low speed connections are being slightly overused compared to the UK average.

Average usage per line (in GB) by connection type



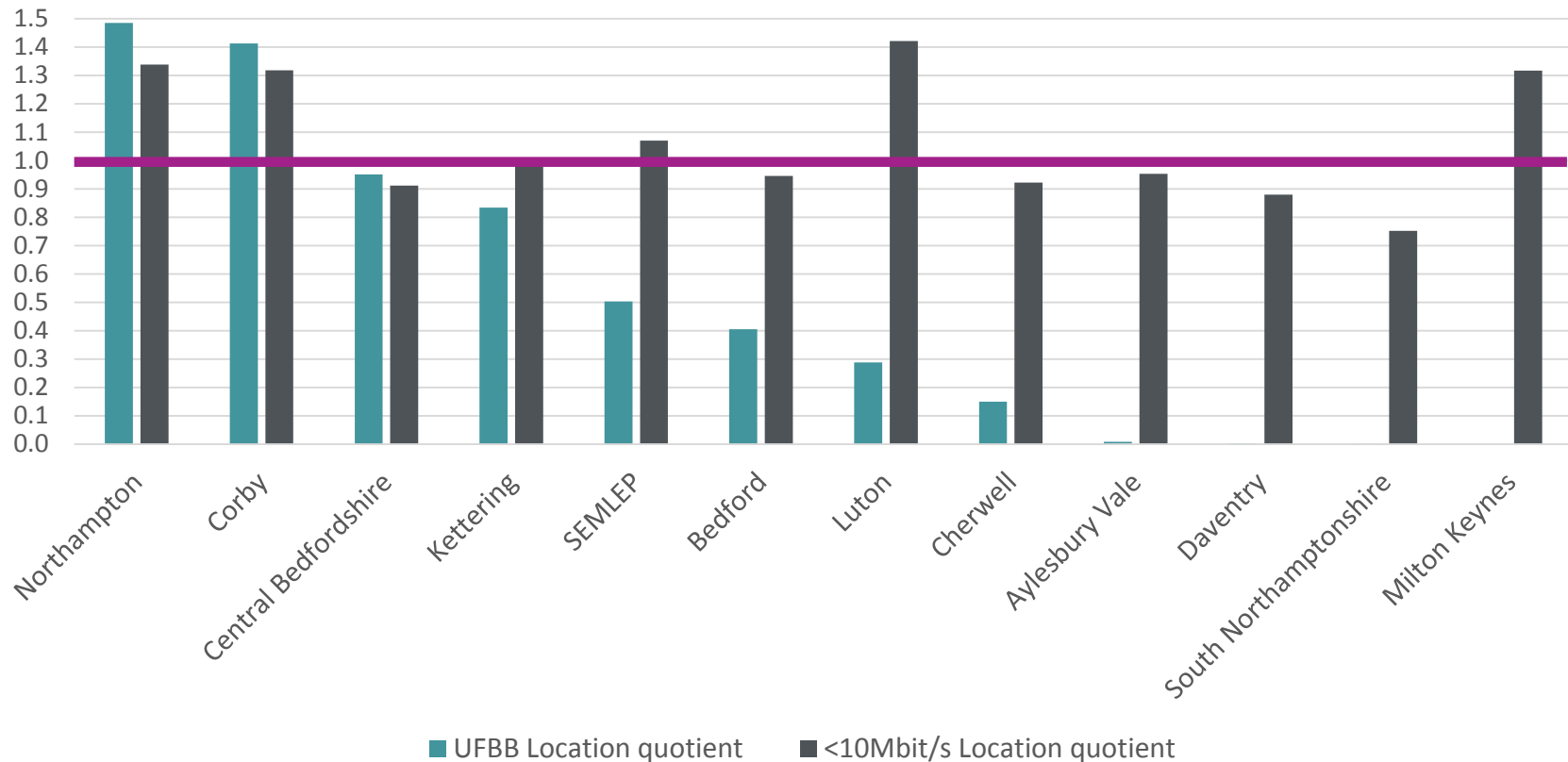
Definitions:

- **SFBB:** Superfast broadband, or a 24 MBps connection speed
- **UFBB:** Ultrafast broadband, or a 100 MBps connection
- **Basic:** 10-24 MBps connection



Overuse of poor connections occurs mainly in Milton Keynes and Luton, whereas Northampton and Corby are making good use of UFBF lines

Average data usage location quotients by area



■ UFBF Location quotient

■ <10Mbit/s Location quotient



The overall use of digital connectivity is slightly higher than average, particularly in MK and Corby...

Local annual data usage less national average, in GB

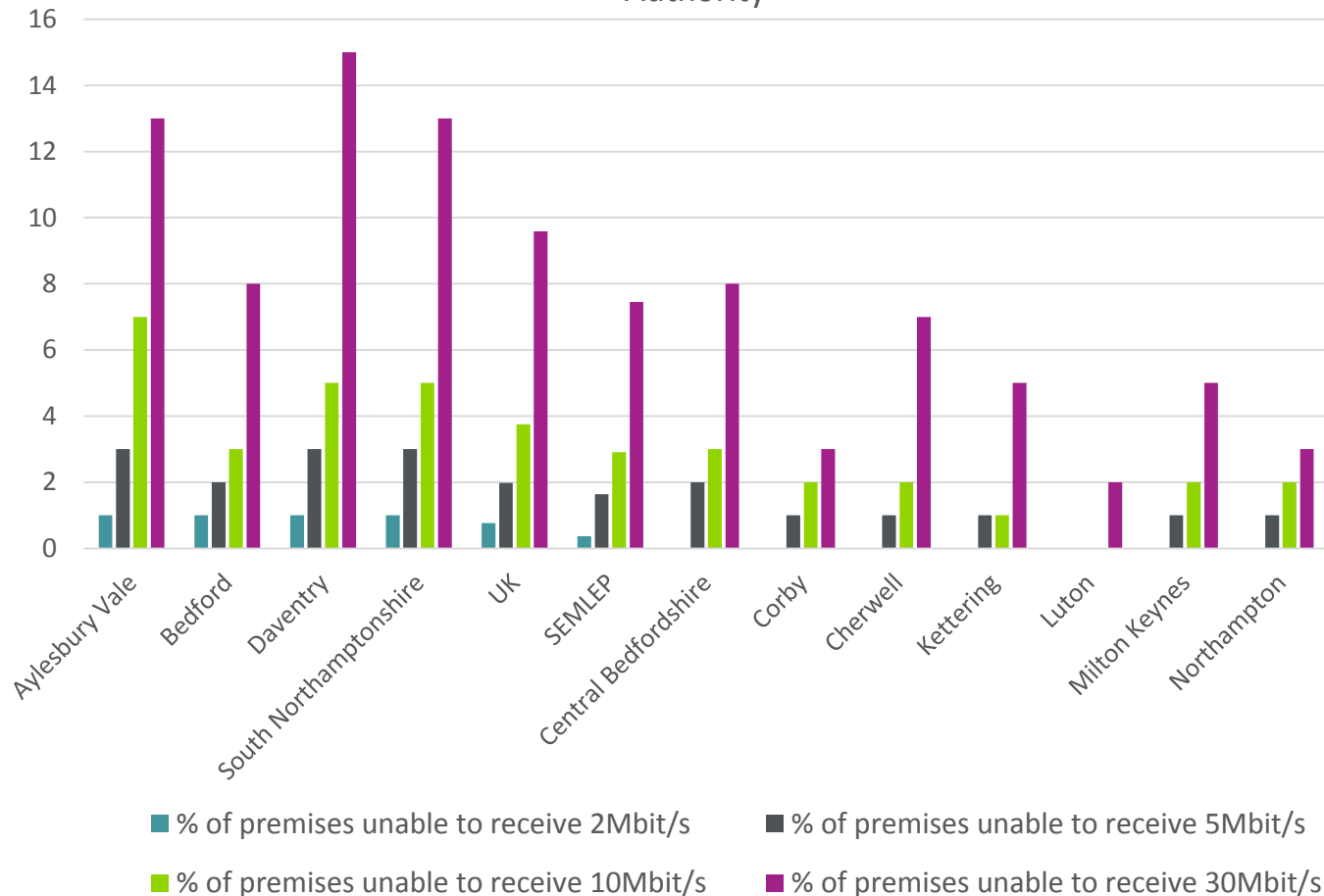


NB: This confirms that low speed connections are overused in these areas, high usage is heavily concentrated in areas with poor quality lines.



...but certain areas are lagging behind in terms of basic infrastructure.

Percent of premises *without* broadband, by connection speed and Local Authority



- **Aylesbury Vale, Daventry and South Northamptonshire** have an **above average lack of superfast broadband**
- Aylesbury Vale is in the top quintile of LAs with a lack of premises with at least 2 MBps connections.



Analysis of Broadband infrastructure projects shows a positive effect on productivity, but with both winners and losers

Evidence from Norway

- Suggests a **positive impact** on productivity of **\$0.27 per high-skilled worker**
- BUT finds a **negative impact** on productivity of **\$0.06 per low-skilled worker**, as broadband is a cheaper substitute for routine low-skill tasks.

Evidence from Australian manufacturing SMEs

- **Positive effect on productivity**
- BUT the strength and direction of the **effect is contingent on complementary digital technologies or skills**, such as VPNs and Supply Chain management software (and the knowledge of how to use them)

Therefore, in order for rural areas to benefit, they must have the skills and knowledge to use the technology.

- Numerous rural broadband projects in both the UK and US do not include retraining as part of the upgrade, explaining why rural areas tend to benefit less from upgrades.

Connection speed can make areas more attractive to live in

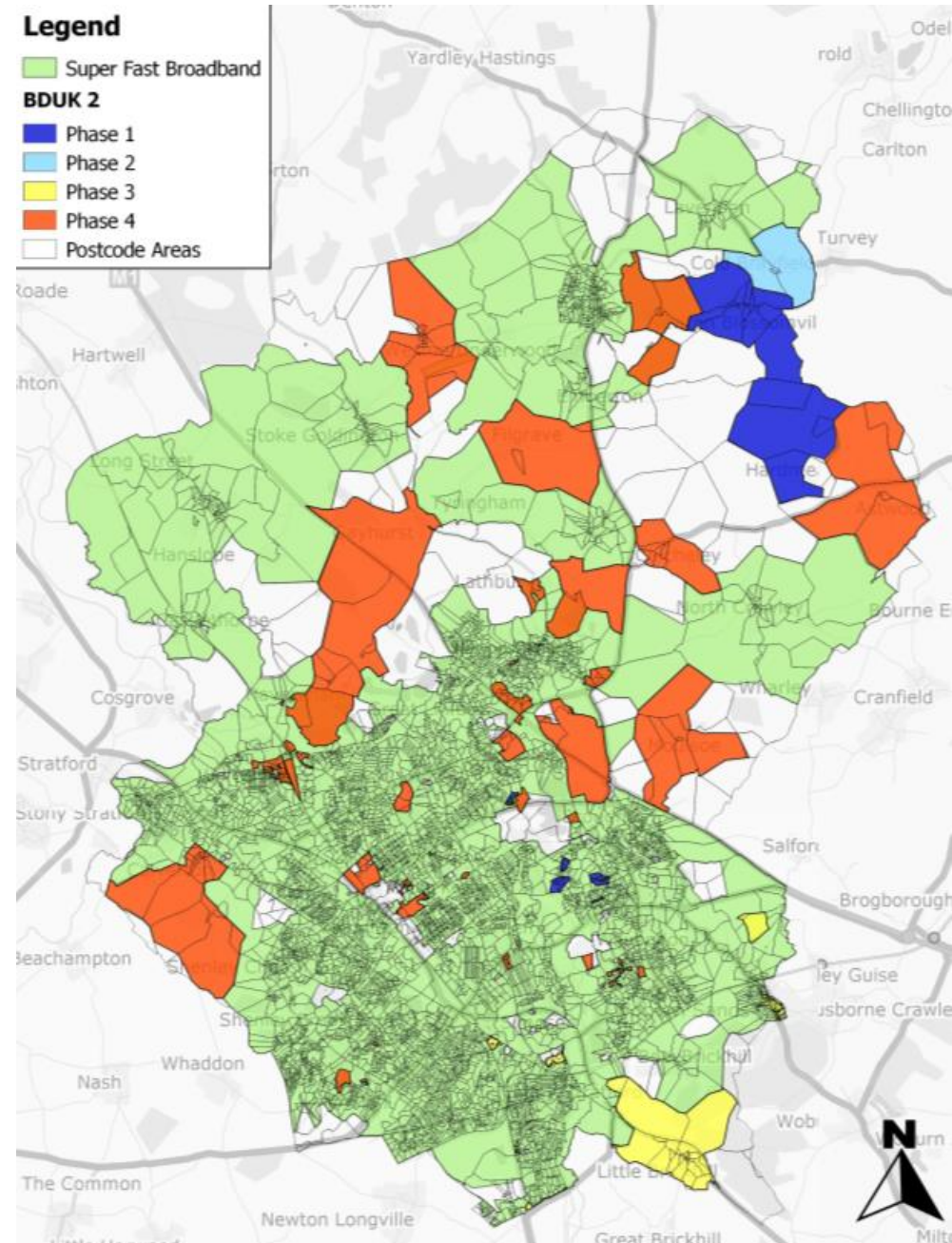
- Homes with broadband access are **on average 2.8% more valuable**.
- UK evidence shows superfast broadband can **increase house prices by an additional 1%**



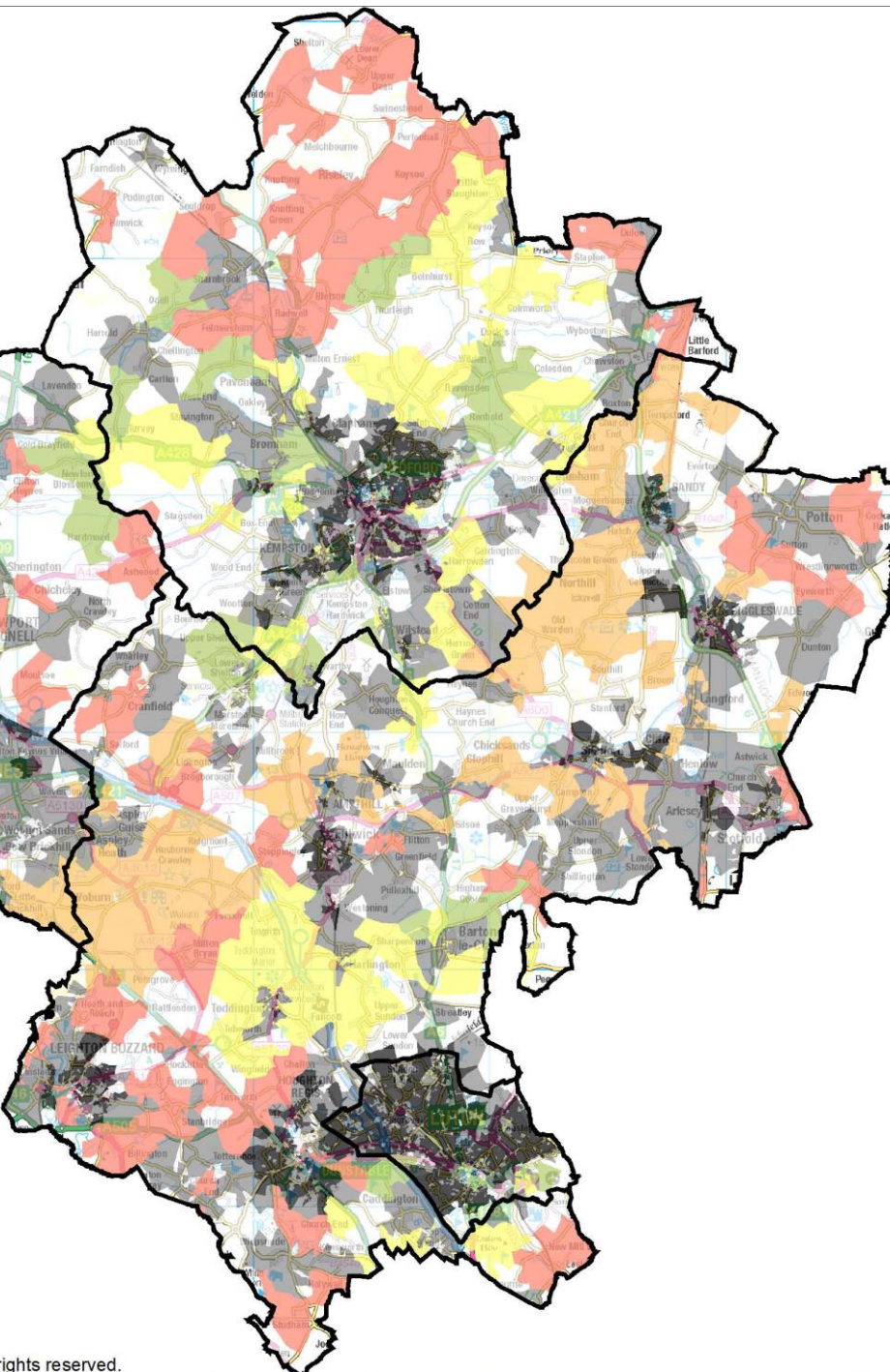
Current activity: Milton Keynes

Milton Keynes, Bedford and Central Bedford Superfast broadband project

- Aims to provide Superfast broadband (24Mbps) to **98% of Milton Keynes premises** and minimum speeds of 2Mbps to others by 2018.
- £2.6m funding from MK council, with additional funding from the Local Full Fibre Network (LFFN) fund.
- Expected to **reach 17,000 premises**



Current activity: Bedford and Luton



Black: Broadband available from at least 2 suppliers

Grey: Broadband available from 1 supplier

White: No coverage

Green: Phase 1

Yellow: Phase 2

Orange: Phase 3

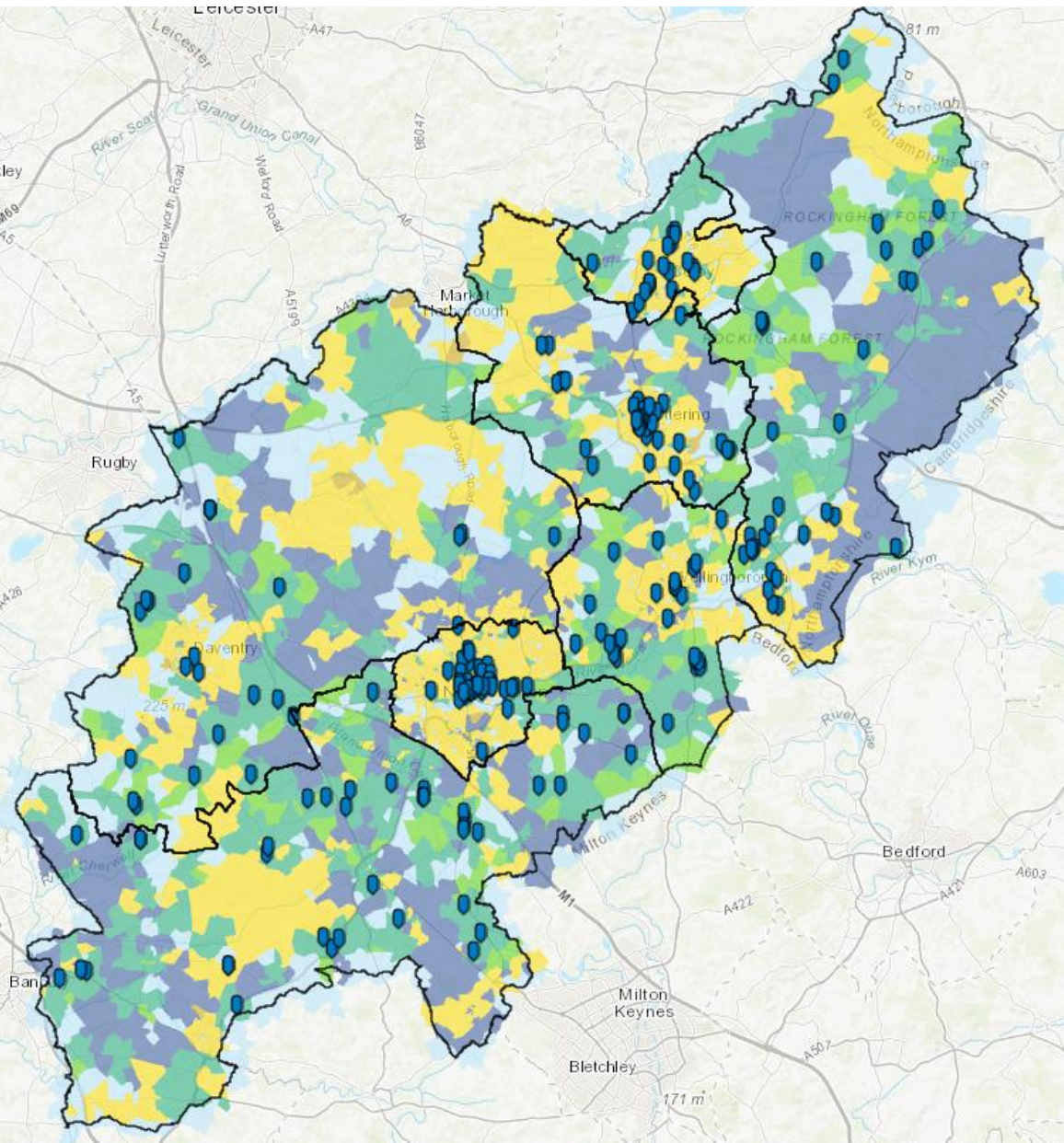
Red: Phase 4

- Currently have £180,000 in funding.
- Funding solutions for unserved areas is expected from LFFN.
- Coverage in rural areas is much lower

A more up to date map is expected in early 2019

[Source: Luton Brough Council, published 2015]

Current Activity: The Superfast Northampton project



Yellow: Superfast broadband expected to be supplied commercially by 2019.

Dark Green: Superfast broadband services available

Green: Fibre based broadband available

Dark Blue: Superfast broadband is expected to come to parts of this area in 2018

Light Blue: Superfast Broadband plans are not yet confirmed

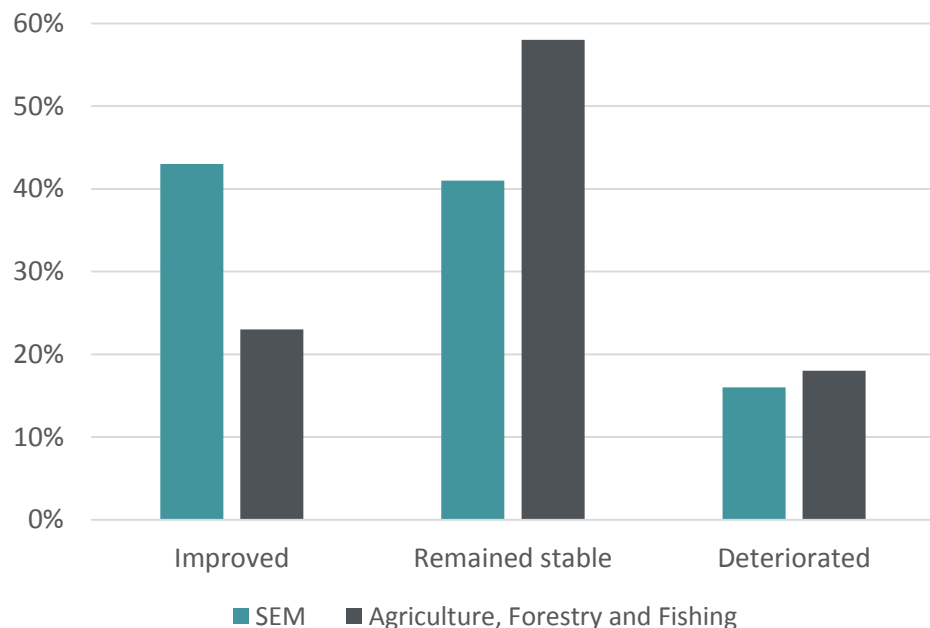
Tags: Fibre cabinets

[Source: Superfast Northamptonshire, When and Where Map 2018]

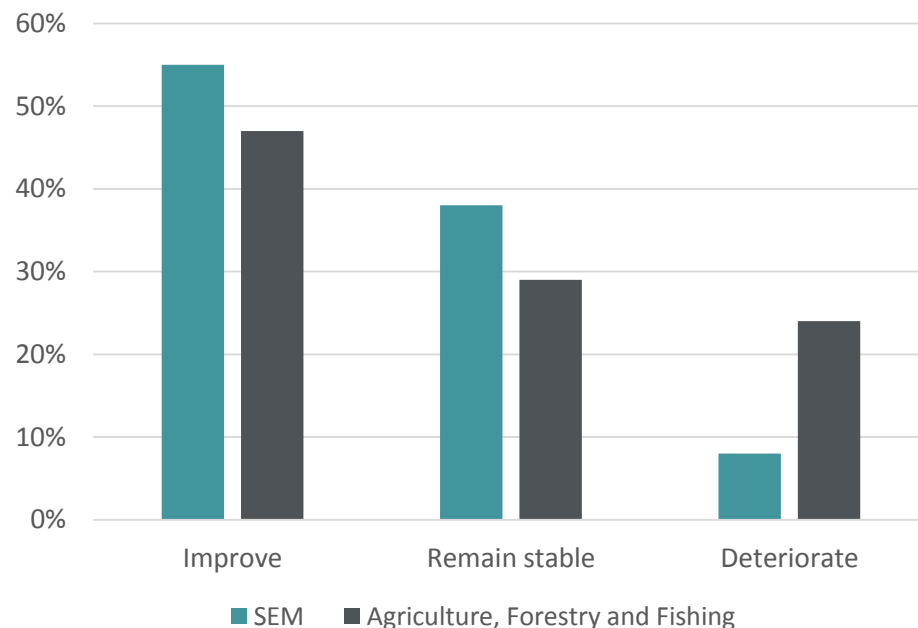


The Rural Economy: the performance of agriculture, forestry and fishing businesses has not improved as much as for other SEMLEP businesses, and they are more likely to expect their performance to deteriorate

Would you say that overall, your business performance in the past 12 months has improved, remained stable or deteriorated?

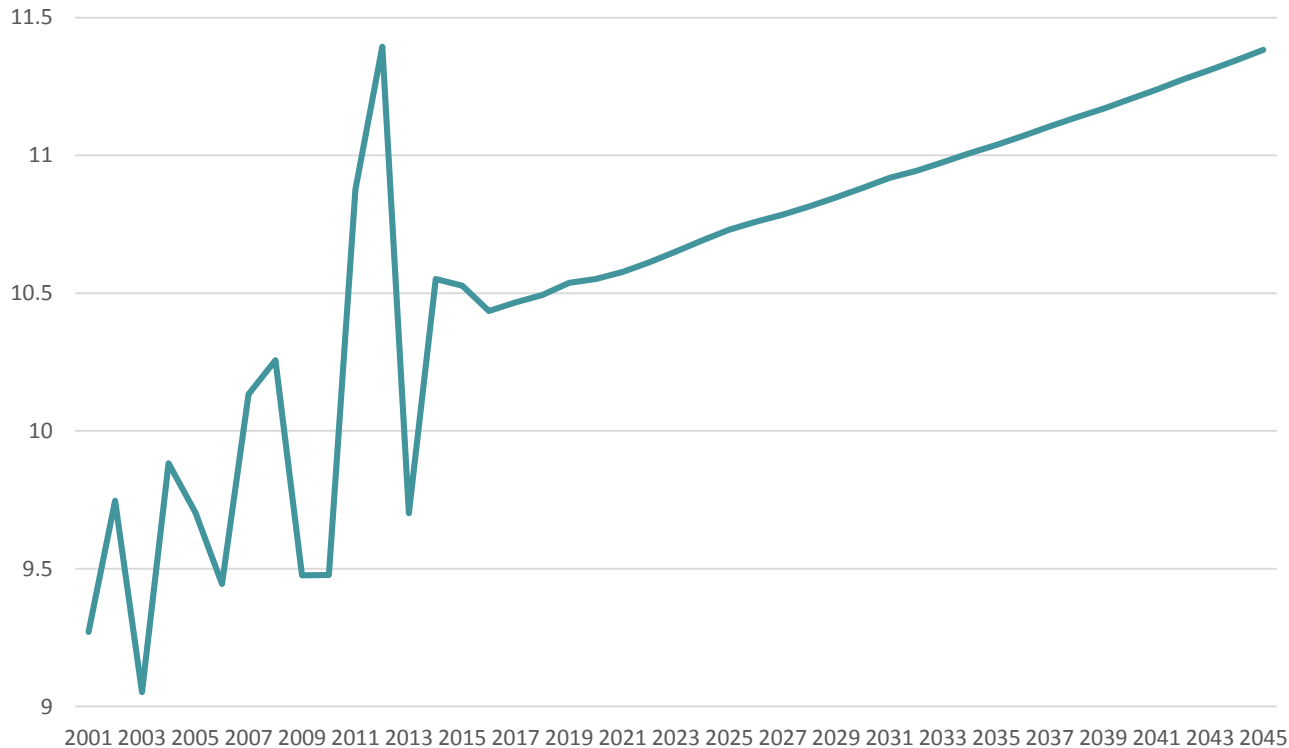


Over the next 12 months do you expect your business performance to generally improve, remain stable, or deteriorate?



Employment in the sector is expected to grow slowly, and remain a constant sector in the SEMLEP area

Forecast employment (in thousands) in Skilled Agricultural Trades



But, this only represents about **1% of employment** in the SEMLEP area.

However, Agriculture, Forestry and Fishing is the second most productive sector in the SEMLEP area:

£202,564 GVA per employee, compared to the average of £56,270

SEMLEP

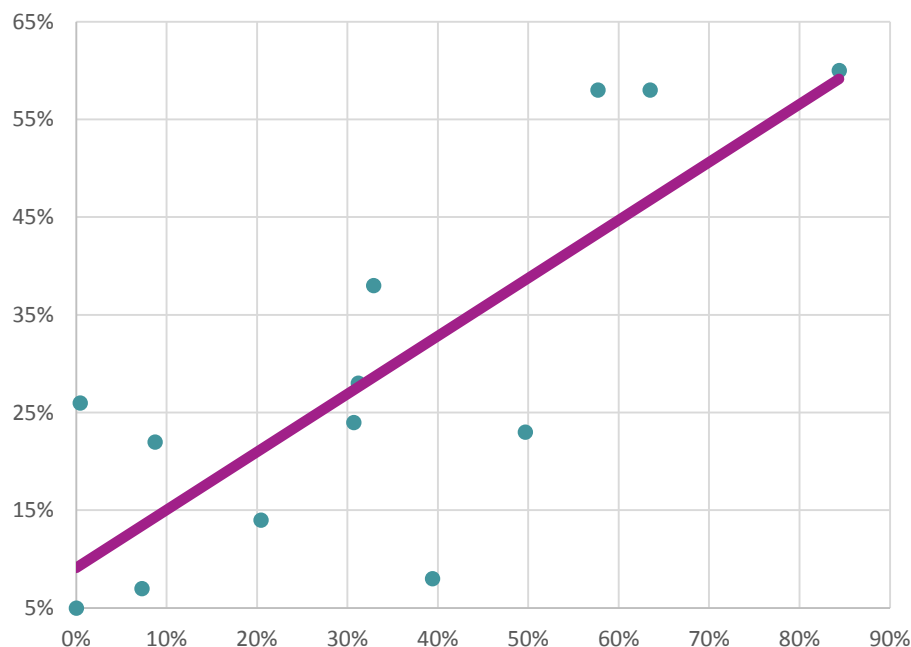
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[Source: Cambridge Econometrics, EEFM Employment by occupation 2017 & ONS productivity statistics (2017)]

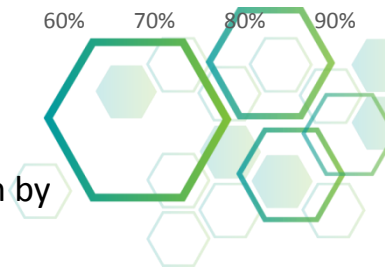
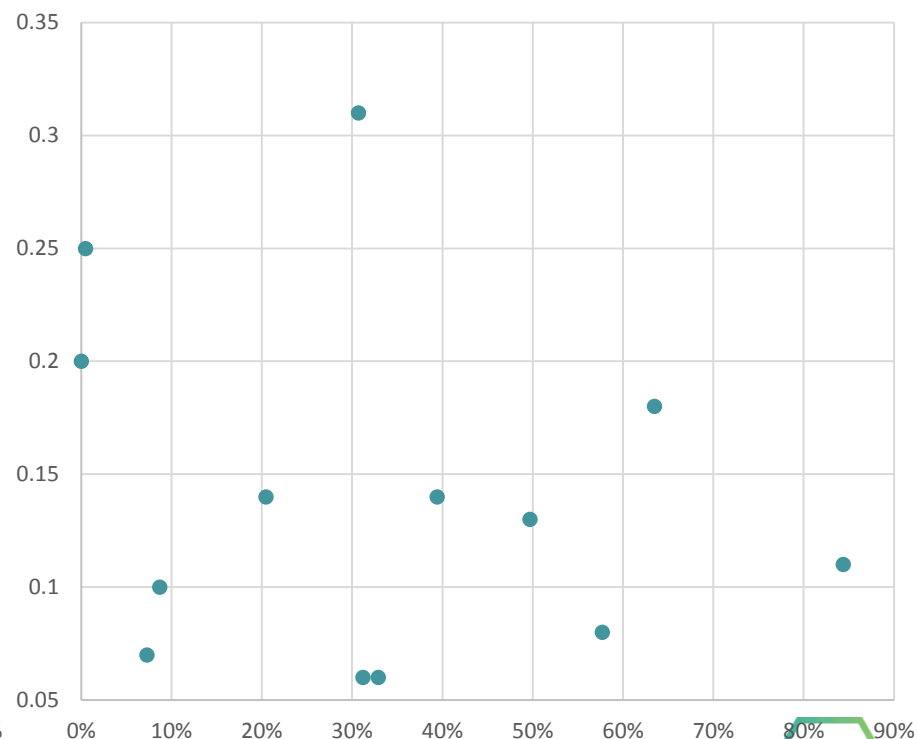


Rural parts of the SEMLEP area tend to have lower satisfaction with public transport...

Proportion of population in rural areas (Rurality) (x-axis) against proportion of businesses rating Public Transport as poor or very poor (y-axis) (2017)

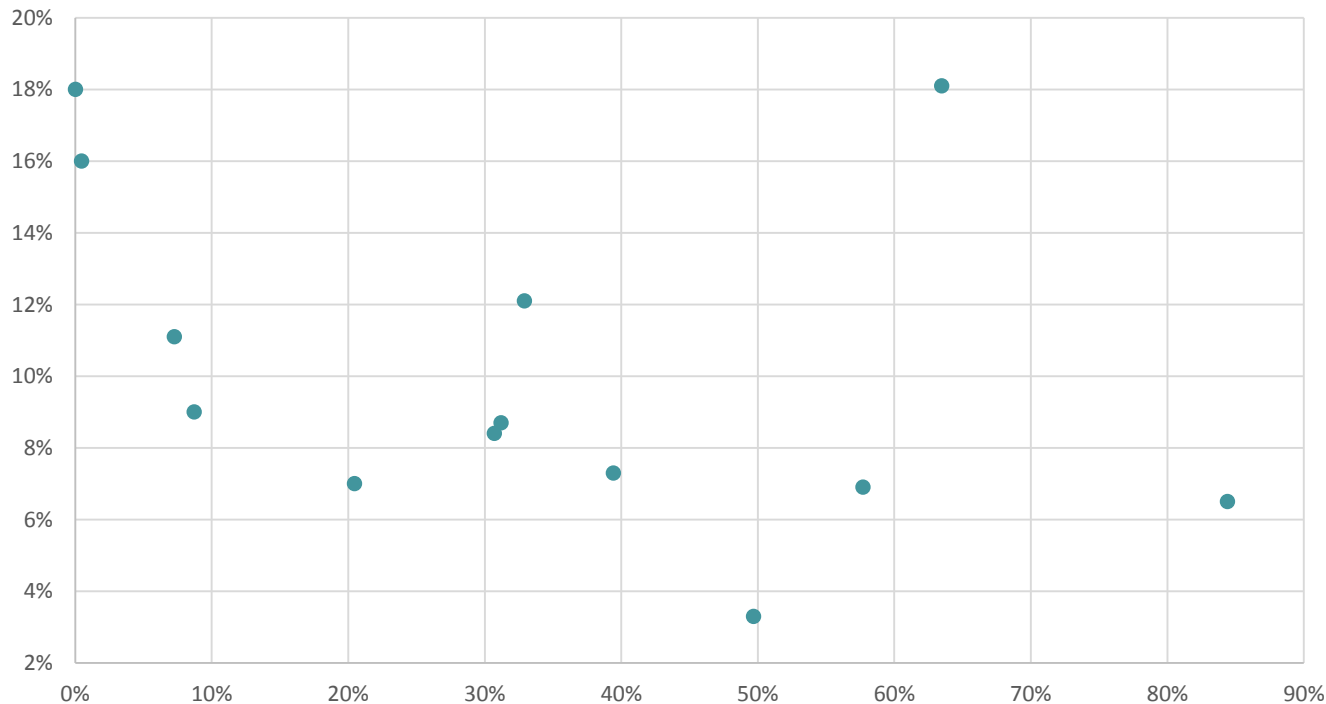


Rurality (x-axis) against proportion of businesses rating roads as poor or very poor (y-axis) (2017)

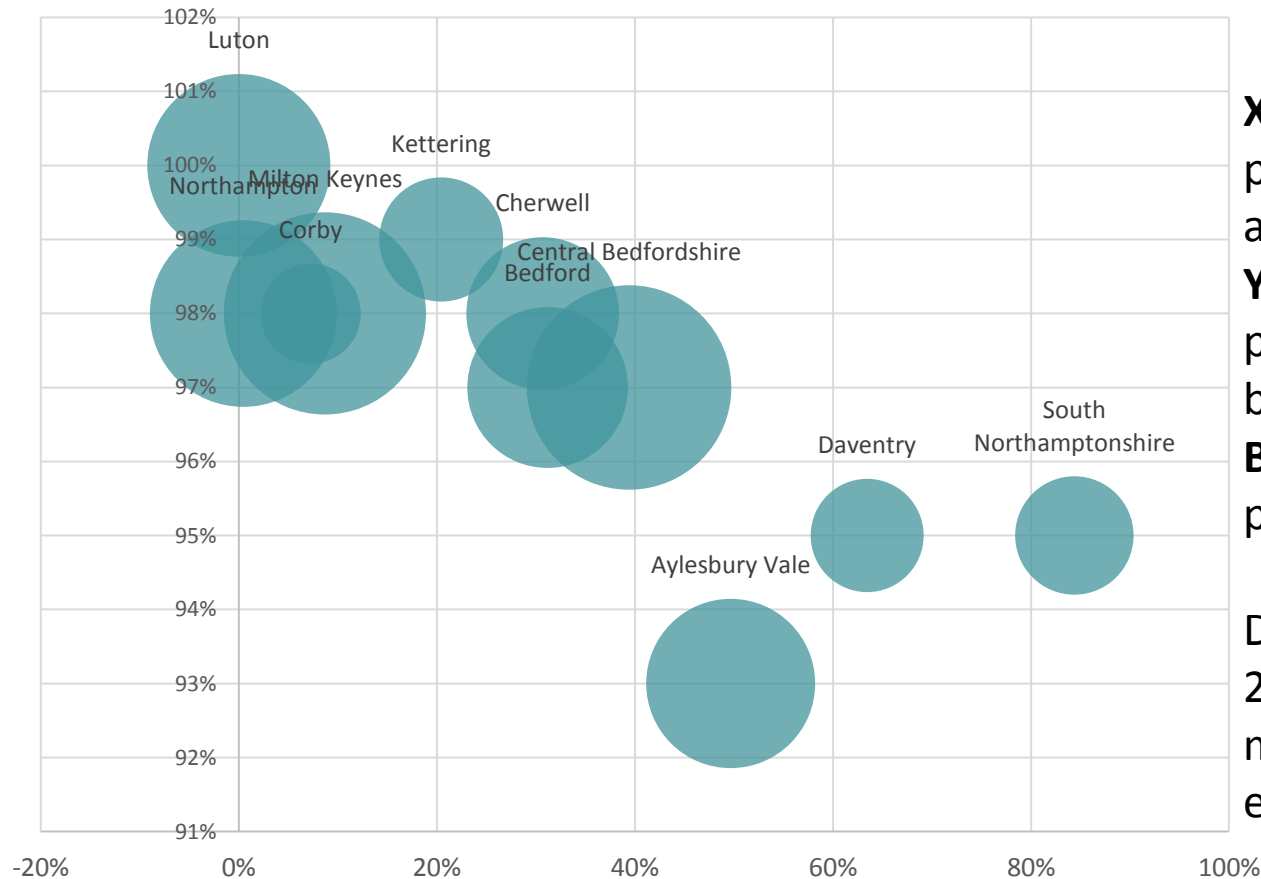


...but there is no significant correlation between rurality and skills levels

Rurality (x-axis) against proportion of population with a NVQ4+ qualification (y-axis)
(2011)



More rural areas are less likely to have an adequate broadband connection (10MBps or higher)



X-axis: proportion of population in rural areas (Rurality)

Y-axis: proportion of premises with 'good' broadband

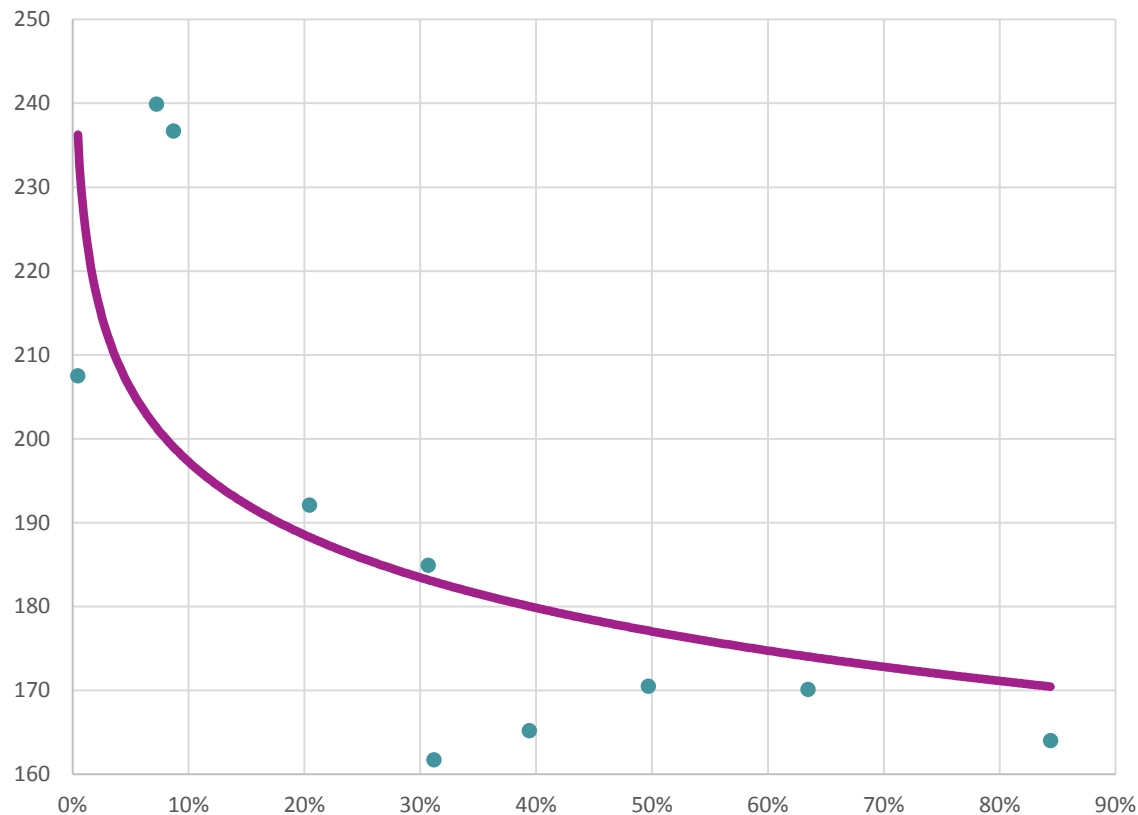
Bubble size: Total population

Data presented from 2011 census, which is more reliable than estimates.



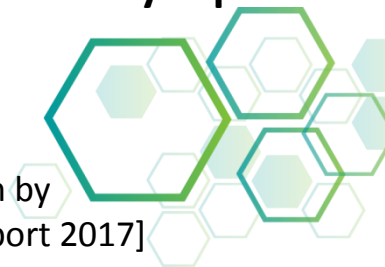
Average usage decreases more slowly as the area becomes more rural, implying a minimum need for connectivity

Rurality (x-axis) against average data usage in GB (y-axis)
(2011)



We estimate that an increase in the rural share of the population by 1.5 times (e.g. 30% to 45%) results in a **-3.3% fall in data usage**. This indicates a rural penalty.

This suggests that rural areas are less connected, but the rate at which they forgo data usage as they become more rural decreases. This **implies a minimum need for connectivity, even when connectivity is poor.**



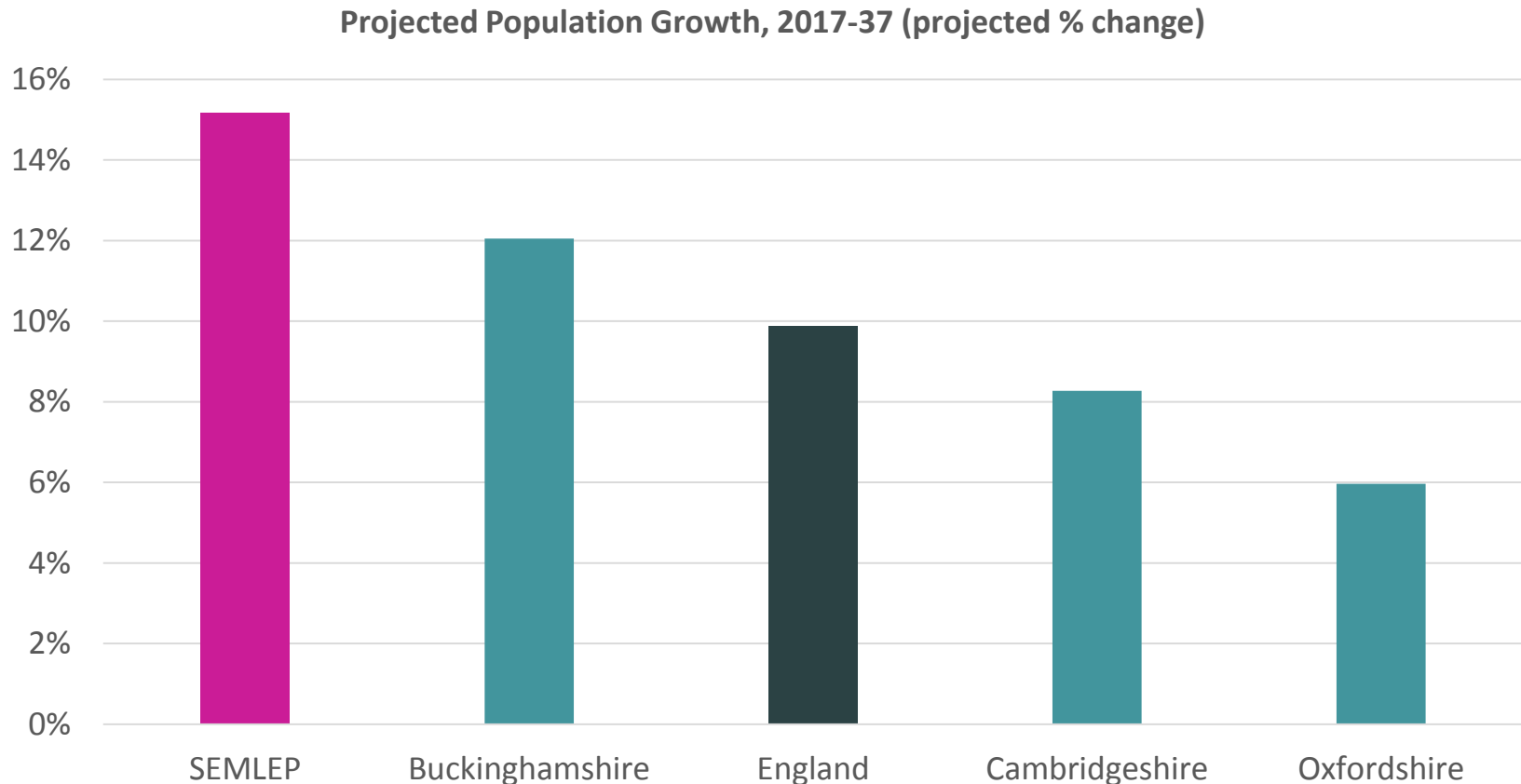


Future Trends & Projections

SEMLEP

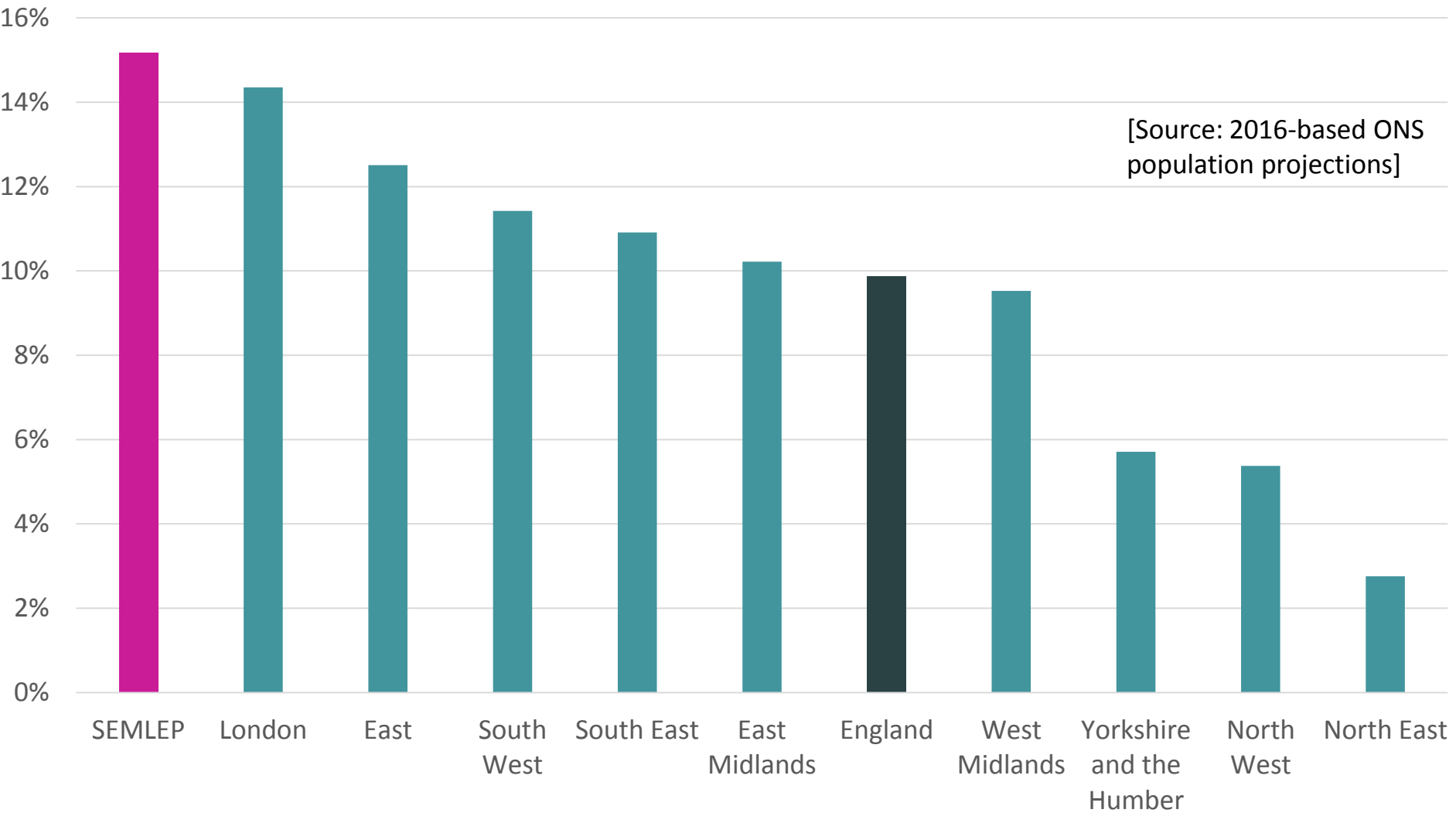
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SEMLEP's rapid demographic growth is projected to continue over the next two decades, again surpassing other areas (I)



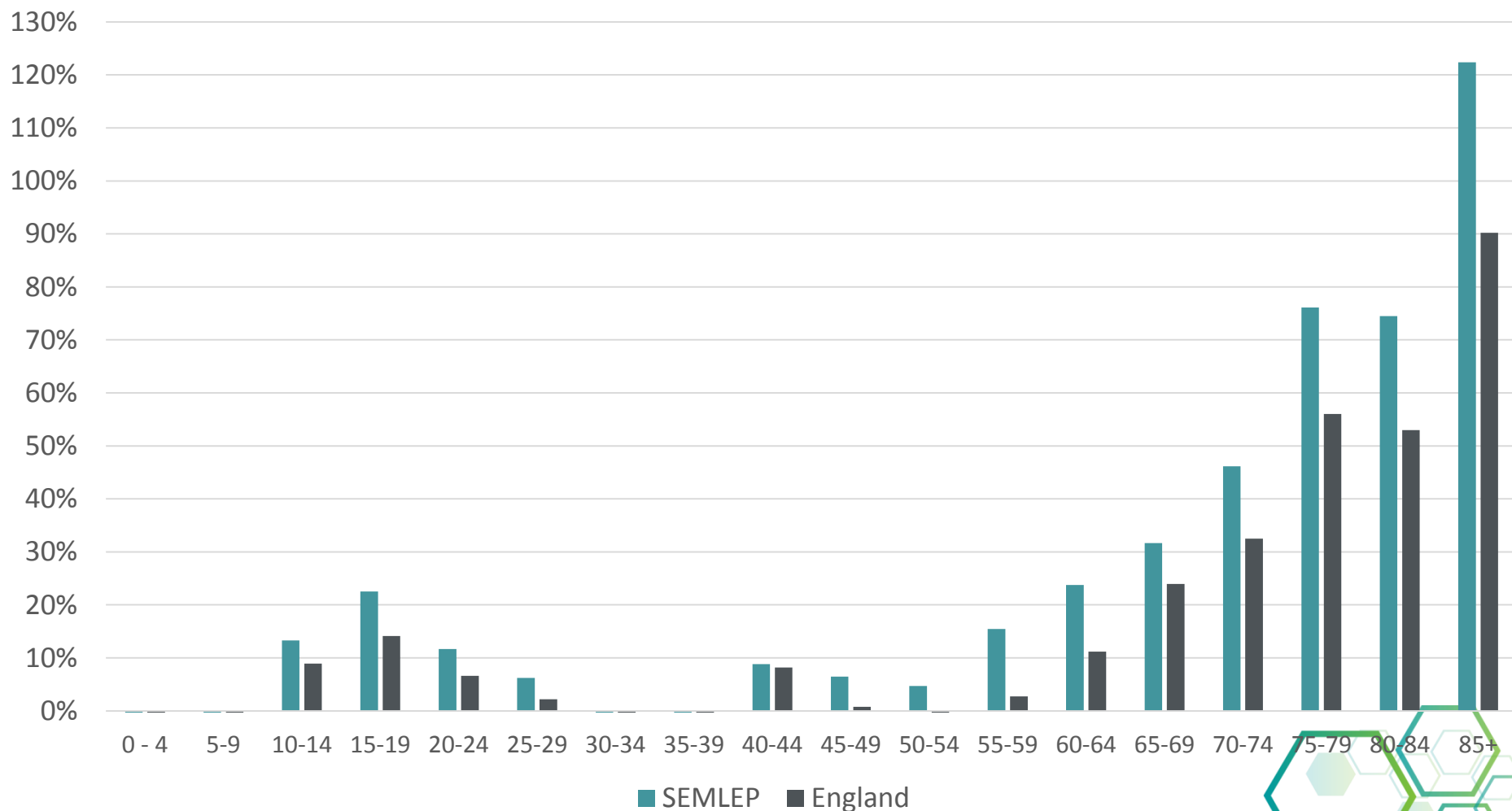
SEMLEP's rapid demographic growth is projected to continue over the next two decades, again surpassing other areas (II)

Projected Population Growth, 2017-2037 (projected % change)



Like England, SEMLEP's population is ageing (I)

Projected Population Growth by 5-Year Age Band, 2017-37, SEMLEP & England (% change)



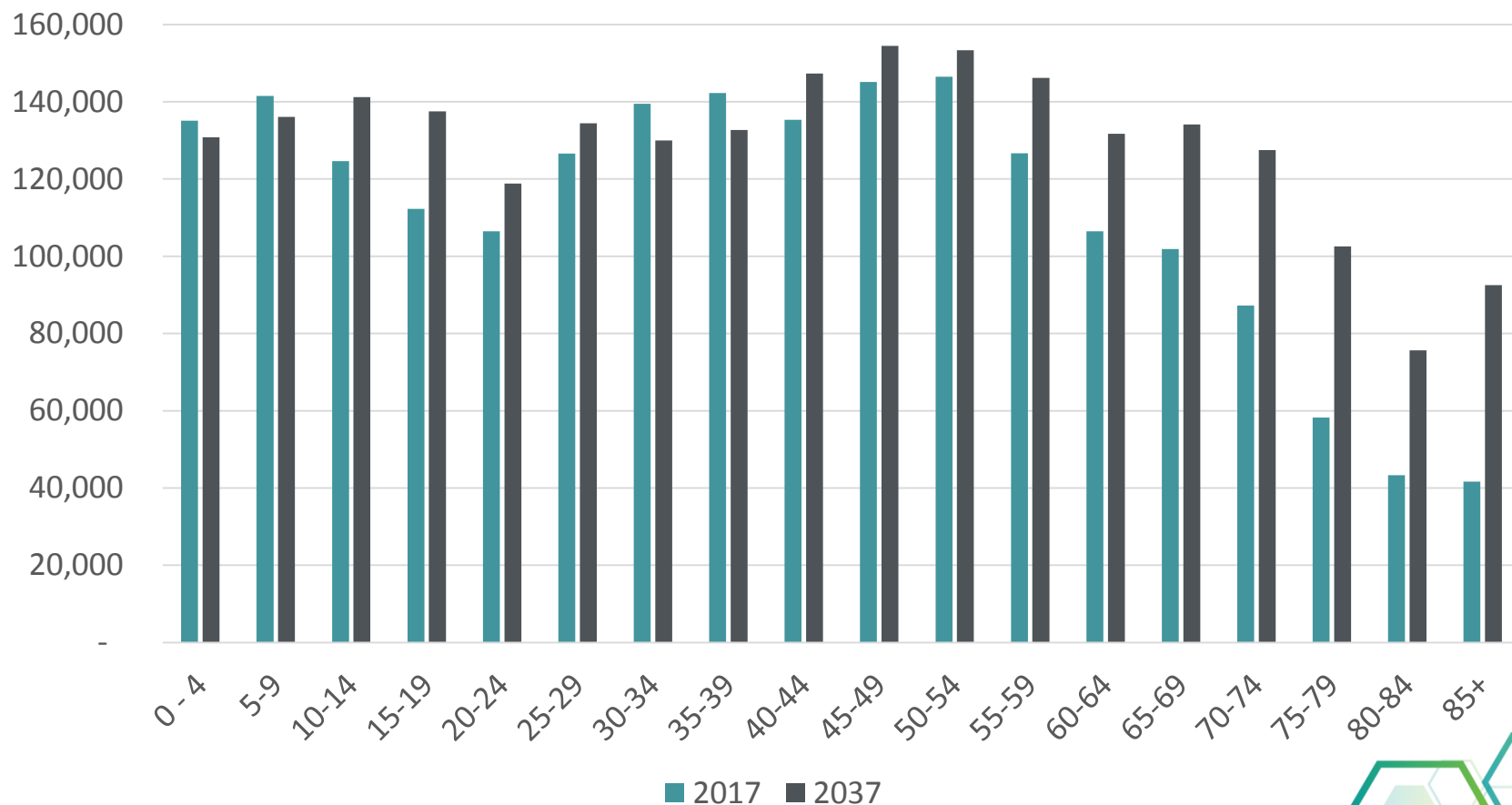
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[Source: 2016-based ONS population projections]

Like England, SEMLEP's population is ageing (II)

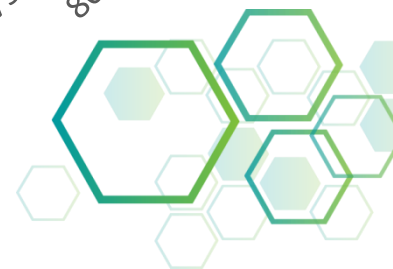
Population numbers in SEMLEP by 5-year age band,
2017 and projections for 2037



SEMLEP

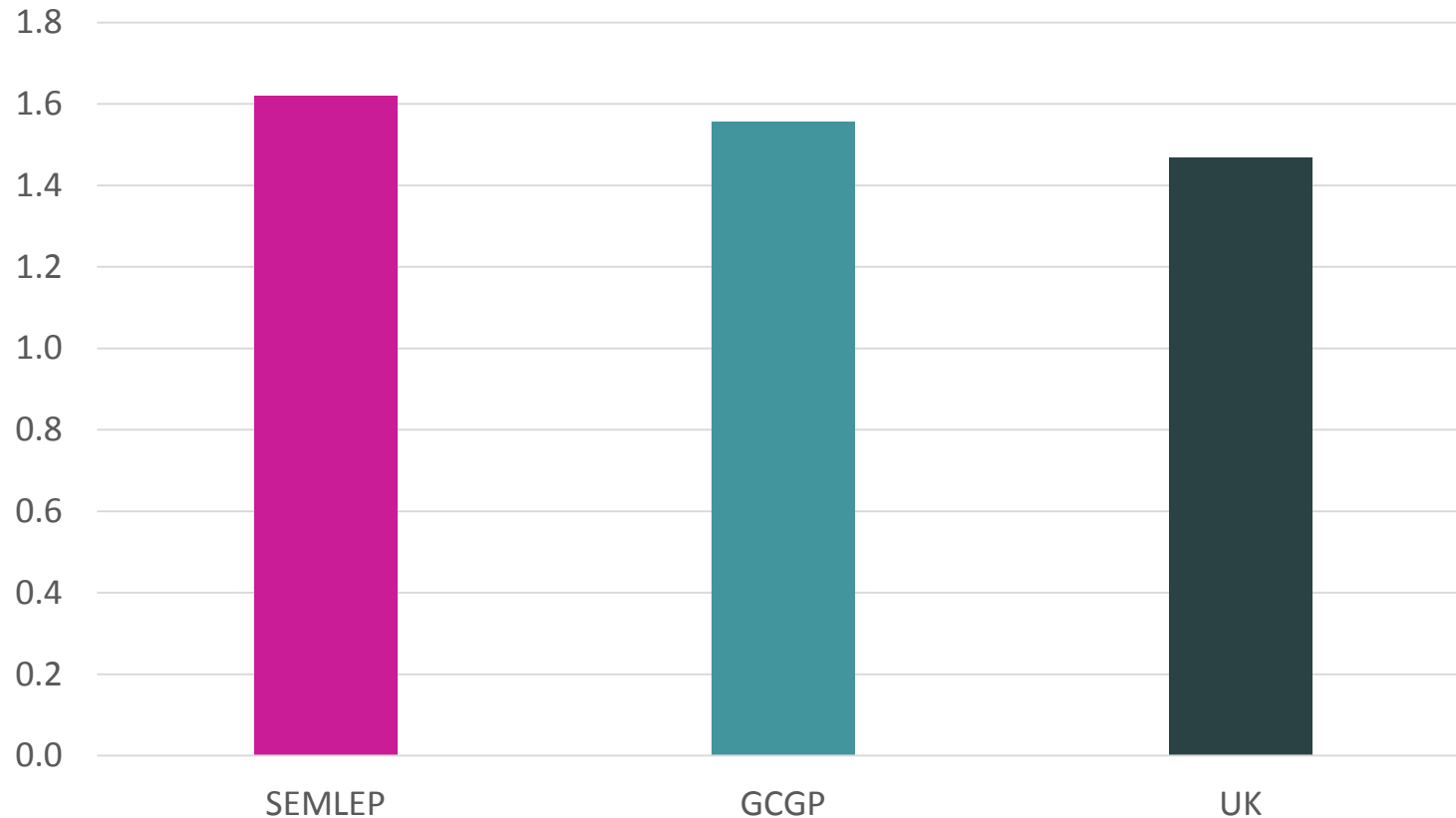
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[Source: 2016-based ONS population projections]

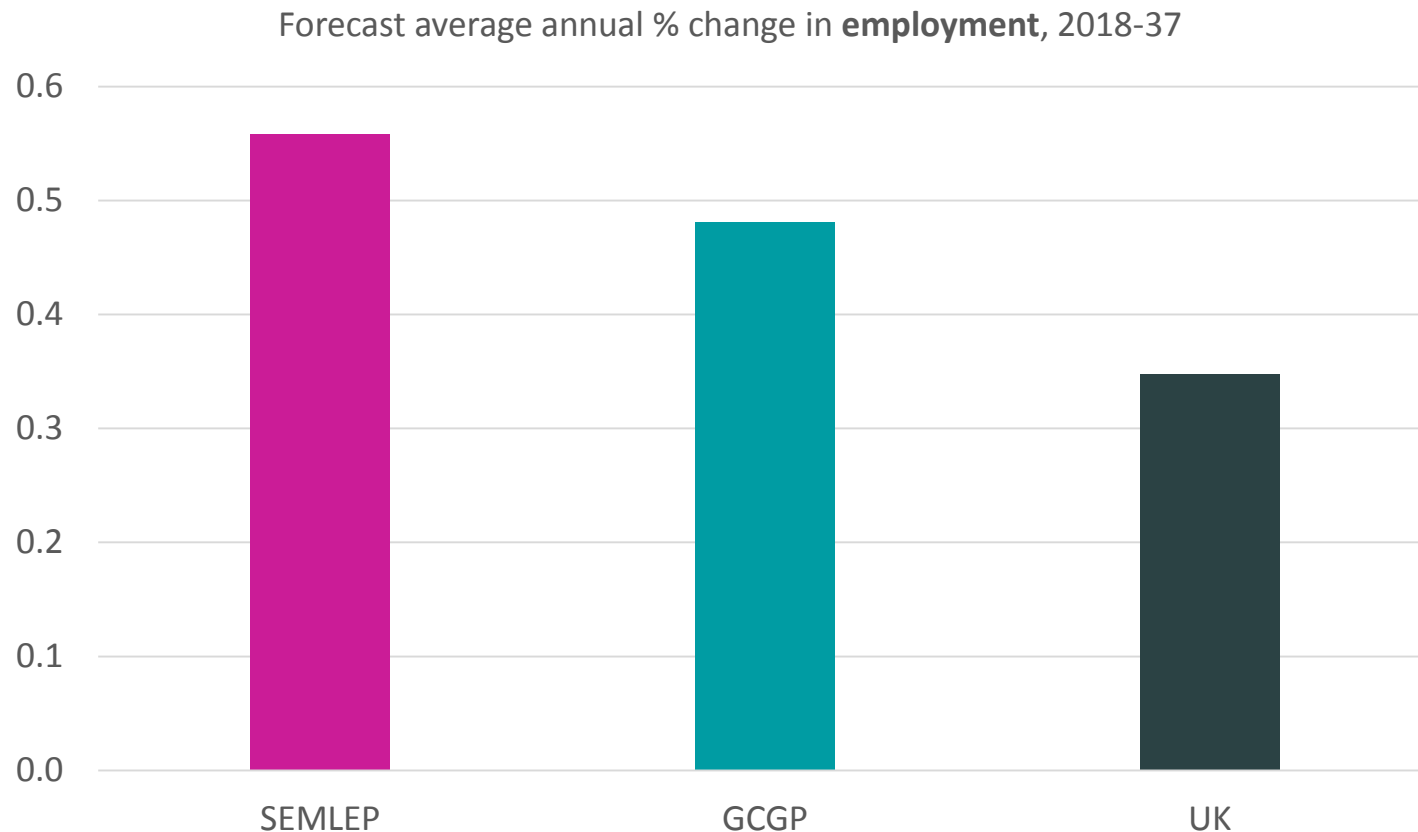


SEMLEP's economy is also expected to grow faster than other areas, even without additional intervention

Forecast average annual % change in **GVA**, 2018-37



SEMLEP's economy is also expected to grow faster than other areas, even without additional intervention (II)



Analysis suggests that automation and technological advances have a positive overall economic impact, but lead to changes in required workforce skills

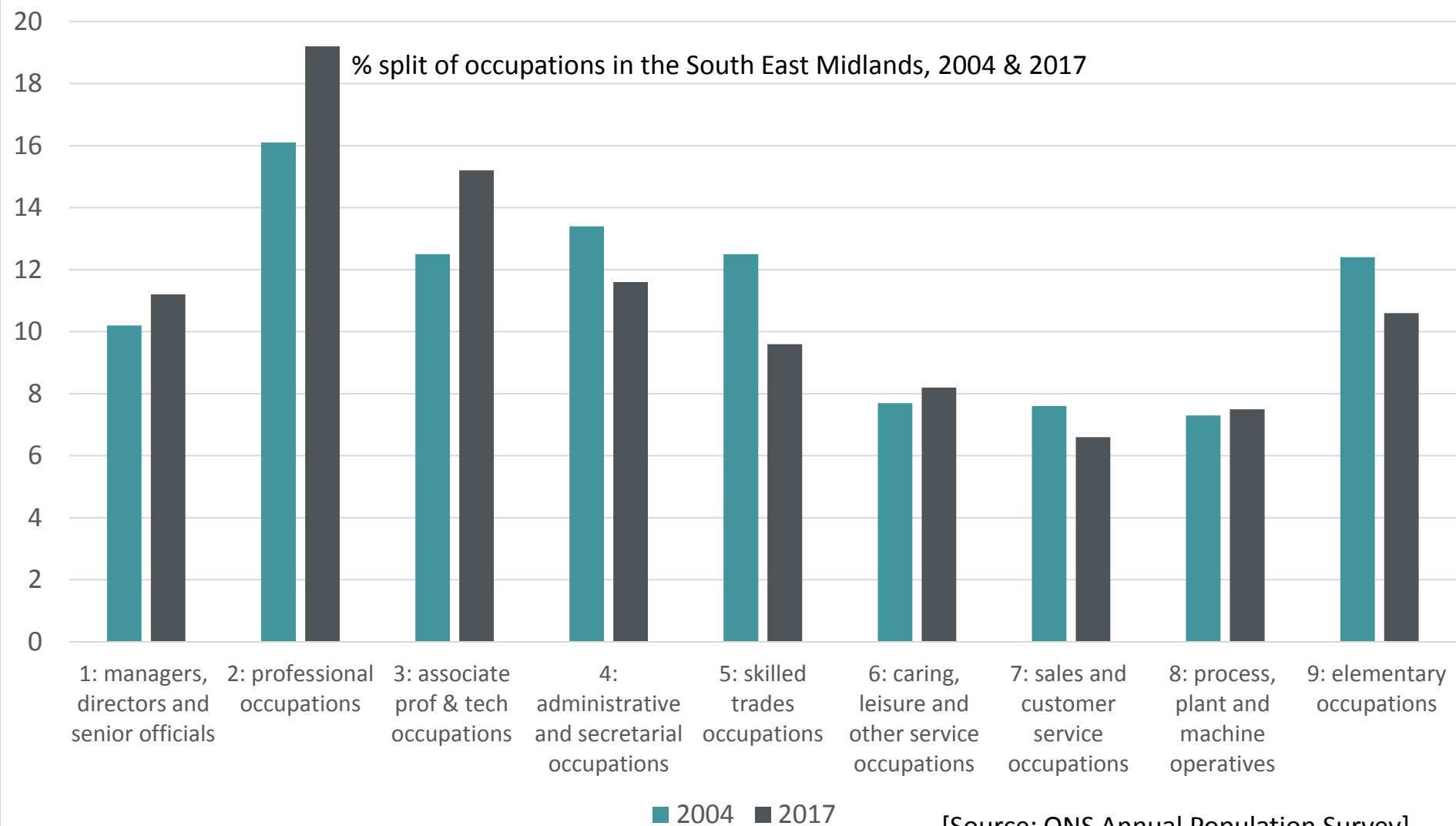
Deloitte have estimated that over the last 15 years in the UK:

- ▶ Technology has contributed to the loss of over 800,000 lower-skilled jobs
- ▶ BUT also helped to create nearly 3.5m new higher-skilled jobs in their place
- ▶ AND each new job pays, on average, just under £10,000 more per annum than the one lost
- ▶ Benefiting every UK nation and region
- ▶ And, overall, adding £140bn to the UK economy in new wages.



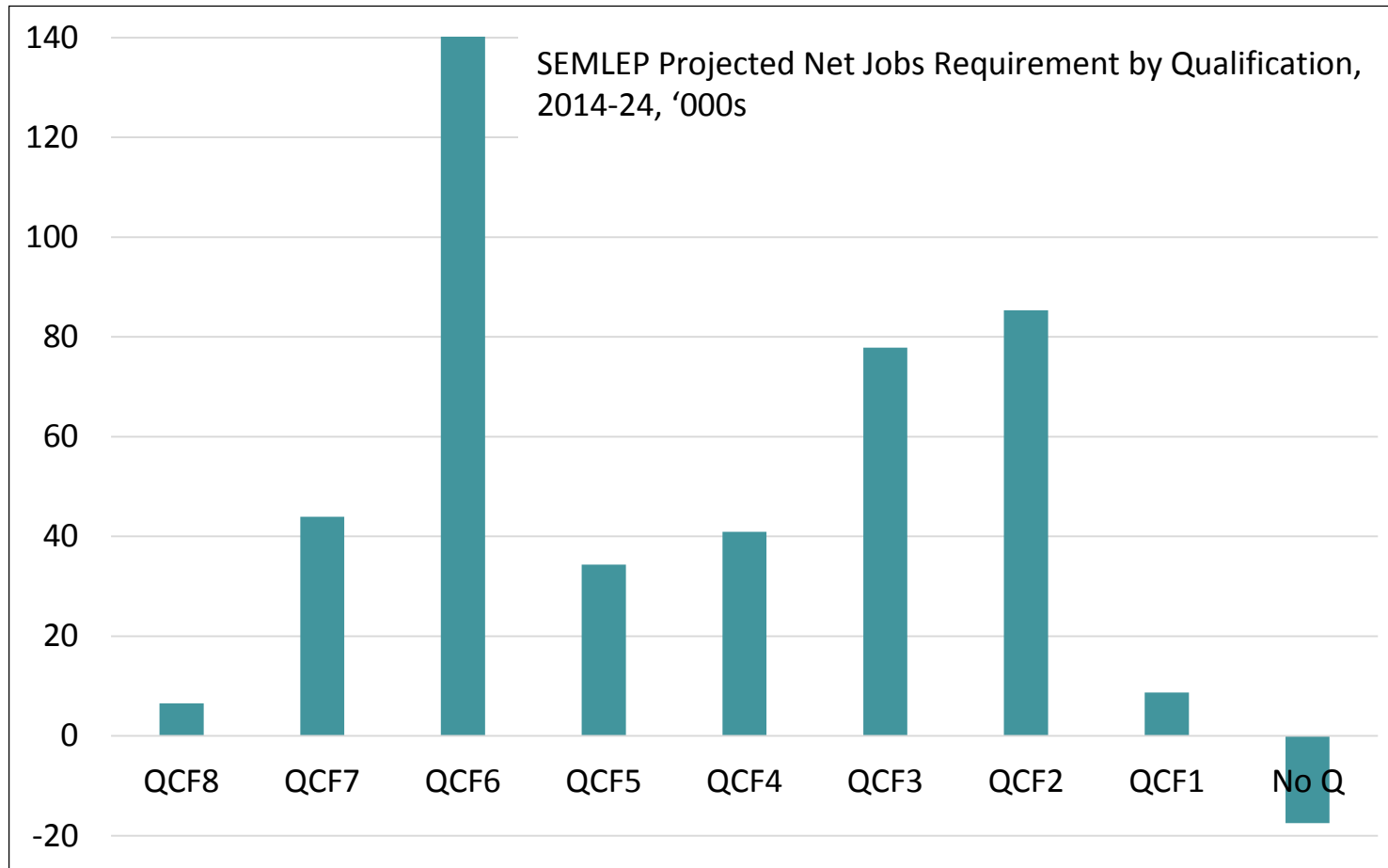


Recent technological progress has led to a 'hollowing-out' of the labour force in SEMLEP (and nationally)...



[Source: ONS Annual Population Survey]

...and this trend looks set to continue (I)

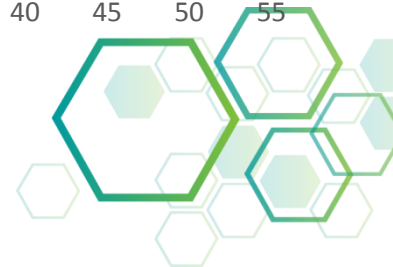
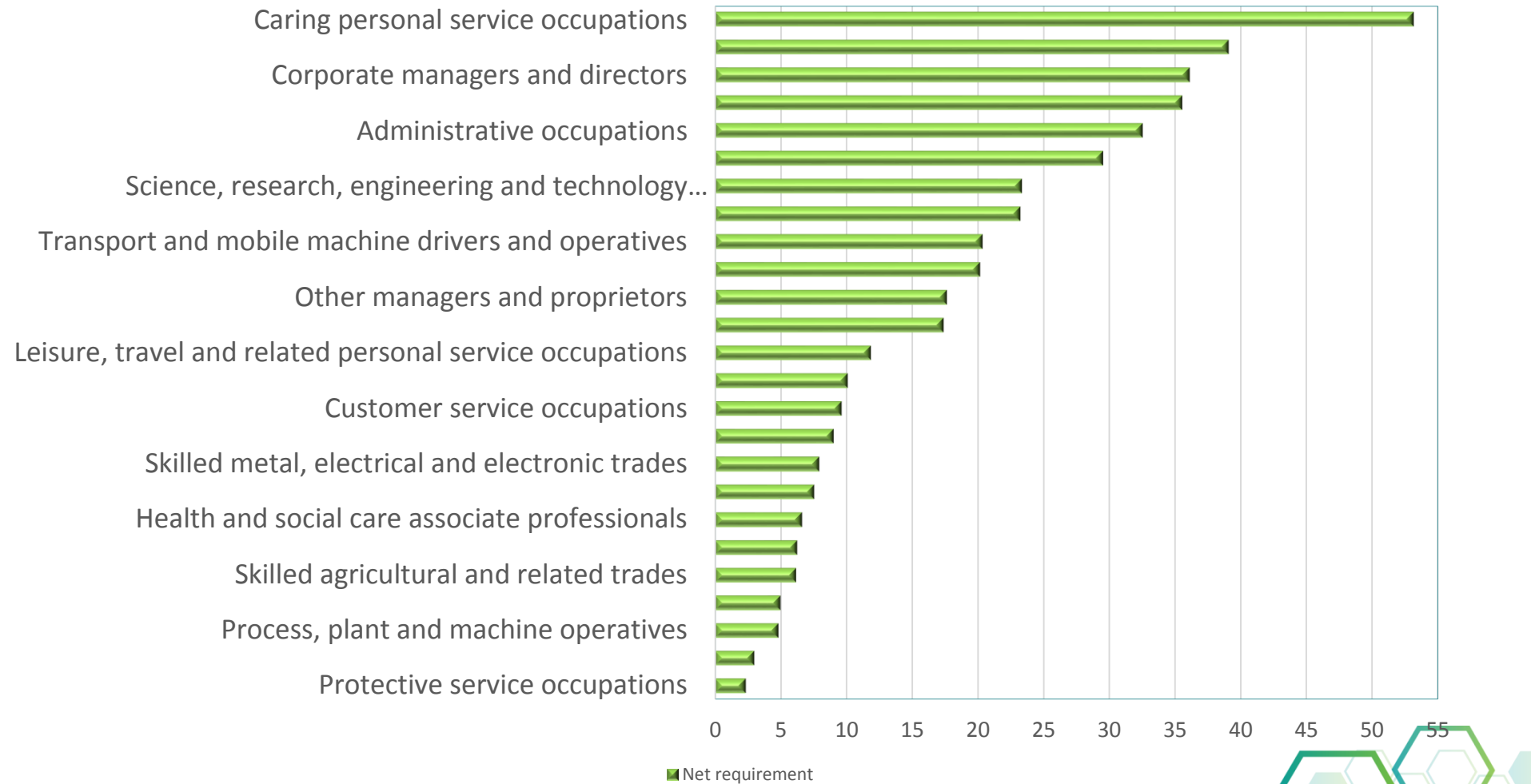


Over 65% of the projected jobs required by 2024 will require a Level 4 qualification or above



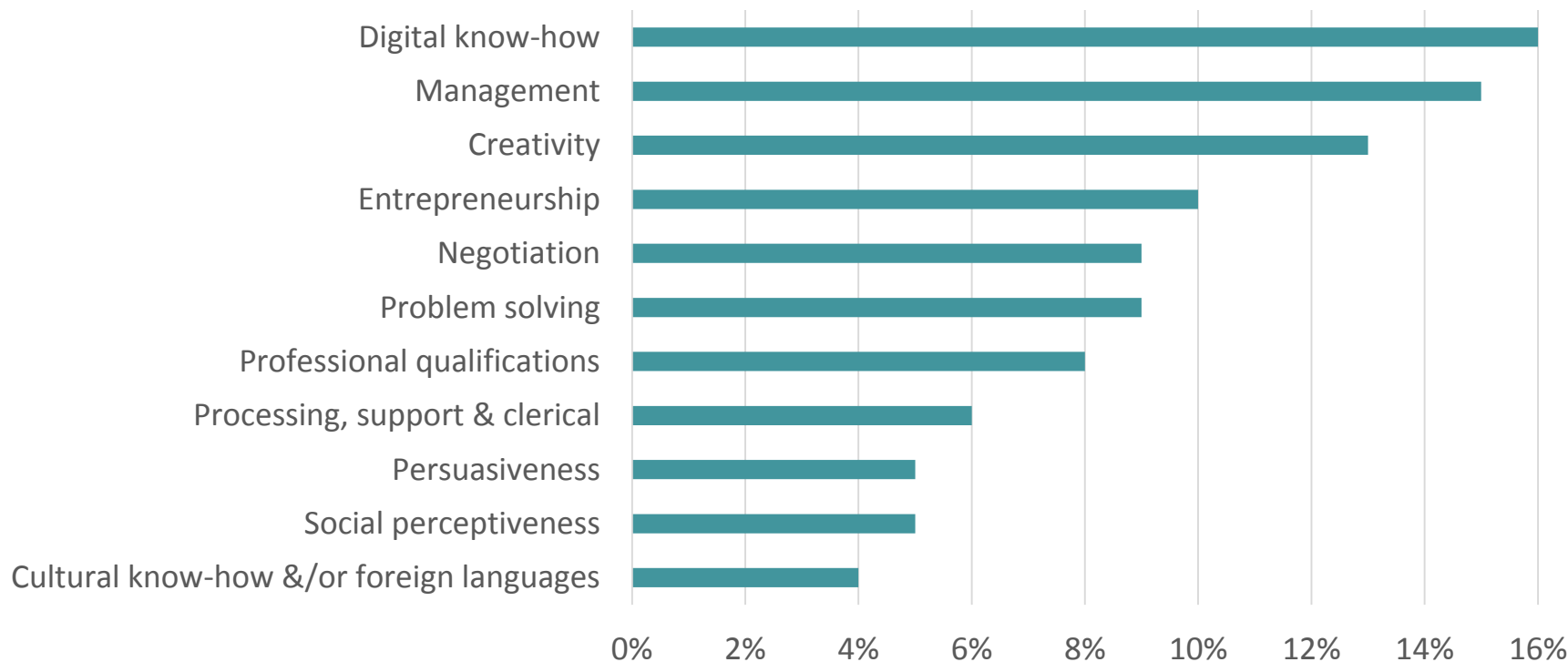
...and this trend looks set to continue (II)

Projected Net Job Requirements in SEMLEP, 2014-2024, '000s

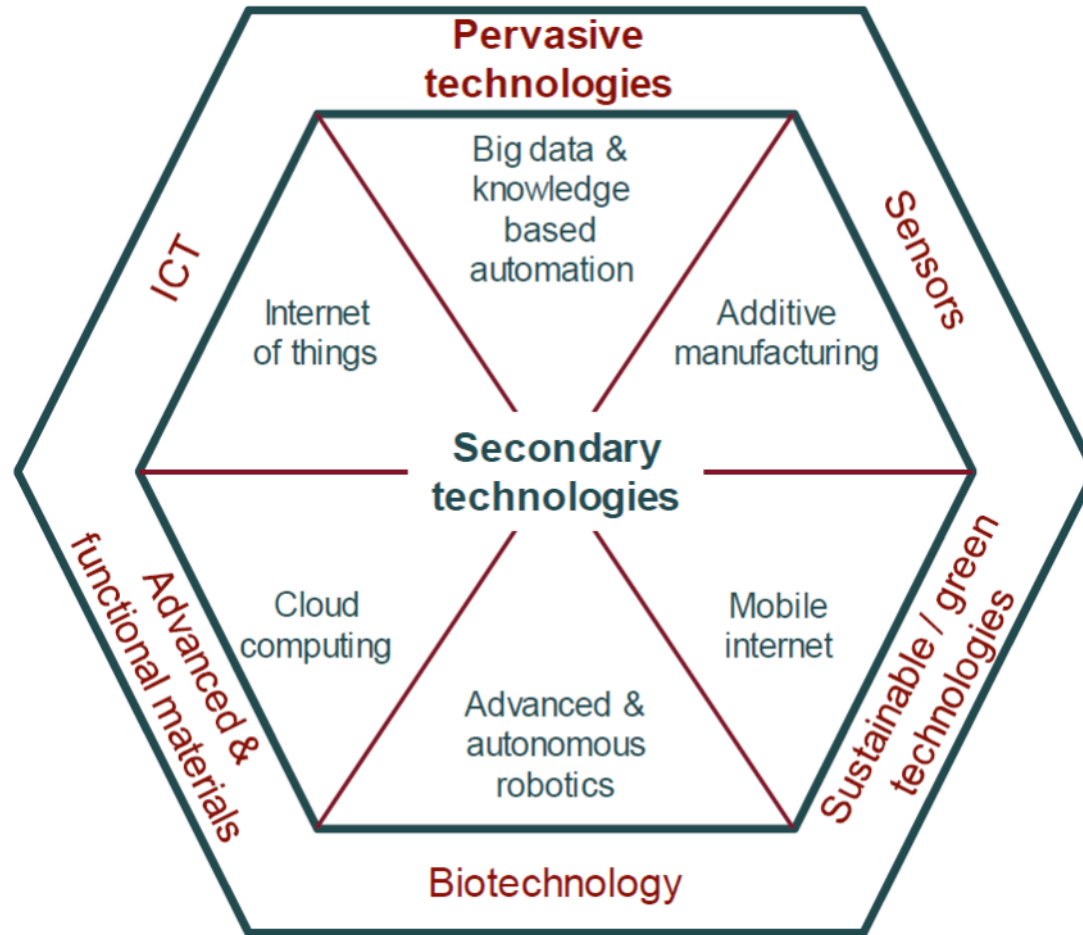


Business leaders believe the skills their businesses will require are going to change

Future skills required by businesses & public sector organisations



There are a number of key technologies that are likely to shape the future of the economy

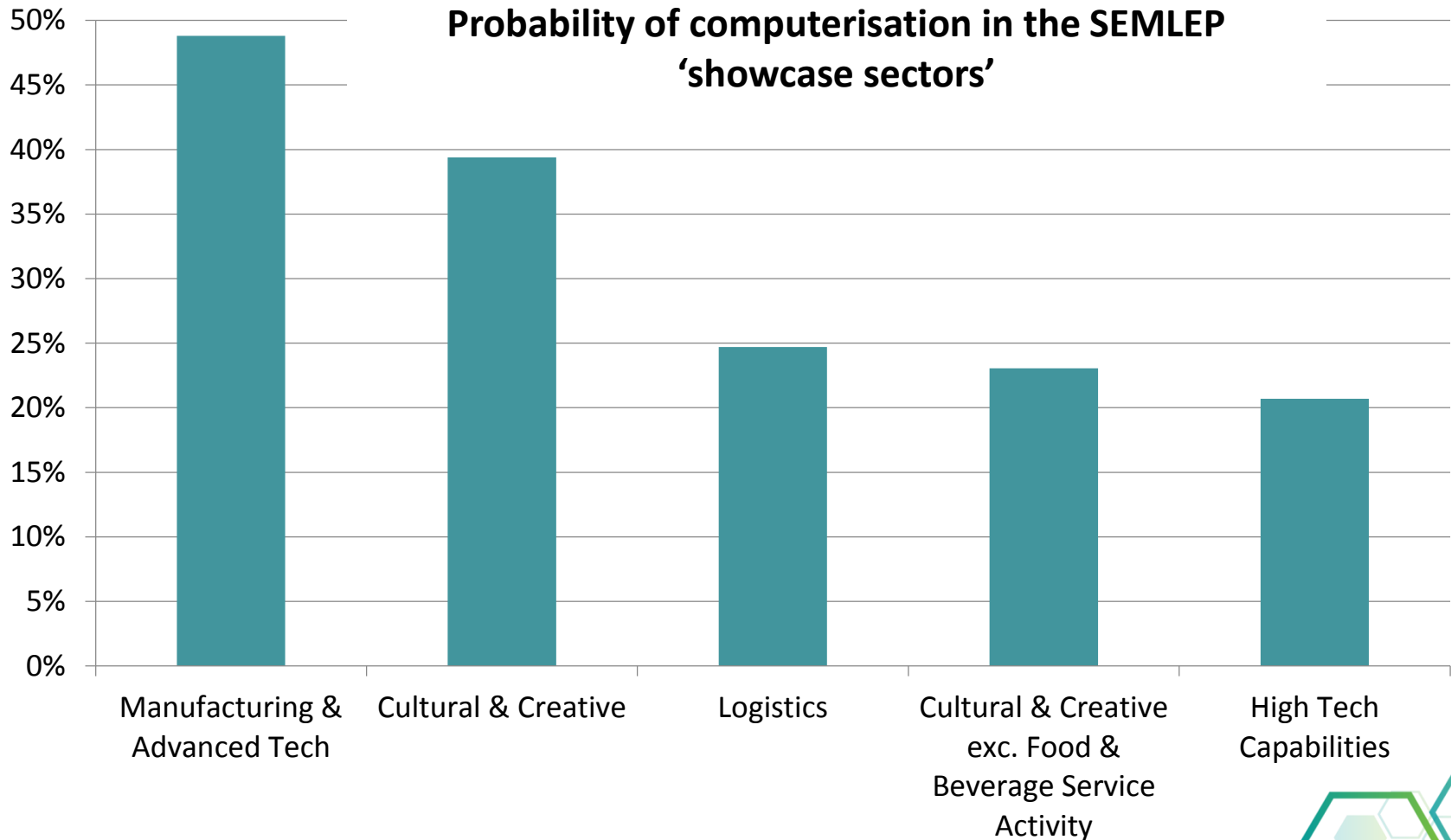


There are a number of variables that serve as indicators of bottlenecks to computerisation

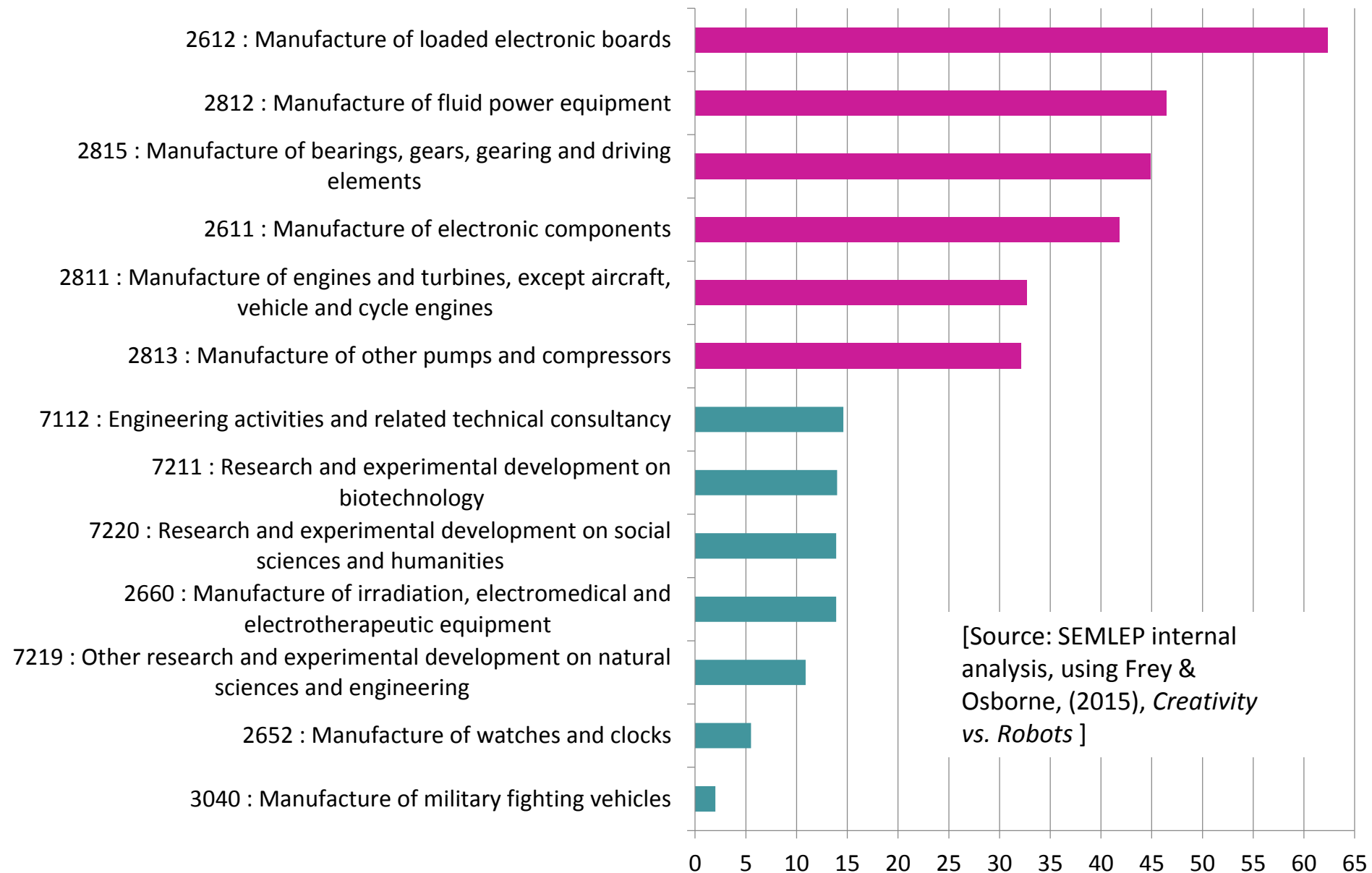
Computerisation bottleneck	O*NET variable	O*NET description
Perception and manipulation	Finger dexterity	The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.
	Manual Dexterity	The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
	Cramped spaces	How often does this job require working in cramped work spaces that requires getting into awkward positions?
Creative intelligence	Originality	The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.
	Fine Arts	Knowledge of theory and techniques required to compose, produce, and perform works of music, dance, visual arts, drama, and sculpture.
Social intelligence	Social perceptiveness	Being aware of others' reactions and understanding why they react as they do.
	Negotiation	Bringing others together and trying to reconcile differences.
	Persuasion	Persuading others to change their minds or behavior.
	Assisting and caring	Providing personal assistance, medical attention, emotional support, or other personal care to others such as coworkers, customers, or patient



The probability of computerisation varies greatly between industrial sectors














High-Tech: Sub-sectors most and least likely to be computerised



There is huge economic potential in a number of areas, including the Connected and Autonomous Vehicles industry

THE OPPORTUNITY FOR UK CAV INDUSTRY

 CAVS	 £907bn GLOBAL MARKET	 £28-52bn UK MARKET	 27-37k UK JOBS
 CAV TECHNOLOGIES	 £63bn GLOBAL MARKET	 £2.7-5.2bn UK MARKET	 6-10k UK JOBS
 GROSS VALUE ADDED	 £7-9bn GLOBAL MARKET	 £1.2-2.1bn UK MARKET	-

2035

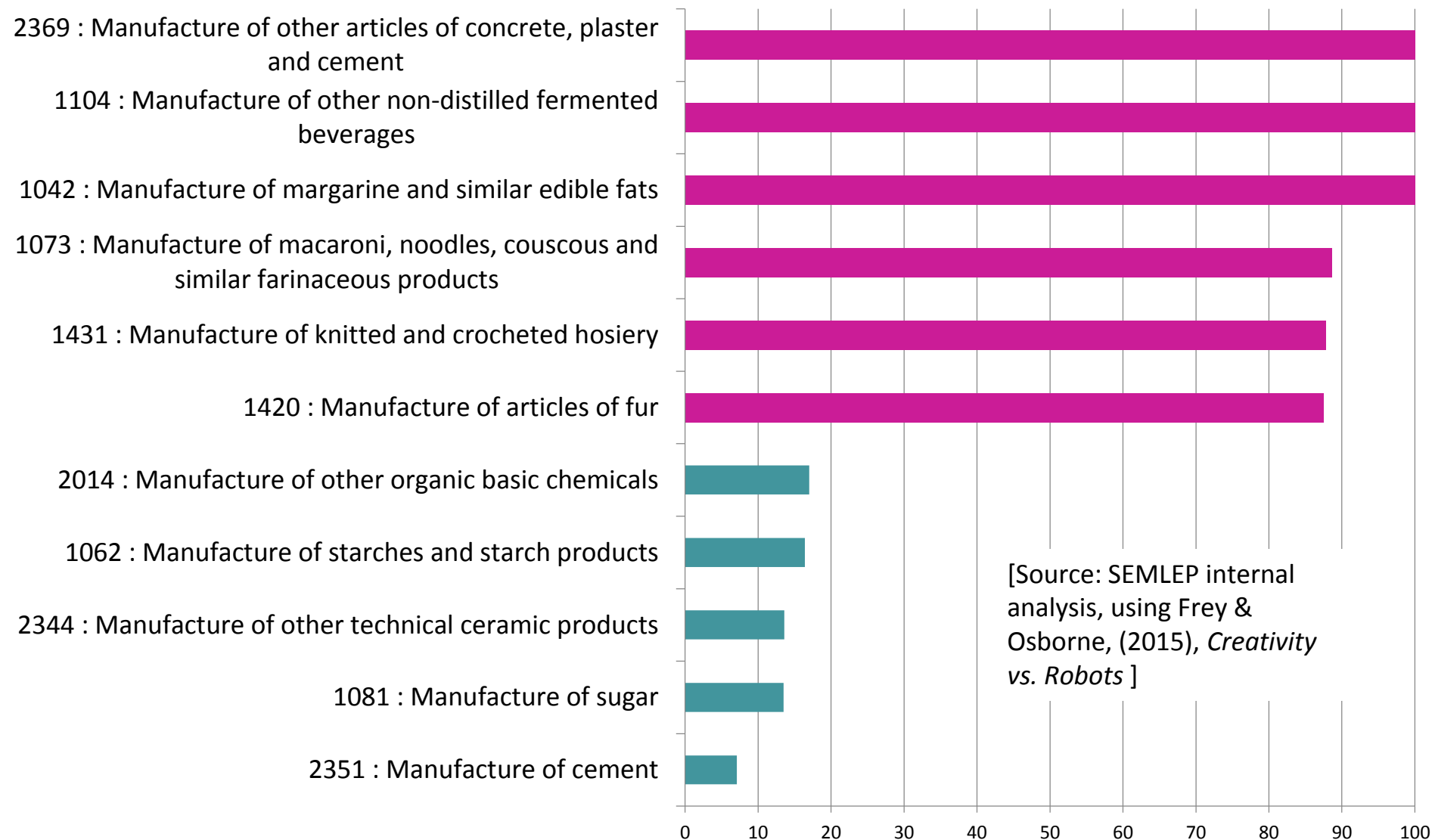
£2015

Size of the market in 2035



Manufacturing & Advanced Technology:

Sub-sectors most and least likely to be computerised



The Food & Drink sector has very large potential for future growth

- ▶ Revenue in the global packaged food market is expected to reach \$3.03tn by 2020.
- ▶ The global groceries market is forecast to reach \$11.8tn by 2020.
- ▶ It is estimated that demand for food will increase by 80-100% by 2050. Consumption of dairy products in developing countries is predicted to rise by 70% by 2050.



But ways in which these products are produced is likely to change – need to make the most of our Food & Drink innovation assets in this area

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[Source: The Midlands Engine Science and Innovation Audit, (2016)]



Investment in ‘Future Food Processing’ (and the relevant talent pipeline) is critical to increasing local productivity in the sector

- ▶ **Efficient food processing:** automation and labour efficiency; low energy food processing (including reduced energy use in cooking, chilling, logistics and storage); water efficiency; data analytics
- ▶ **‘Zero waste’ food chains:** optimising the yield of primary products from raw materials through technology to reduce damage; increasing the exploitation of secondary products; and developing ‘waste’ product utilisation strategies (including packaging waste recyclability and reuse).
- ▶ **New opportunities for value creation from ‘the Circular Economy’:** stretching R&D and product design and development, to supplier management, production, after sales services and consumption, followed by recycling, remanufacturing and reuse.
- ▶ **Food product innovation:** reformulation to reduce levels of salt, fat and/or sugar; ease of cooking/use; smart packaging to reduce waste; shelf life extension; food security & traceability.
- ▶ **Agri-food sector:** more efficient and lower waste processes, and more innovation and long-lasting products.



Food & Drink: Greg Clark speech

- ▶ “Back in February, I announced £90 million of Industrial Strategy money - bringing together AI, robotics and earth observation - to improve supply chain resilience in the agri-food sector.”
- ▶ “This includes support for ‘innovation accelerators’ charged with exploring the commercial potential of new tech ideas at pace.”
- ▶ “I see food and drink as being one of most important sectors of the future.”
- ▶ “For this reason, I have asked the Government’s Chief Scientific Adviser for advice on the potential opportunities that exist to significantly raise productivity across the whole UK food production system.”



The Food and Drink Manufacturing Sector Deal could offer opportunities

- ▶ Current proposals aim to boost productivity in the sector by:
 - ▶ Supporting firms to increase exports
 - ▶ Upgrading the engineering and digital capability of the sector
- ▶ The second of these plays well to the SEMLEP area's existing sector strengths, and plans to support an increase in the pipeline of these skills.
- ▶ It also helps the area achieve innovation in the two key areas identified from a BEIS e-consultation into future trends.

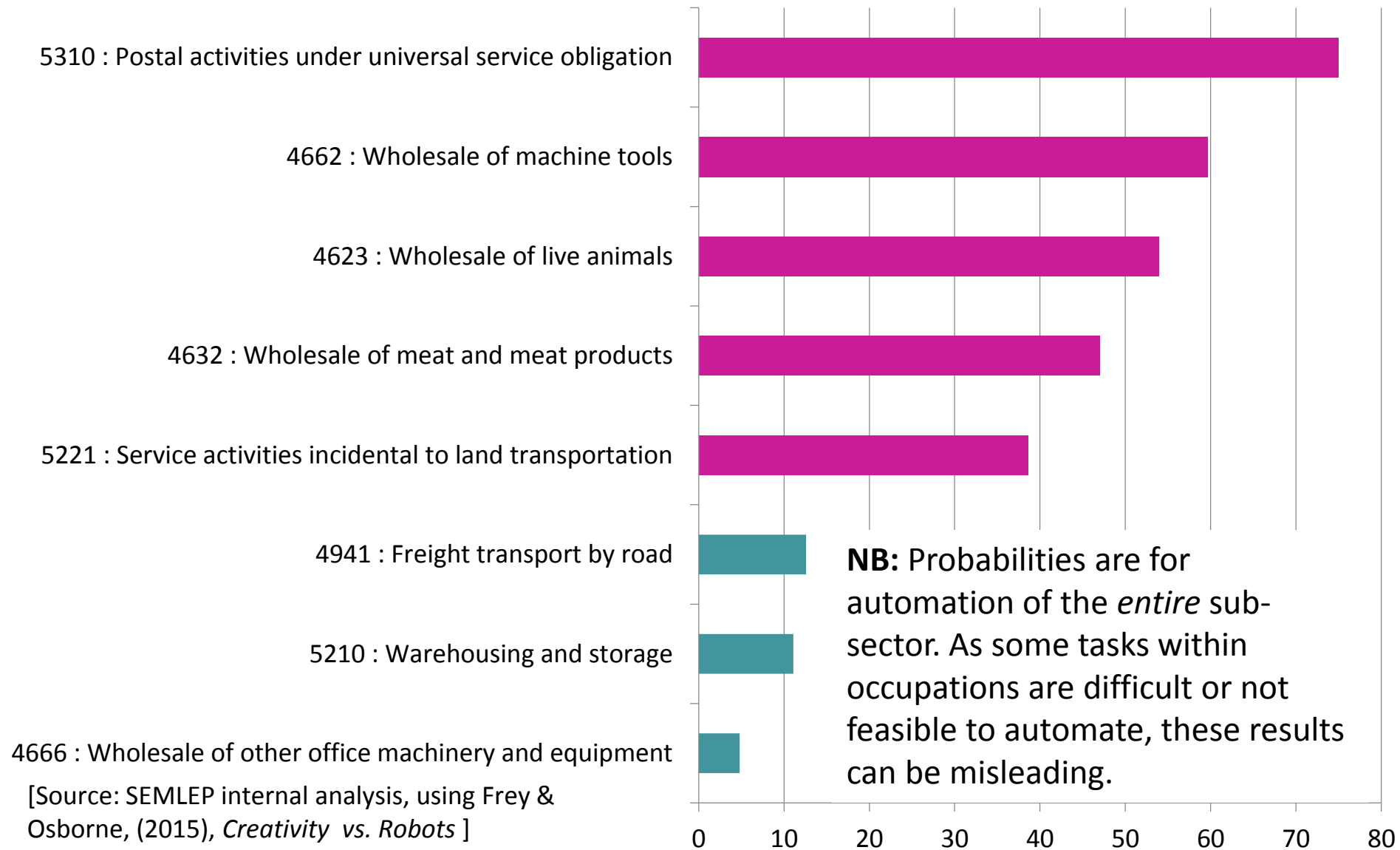
Food systems: *“The stronghold of active and leading Universities in the area, with very close connections with multinationals, but also local production means that this would provide a new approach to healthy and sustainable food production”*

Precision farming – *“This will bring together advanced engineering and manufacturing to support the UK's food production system to increase efficiency and productivity and reduce environmental impacts.”*



Logistics:

Sub-sectors most and least likely to be computerised



New technologies mean massive potential for increased productivity within the Logistics sector

► Changing customer expectations:

- Far greater expectations around efficiency & performance (faster time-to-market, increased customisation)
- New shopping patterns ('total' & 'connected' retail)

► Technological breakthroughs:

- Data & analytics absolutely key
- Automation could reshape the workforce
- Possibility of hyperloops/other 'game-changers'

► New entrants to the industry:

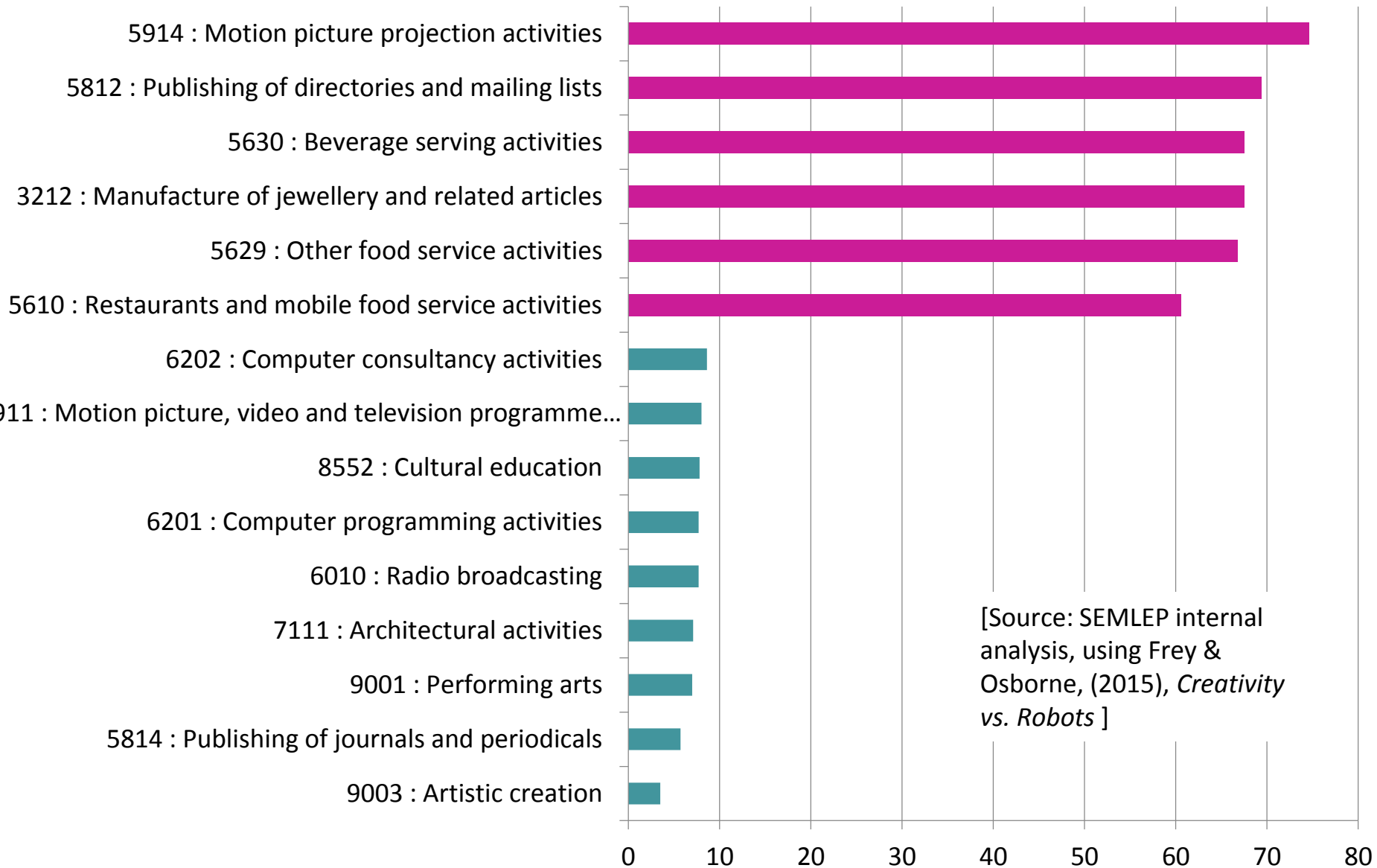
- Start-ups (virtual freight forwarders; last-mile delivery)
- Autonomous vehicles/crowd-sharing (self-driving lockers; storage in car sharing)

► Greater collaboration/ standardisation

- Use of 'Physical Internet'

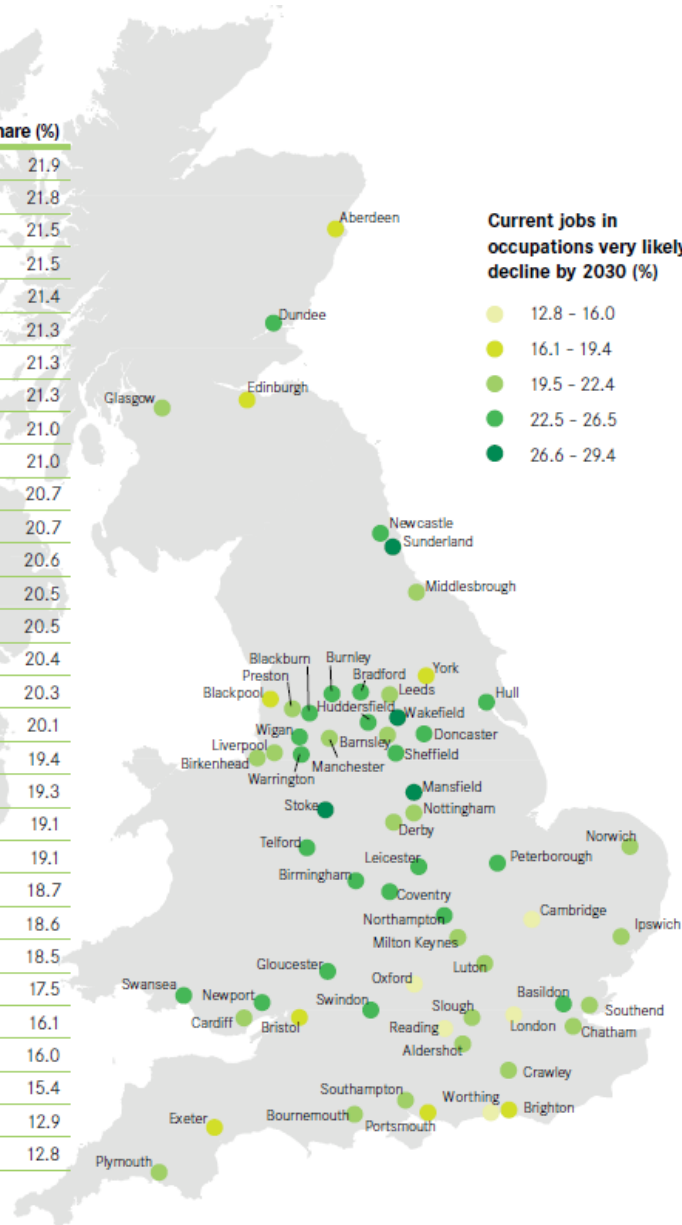


Creative & Cultural: Sub-sectors most and least likely to be computerised



Centre of Corridor to be more heavily affected by technological change than either end

City	Share (%)	City	Share (%)
Mansfield	29.4	Bournemouth	21.9
Sunderland	29.2	Birkenhead	21.8
Wakefield	29.2	Barnsley	21.5
Stoke	28.4	Milton Keynes	21.5
Doncaster	26.5	Preston	21.4
Blackburn	26.3	Liverpool	21.3
Northampton	25.8	Leeds	21.3
Dundee	25.3	Derby	21.3
Huddersfield	25.3	Plymouth	21.0
Telford	24.9	Nottingham	21.0
Leicester	24.9	Norwich	20.7
Coventry	24.8	Slough	20.7
Wigan	24.7	Crawley	20.6
Peterborough	24.6	Ipswich	20.5
Bradford	24.2	Glasgow	20.5
Swindon	23.9	Cardiff	20.4
Hull	23.9	Aldershot	20.3
Basildon	23.9	Luton	20.1
Burnley	23.8	Exeter	19.4
Warrington	23.7	Aberdeen	19.3
Sheffield	23.5	Bristol	19.1
Newport	23.4	Portsmouth	19.1
Newcastle	23.3	York	18.7
Birmingham	23.2	Blackpool	18.6
Gloucester	23.2	Brighton	18.5
Swansea	23.2	Edinburgh	17.5
Southend	22.4	London	16.1
Middlesbrough	22.4	Worthing	16.0
Manchester	22.4	Reading	15.4
Chatham	21.9	Cambridge	12.9
Southampton	21.9	Oxford	12.8



[Source: Centre for Cities, (2018), *Cities Outlook 2018*]



Research suggests that job-related training and greater ICT usage can boost productivity in low-wage industries

- ▶ Analysis finds countries tend to have a total factor productivity lead over the UK within a particular sector (or have a smaller lag) where they:
 - ▶ Engage a relatively higher share of employees in job-related training
 - ▶ Have a higher share of employees subject to management practices such as performance-related pay or continuous improvement
 - ▶ **Have a higher share of employees using ICT**
 - ▶ Have a lower share of employees on temporary contracts



Plans to develop a STEM skills-focused University in Milton Keynes could help to address future skills needs



- ▶ Cranfield University is currently the lead higher education provider.
- ▶ With key partners including Grant Thornton, MK College, Microsoft and Tech Mahindra.
- ▶ Undergraduate curriculum in key areas including digital, cyber, autonomy, robotics and artificial intelligence.
- ▶ Will also include part-time/apprenticeship pathways and short courses/continued professional development
- ▶ First cohort of students to arrive in 2023.

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Other key skills institutions/ proposals

- ▶ **Bedford College Advanced Engineering Centre:** offers employers space for electrical and engineering training in conjunction with the College to raise skills and boost productivity in the town.
- ▶ **Engineering and Construction Skills Centre** in Leighton Buzzard, Central Bedfordshire College
- ▶ MK College plans for an **Institute of Digital Technology** at Bletchley Park
- ▶ **Open University bid for a Doctoral Centre** to support training in Software Engineering for Connected People and Things.



Bedford College Advanced Engineering Centre



Engineering and Construction Skills Centre

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Next Generation Transport:

Significant opportunities for productivity growth

- ▶ **Simulation and modelling using high performance computing capabilities** that will reduce the time to market and associated R&D costs.
- ▶ **Advanced digital design and physical validation** to support 'right-first-time' design, reducing the need for testing and prototyping, and accelerating the development and deployment of novel technologies in future vehicles.
- ▶ **Advanced materials and manufacturing processes**, with a focus on the application of advanced materials and processes such as composites and additive manufacturing to exploit fully the materials and processes most effectively.
- ▶ **Digital manufacturing, supply chain and service management** including big data, supply chain management, intelligent automation and assembly, machining and condition monitoring, manufacturing metrology, metal precision manufacturing, responsive manufacturing, and advanced robotics.



In the context of the clean growth agenda, SEMLEP's unique testing facilities offer particular opportunities...

“The management and reduction of environmental impact, including vehicle emissions and the impact on air quality, the impact of car greening, intelligent transport systems, and dynamic routing and data to support the green economy is also a significant growth opportunity for the region.”

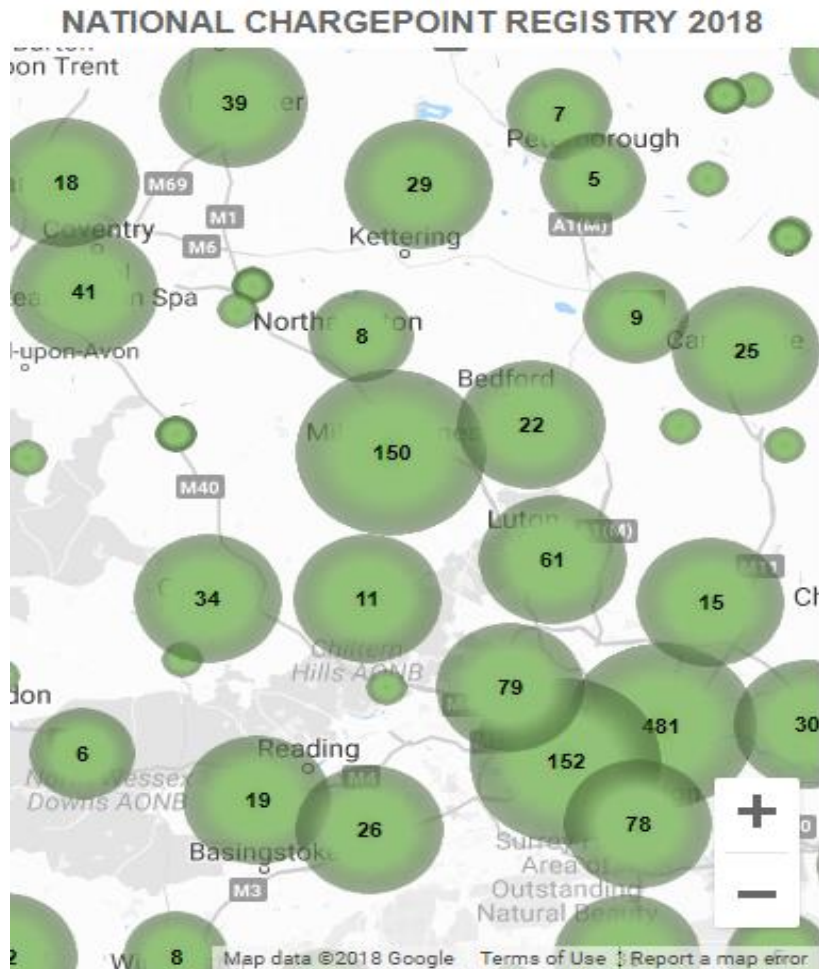
[Source: The Midlands Engine Science and Innovation Audit, (2016)]

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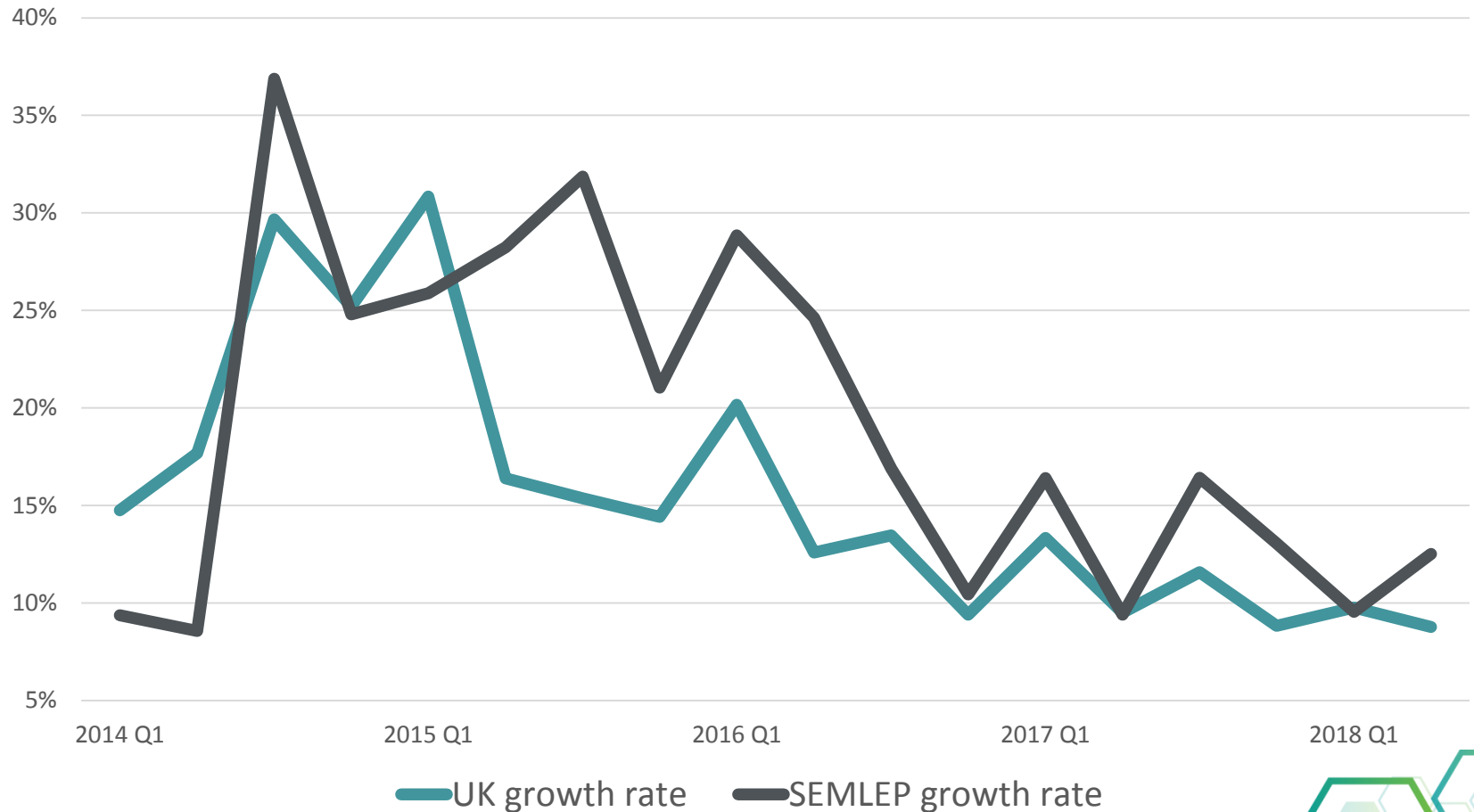


...as do Electric Vehicles and Electric Vehicle Infrastructure



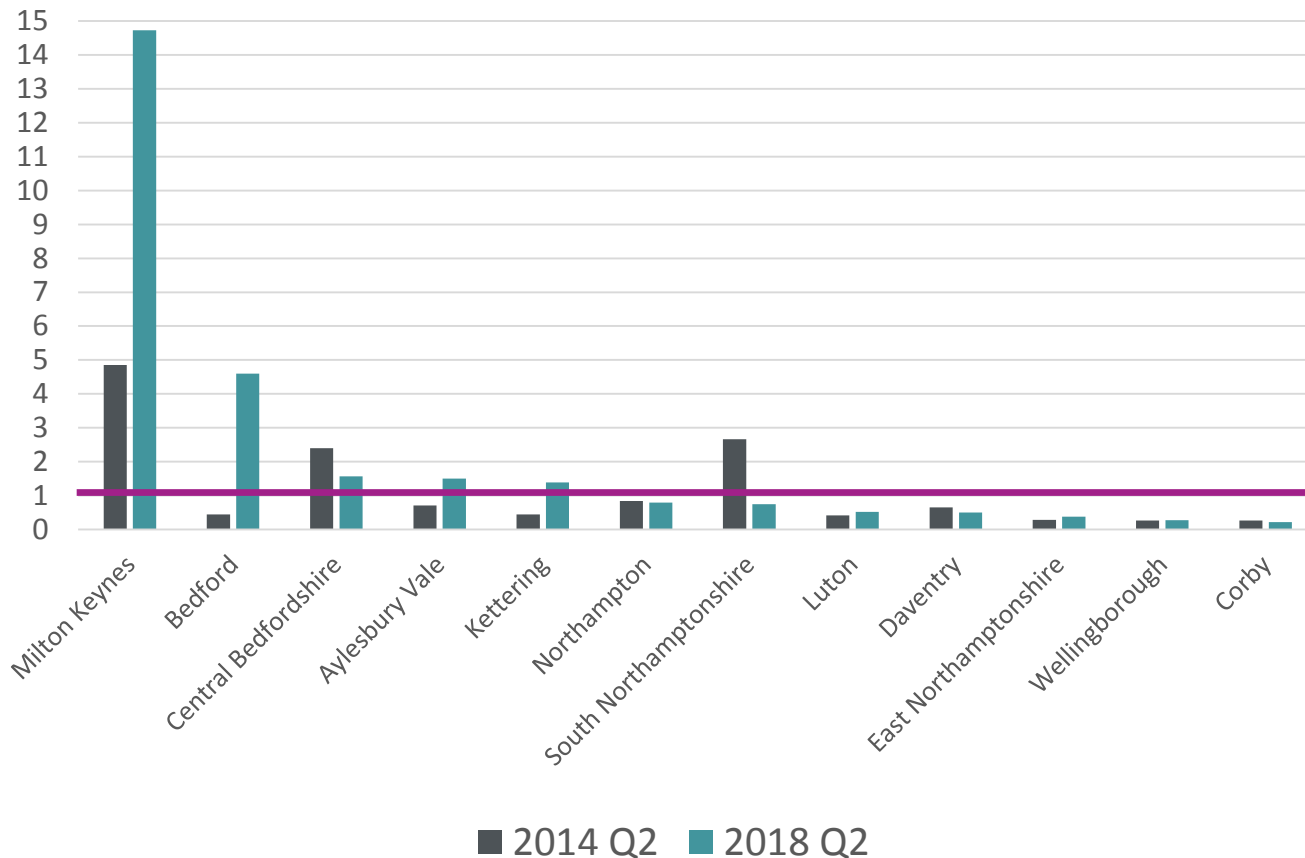
- ▶ The anticipated growth in private vehicles (at both the national and local levels), along with the need to phase out the use of fossil fuels, highlights the future importance of electric vehicles.
- ▶ The Government's National Chargepoint registry shows that nearly 6% of the country's installed electric vehicle charging points are in the SEMLEP area.
- ▶ Milton Keynes stands out with around 150 charging points, comparable with volumes in London.
- ▶ Meanwhile, other places in the SEMLEP area have considerable room for improvement in this regard.

The rate of Electric Vehicle (EV) registration in the SEMLEP area is above the UK average, but closely follows the national trend...



...but the rate of uptake is concentrated in only a few specific locations

New Plug-in cars, LGVs and quadricycles registrations, as a proportion of national average



Milton Keynes had **second highest number of new EV registrations** out of all Unitary Authorities in 2018 Q2

SEMLEP neighbours **Peterborough UA**, which has the highest

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[Source: DfT Vehicle Registration Statistics]



Electric Vehicles: Opportunities & Challenges

SEMLEP has access to a range of industry leading innovators in Electric Vehicle manufacture

- **Nissan is involved with the UK ZEV strategy**, expressing needs for improvements in both innovation and the energy industry.

Opportunity to revolutionise efficiency in the Logistics sector, particularly the Last-mile

- **E-cargo bike** trials in London have been very successful in 'last mile' grocery delivery.
- **Completed deliveries more quickly than conventional vans**, due to reduced congestion

But EVs are more expensive than fossil fuel alternatives, even with government grants

- Although, Milton Keynes offers free parking for EVs, offering a financial incentive to uptake

In addition, the weight of Electric vans is a barrier to uptake

- Vans weighing 3.5 tonnes or less can be driven with a standard license
- Additional battery weight pushes vans over this threshold, requiring a professional licence



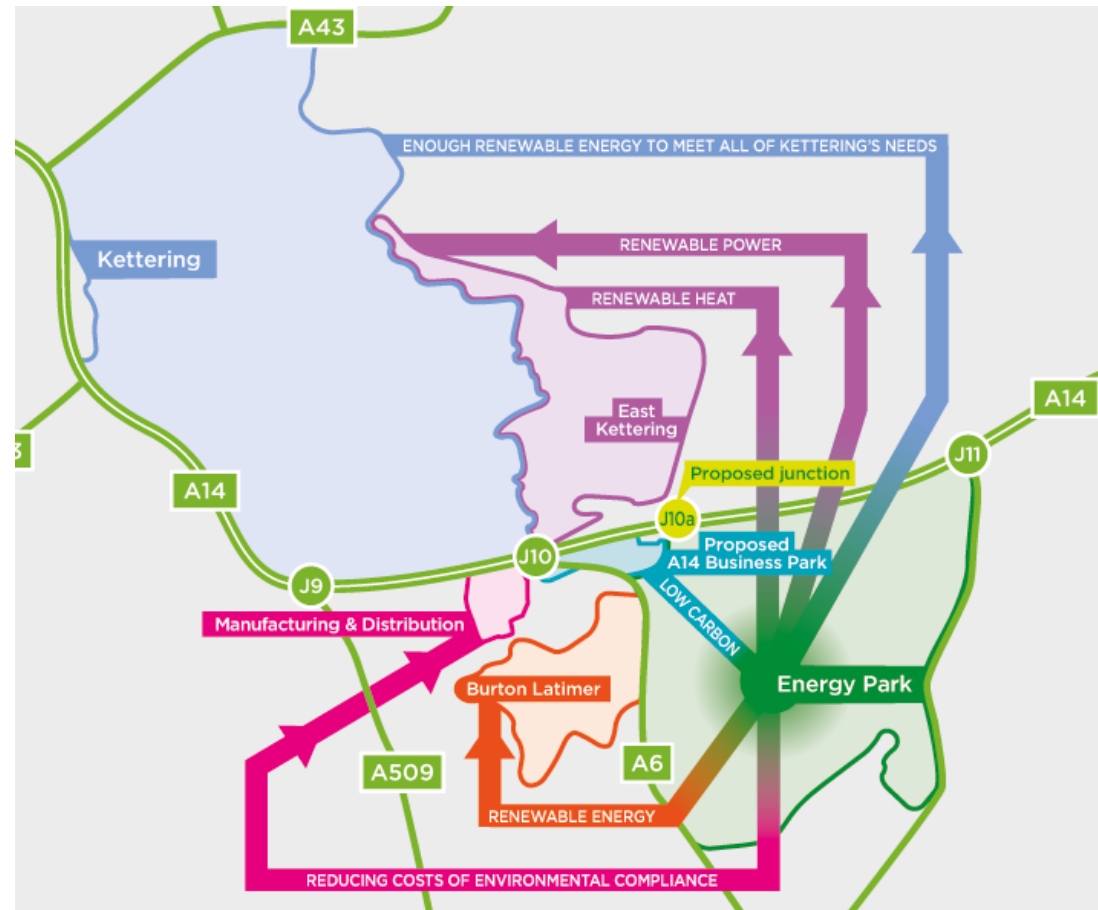
Growth must be undertaken in a manner that protects and enhances environmental quality

Kettering Energy Park

- Aims to supply power to 5,500 homes in the Hanwood Park Urban extension. (East Kettering)
- Uses 9 GE high efficiency turbines, which produce enough power to supply 11,000 homes.
- Uses CHP techniques to recover renewable heat generated to support crop growth.

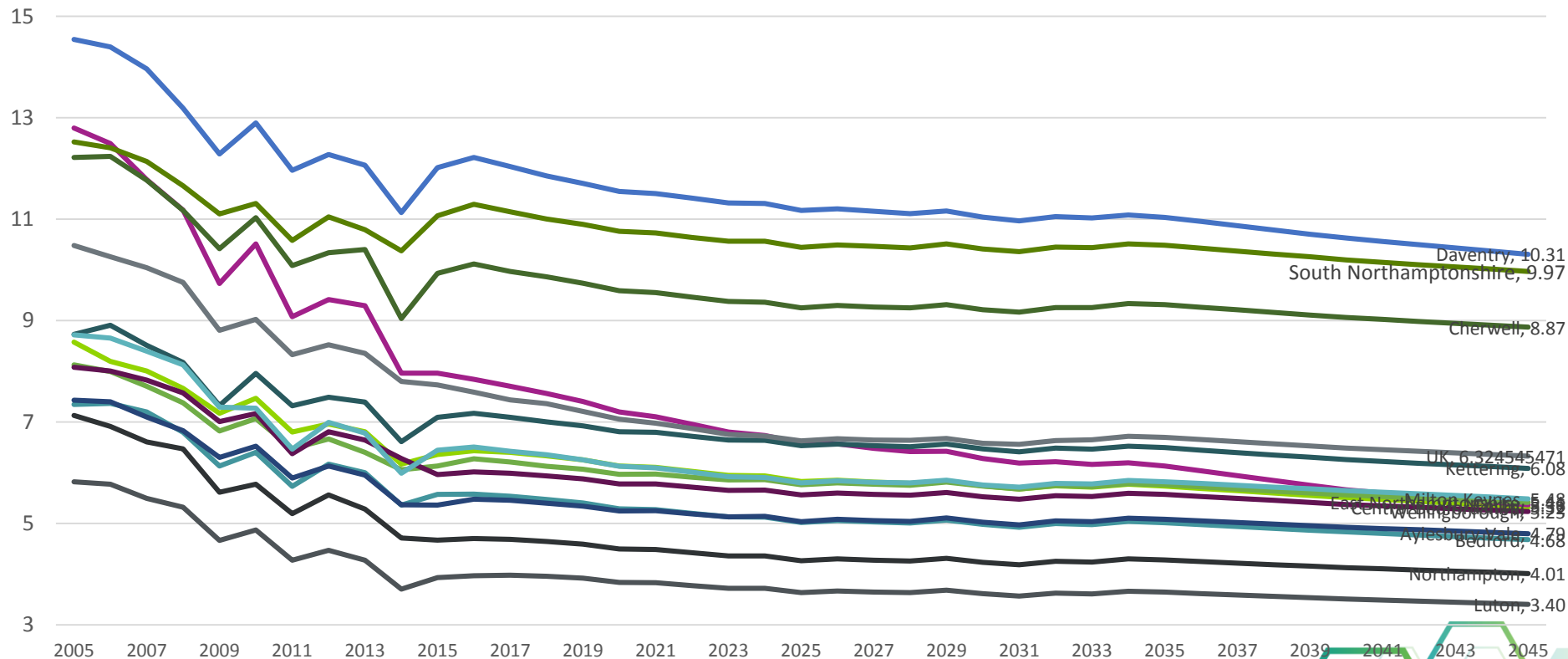
“Kettering is the first strategic energy park of its type, and it will act as a development template for the rest of the UK.”

Matthew Byrom, MD, First renewable



Most areas have below average per capita emissions, except Daventry, South Northamptonshire and Cherwell, and emissions are expected to decrease over time for all LAs

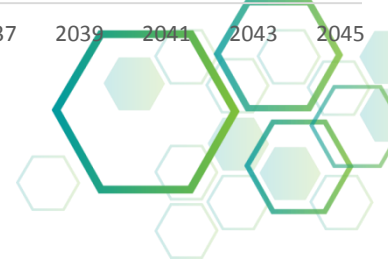
Carbon Dioxide emissions in kilotonnes per capita, forecast



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[Source: Cambridge Econometrics, EEFM CO₂ Emissions (2018)]

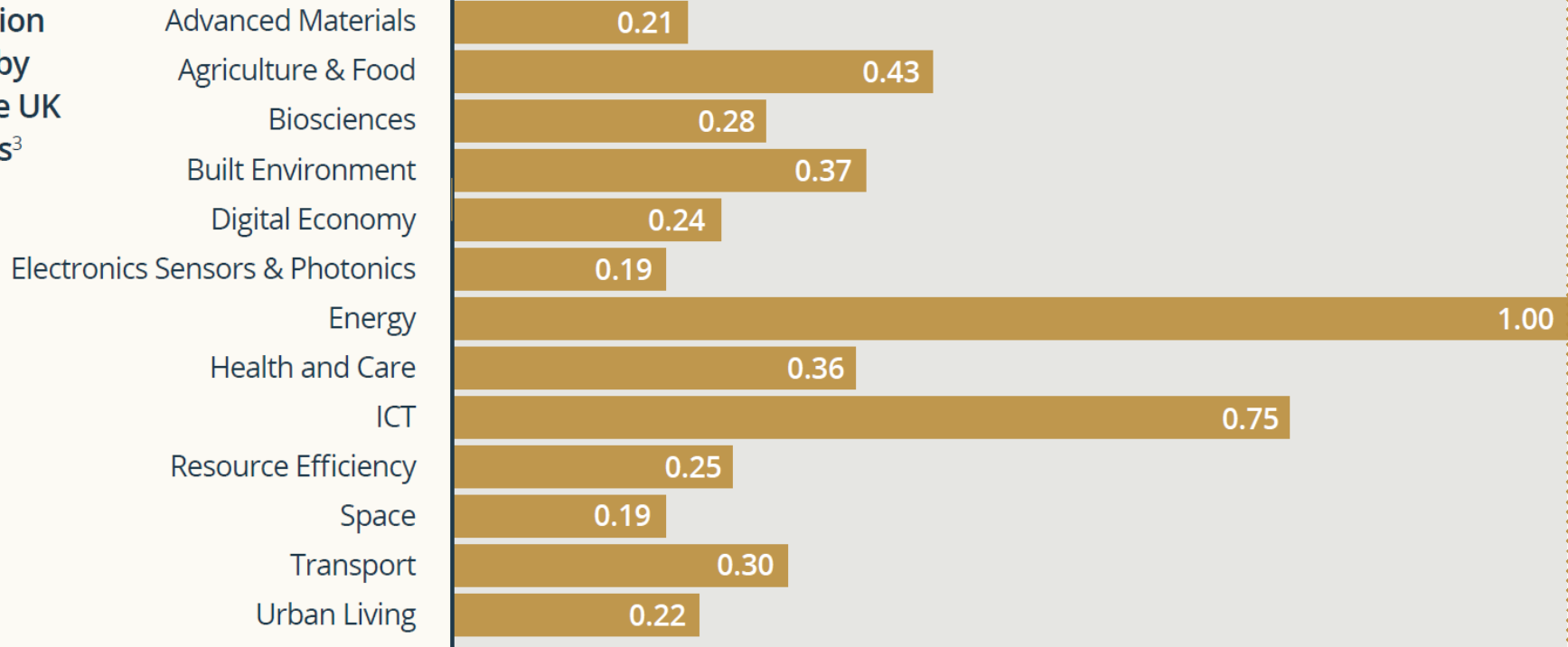


Energy research is an area of expertise in the SEMLEP area...

Publication Output by Innovate UK Priorities,
SEMLEP vis-à-vis other LEPs (exc. London)

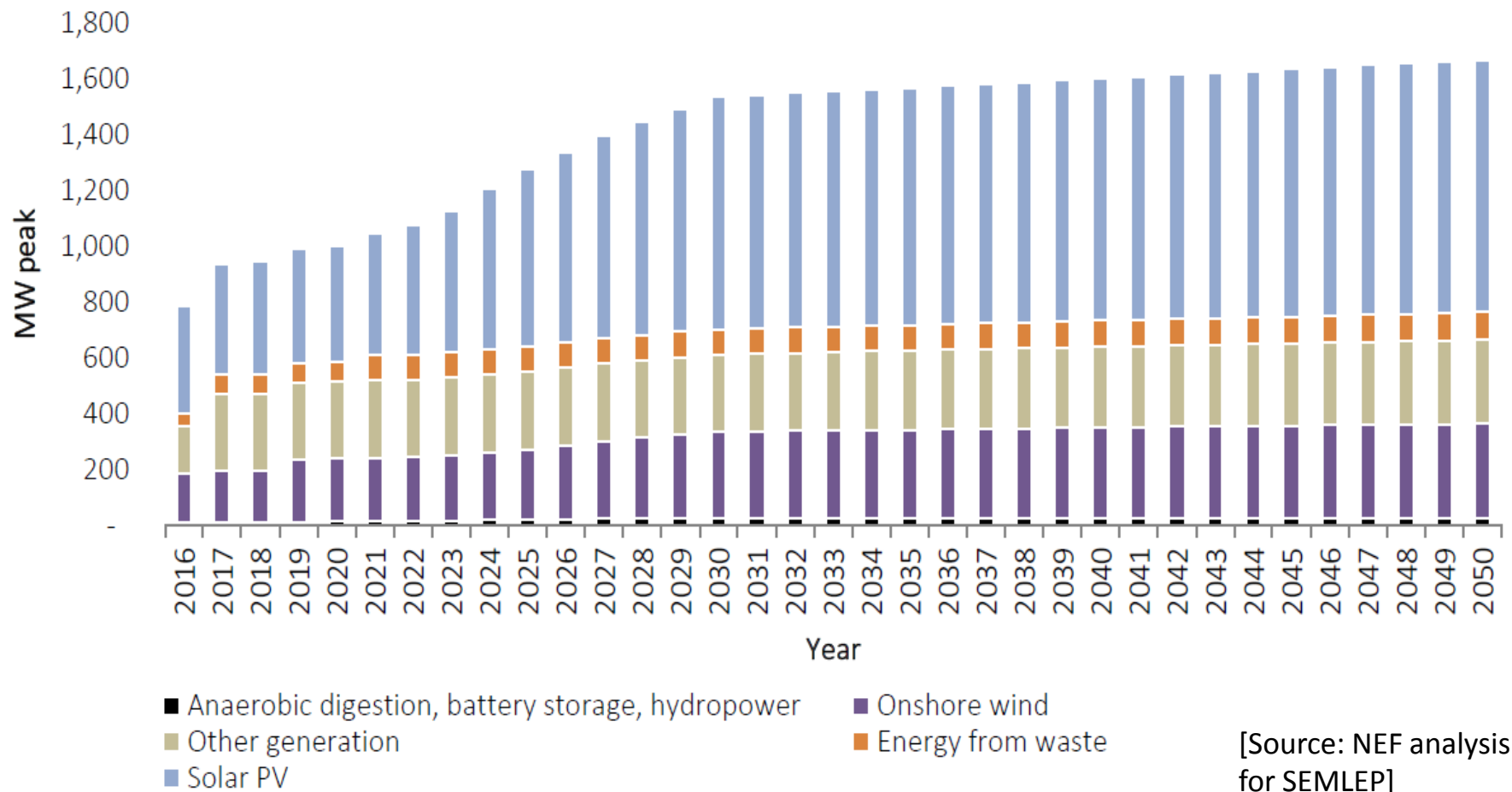
Top performer = 1

Publication
Output by
Innovate UK
Priorities³



...and there is considerable potential for new sources of energy in the area

Projected Distributed Generation of Electricity in the SEMLEP Area, to 2050



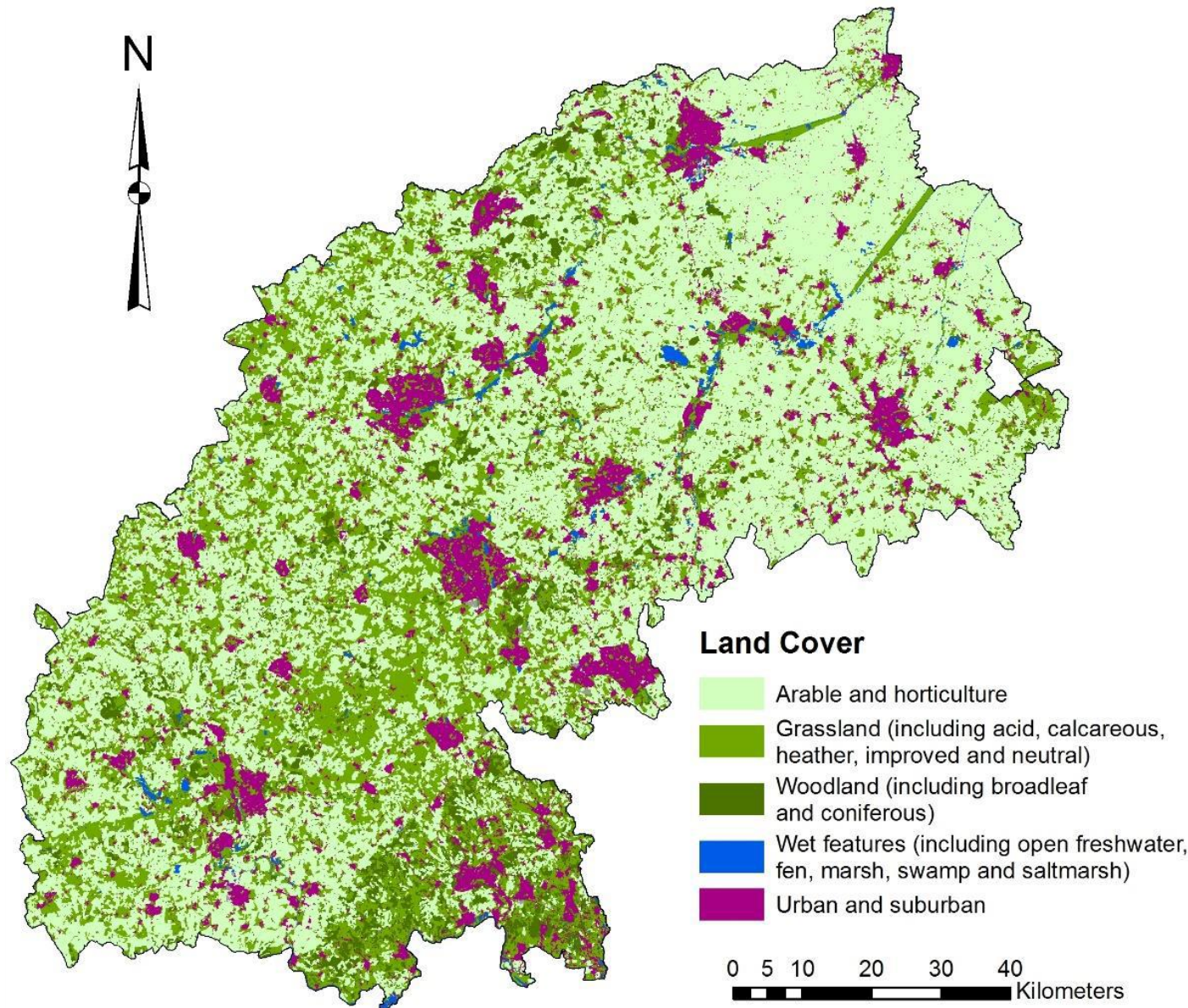
Smart Energy Systems offer growth potential, both as a growth enabler, and in their own right...

- ▶ “Innovation opportunities to exploit smart systems exist largely at the 'system edge' (in the 'last mile' of supply), adjacent to the point of use and 'behind the meter' in the consumer's home or premises. “
- ▶ “Vital research and industrial capabilities which sustain innovation will be in sensors, controls, communications, data (including the architectures which will enable them to be deployed effectively), power systems, and modelling and simulation capabilities to analyse system behaviour under change.”



There is extensive farmland and grassland in the SEMLEP area and its surrounding geography

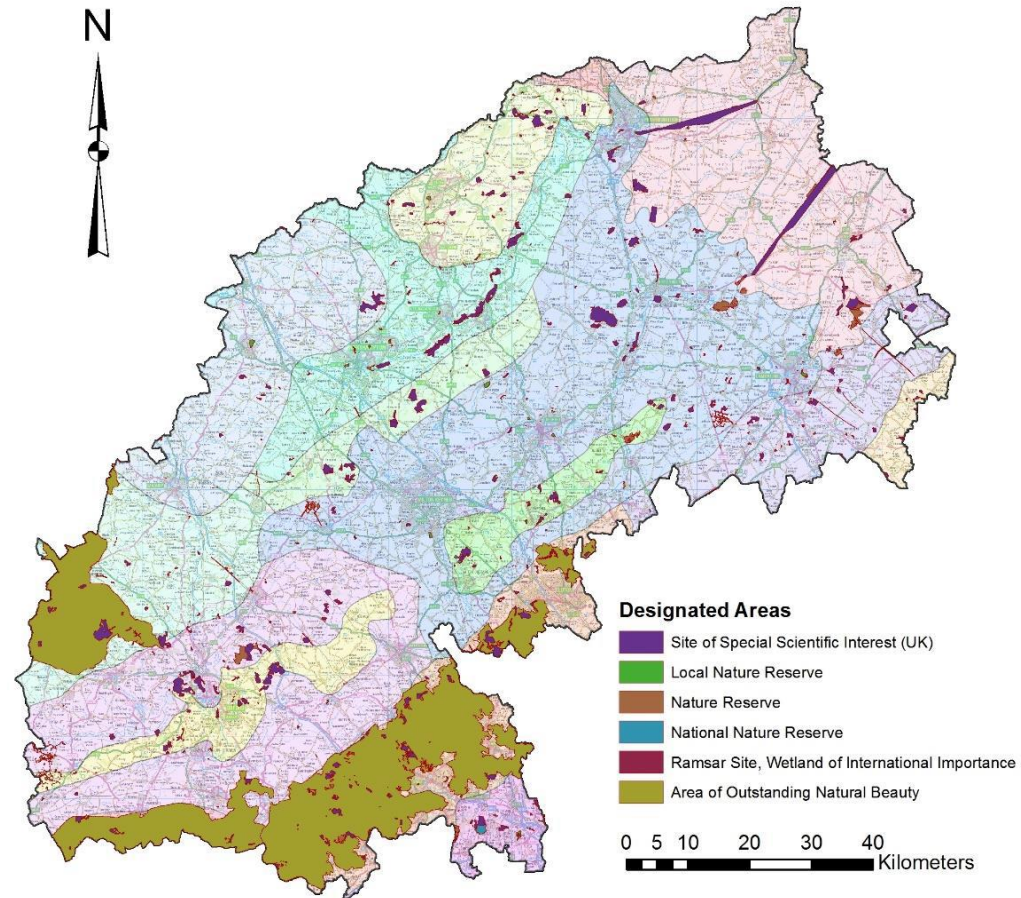
[Source: Growth corridor Natural capital report 2018]



Accordingly, the area has access to a range of natural capital resources

Natural Capital is defined as “...elements of nature that directly or indirectly produce value to people, including ecosystems, species, freshwater, land, minerals, the air and oceans.”

(Natural Capital Committee 2014)



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[Source: Growth corridor
Natural capital report
2018]

National Character Areas

Bedfordshire Greensand Ridge	Bedfordshire and Cambridgeshire Claylands	Berkshire and Marlborough Downs	Chilterns	Cotswolds	Dunsmore and Feldon
------------------------------	-------------------------------------------	---------------------------------	-----------	-----------	---------------------

East Anglian Chalk	High Leicestershire	Kesteven Uplands	Leicestershire Vales	Midvale Ridge	Northamptonshire Uplands	Northamptonshire Vales	Rockingham Forest	South Suffolk and North Essex Clayland	Thames Valley	The Brecks	The Fens	Upper Thames Clay Vales	Yardley-Whittlewood Ridge
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Natural capital has the potential to support long-run economic growth, through both providing recreational services and reducing risks of damage from weather events

Forest of Marston Vale

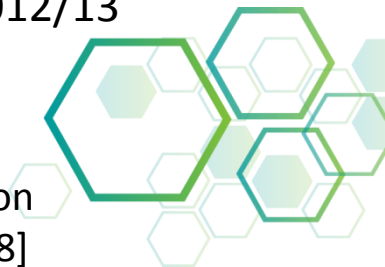
- Since 1995, the project has **increased forest cover from 3.6% to 10.6%** across the Vale.
- Has provided **167 additional jobs** each year and has **attracted £23M in investment**
- Review in 2015 estimated **£14M per year in economic benefits**, mainly from recreation and health

Upper Nene Valley Gravel Pits: globally recognised Ramsar site

- **Flood control:** protects business in Northampton from environmental damage
- **Recreation** (bird-watching, walking, fishing, sailing, canoeing, water-skiing, cycling)
- **Research and environmental education**

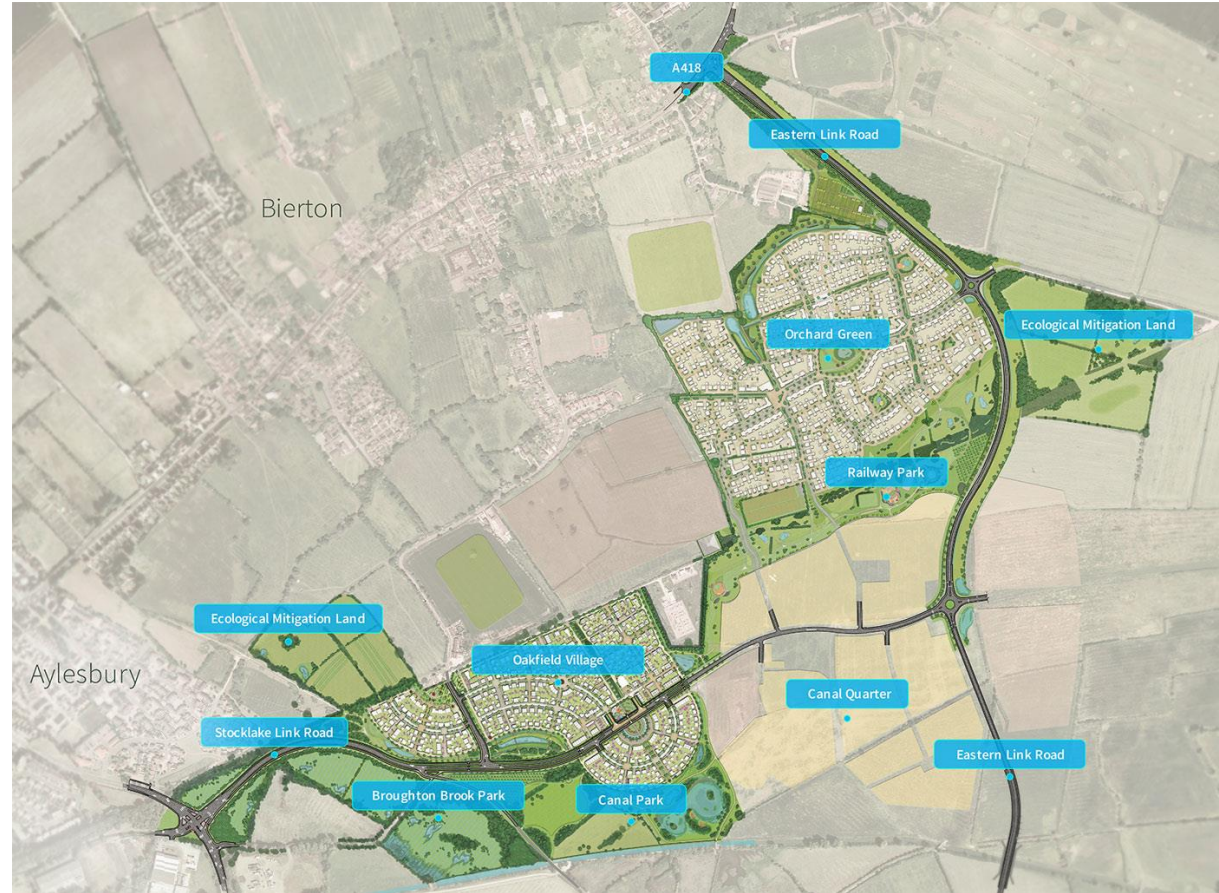
Rushmere Country Park

- Increase in visits per year from **19,000 in 2012/13 to 315,000 in 2017/18**, due to a new Visitor Centre.
- This resulted in fewer visits to Stockgrove, helping **protect SSSIs from visitor damage**.
- Visits are valued at **£1.9M per year**, up from approximately £0.78M in 2012/13



The SEMLEP area has the potential to be a test-bed for development of settlements which preserve natural capital: Kingsbrook

- **New development of 2450 homes**, separated into 3 villages: Oakfield Village, Orchard Green and Canal Quarter.
- Funded collaboration between RSPB and Barratt Developments, **Kingsbrook is the first development to pioneer this approach**
- Development includes swift boxes, wildlife corridors, and water draining to reduce flood risk.



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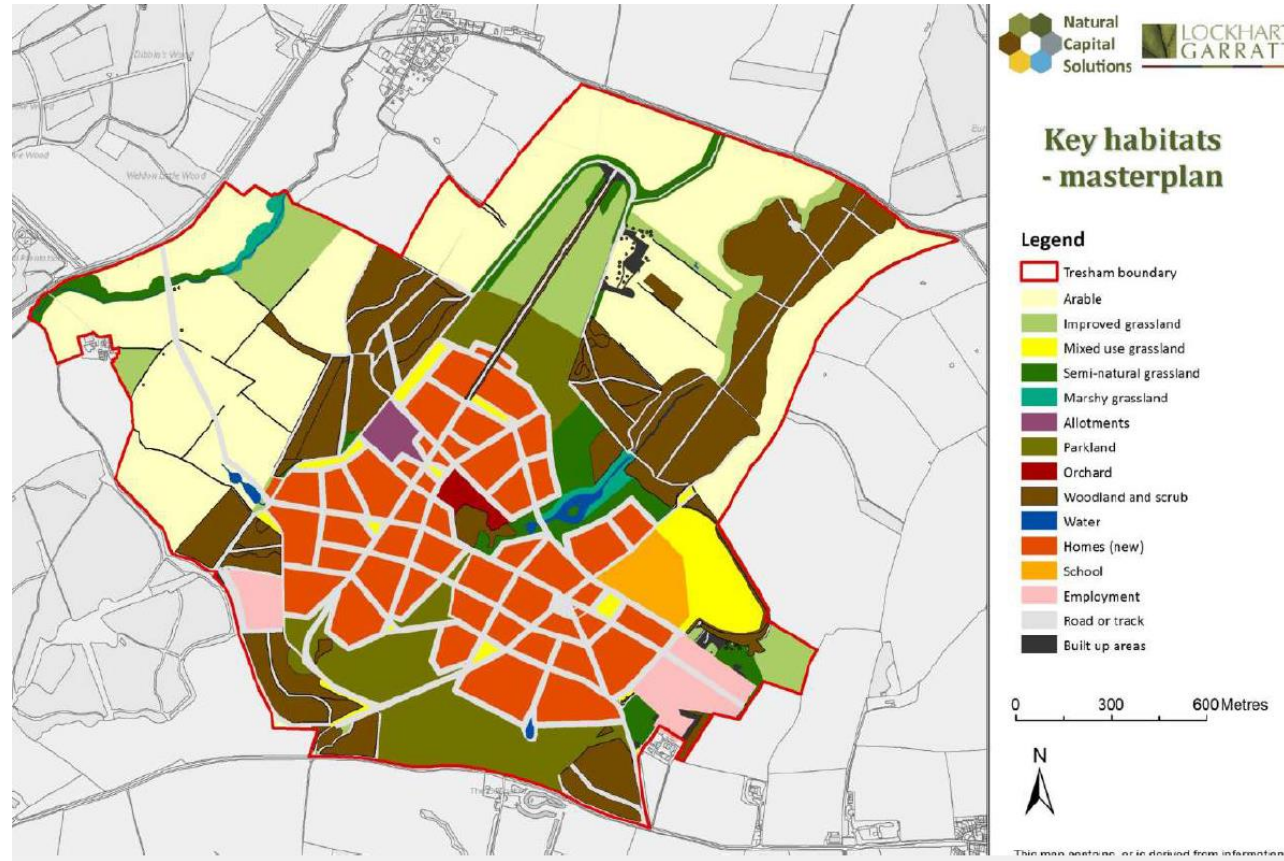
[Source: www.kingsbrook-aylesbury.co.uk (2018)]



The SEMLEP area has the potential to be a test-bed for development of settlements which preserve natural capital : Tresham Garden Village (I)

Tresham Garden Village

- Proposed new settlement of **1,500 homes housing 3,655 people**, including business and school space, with a focus on sustainability of natural capital.
- Most of **ecosystem benefits derived from woodland** in the current masterplan.
- Economic benefits of the natural capital have not yet been calculated.



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[Source: Tresham Garden Village: A natural capital impact assessment, 2018]



The SEMLEP area has the potential to be a test-bed for development of settlements which preserve natural capital : Tresham Garden Village (II)

Table 2: Overall supply and demand for ecosystem services across the Tresham study area, under the baseline and proposed masterplan

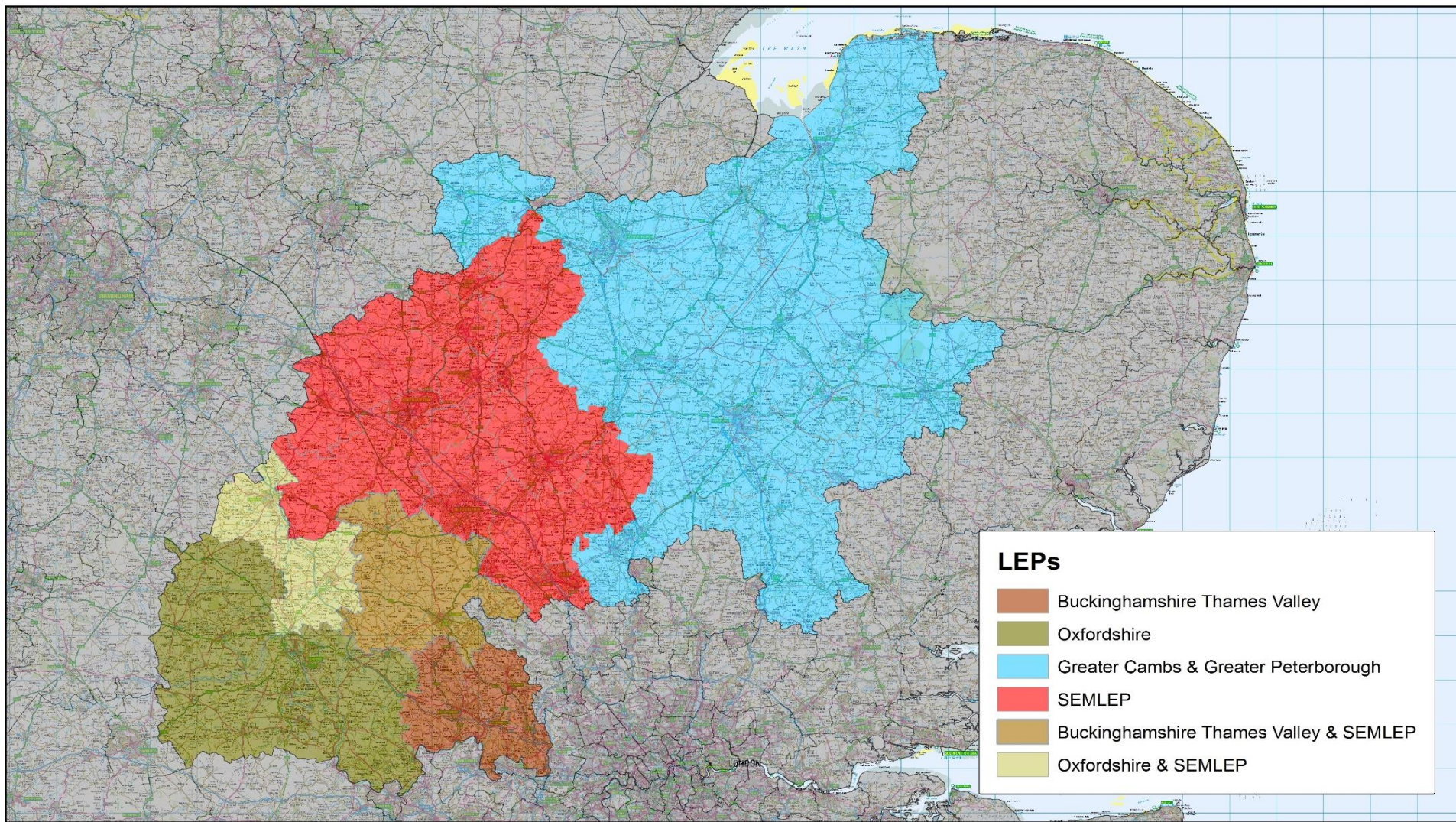
Ecosystem service	Baseline	Masterplan	Change
Capacity			
Carbon storage	12.5	22.6	10.1
Carbon sequestration	5.5	10.8	5.3
Air purification	15.8	23.8	8.0
Noise regulation	14.7	19.4	4.7
Water flow	61.2	59.7	-1.5
Water quality	41.4	50.7	9.3
Pollination	91.1	95.4	4.3
Accessible nature	0.1	8.7	8.6
Agricultural production	51.4	23.4	-28.0
Timber production	2.4	6.3	3.9
Biodiversity Score 1	26.8	35.4	8.6
Biodiversity Score 2	26.8	24.5	-2.3
Demand			
Air purification	1.6	24.4	22.8
Noise regulation	0.8	11.0	10.2
Accessible nature	34.4	60.8	26.4





SEMLEP & the Growth Corridor

The Growth Corridor



Scale: 1:1,100,000 at A4

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Imagery © GeoPerspectives.com

0 5 10 20 30 40
Kilometers

Oxford to Cambridge Corridor



Produced by BTVLEP
24 April 2018



Research on clusters suggests that they cannot be created by design, but that they can be supported to overcome growth constraints

- ▶ “Clusters are regarded as exciting, vibrant places where “something in the air” draws together world-class talent and delivers fresh products and innovations to the marketplace. They contribute disproportionately to economic growth.”
- ▶ “Such clusters cannot be created by design. Their origins are largely accidental, and they often evolve to fill market niches that are difficult for governments to anticipate. Typically, their strength lies in the physical co-location and interplay of talented individuals, nimble small businesses, heavyweight corporations, world-class academic centres, willing investors, appropriate infrastructure and supportive local and national government agencies.”
- ▶ “As they grow, these delicate ecosystems invariably face challenges – for instance, talent shortages and patchy infrastructure. Yet, given their inherent complexity, it is often difficult for clusters to organise to address such challenges head-on and thereby achieve their full potential for growth.”

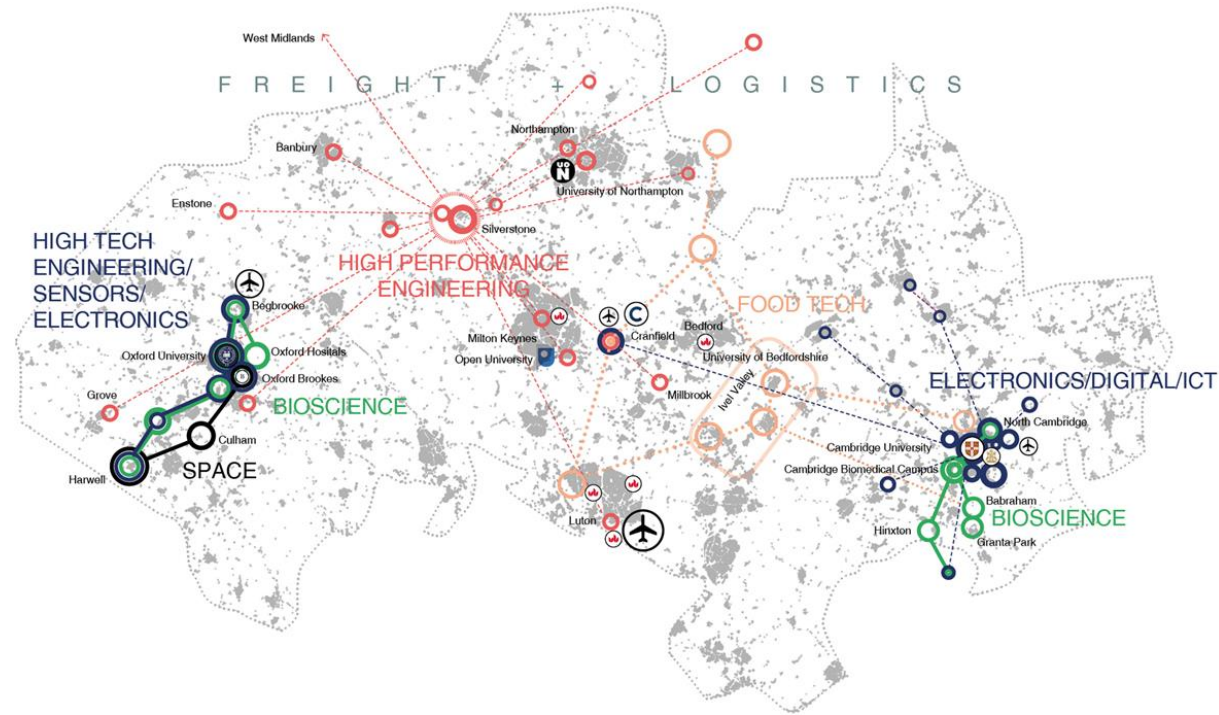


There is a 'cluster of high-tech clusters' within the Growth Corridor



“It is a genuine cluster, and with real potential for growth – largely because of the **quality and wider relevance of the technologies being developed** and applied by many of the firms, but also because the cluster is located in one of the fastest growing and dynamic parts of the UK.

One of the real opportunities is to **make the most of the overlaps between different spheres of influence of specialist expertise**: for example, between the engineering excellence in Northamptonshire, the growing IT strengths in Milton Keynes and Buckinghamshire, and the expertise in areas such as low energy systems in Oxfordshire.”

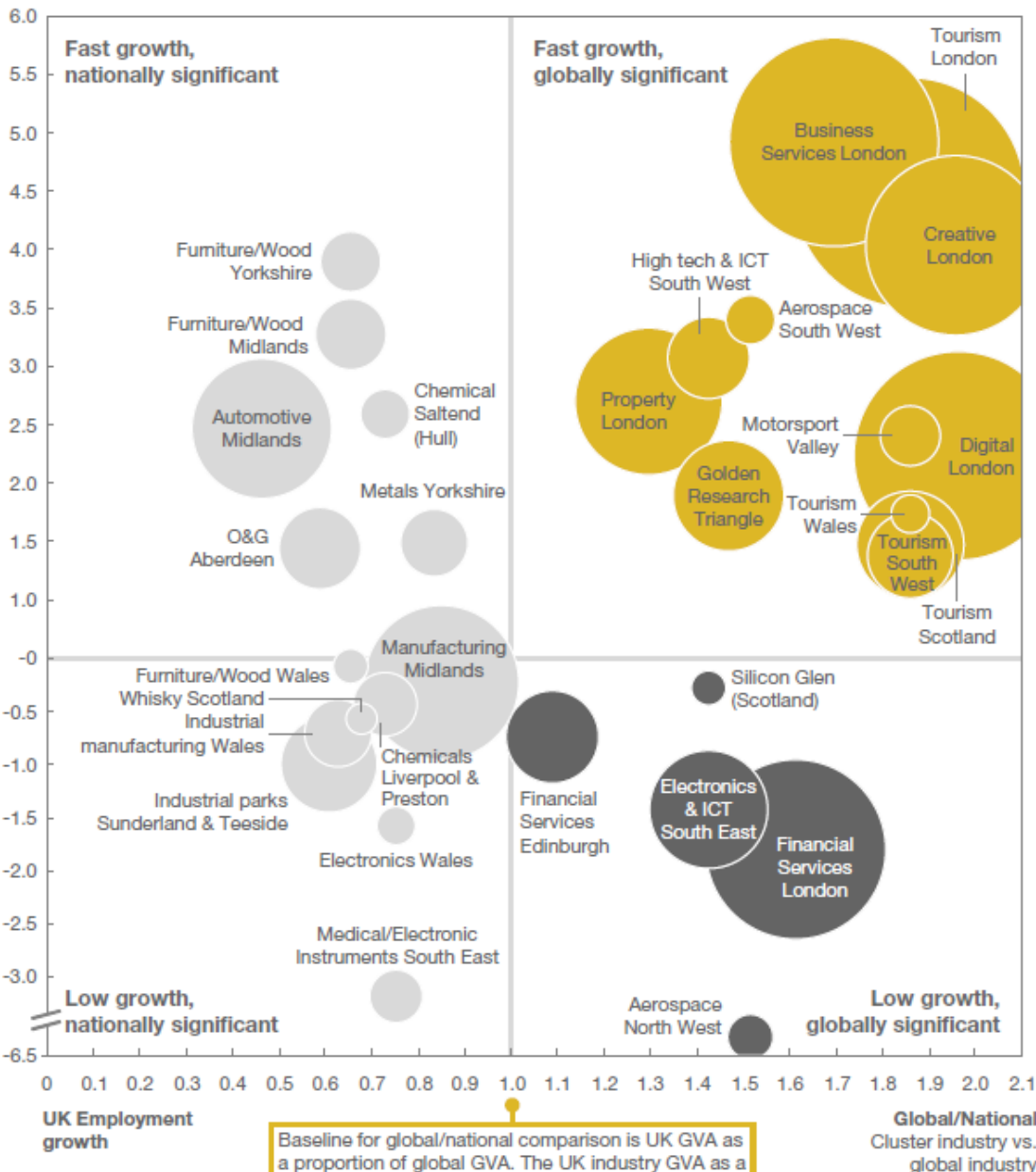


[Sources: SQW, (2016), *The Evolution of the HPTM Cluster*; and NIC, (2017), *Partnering for Prosperity*]

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Employment growth
2009–12 CAGR, %



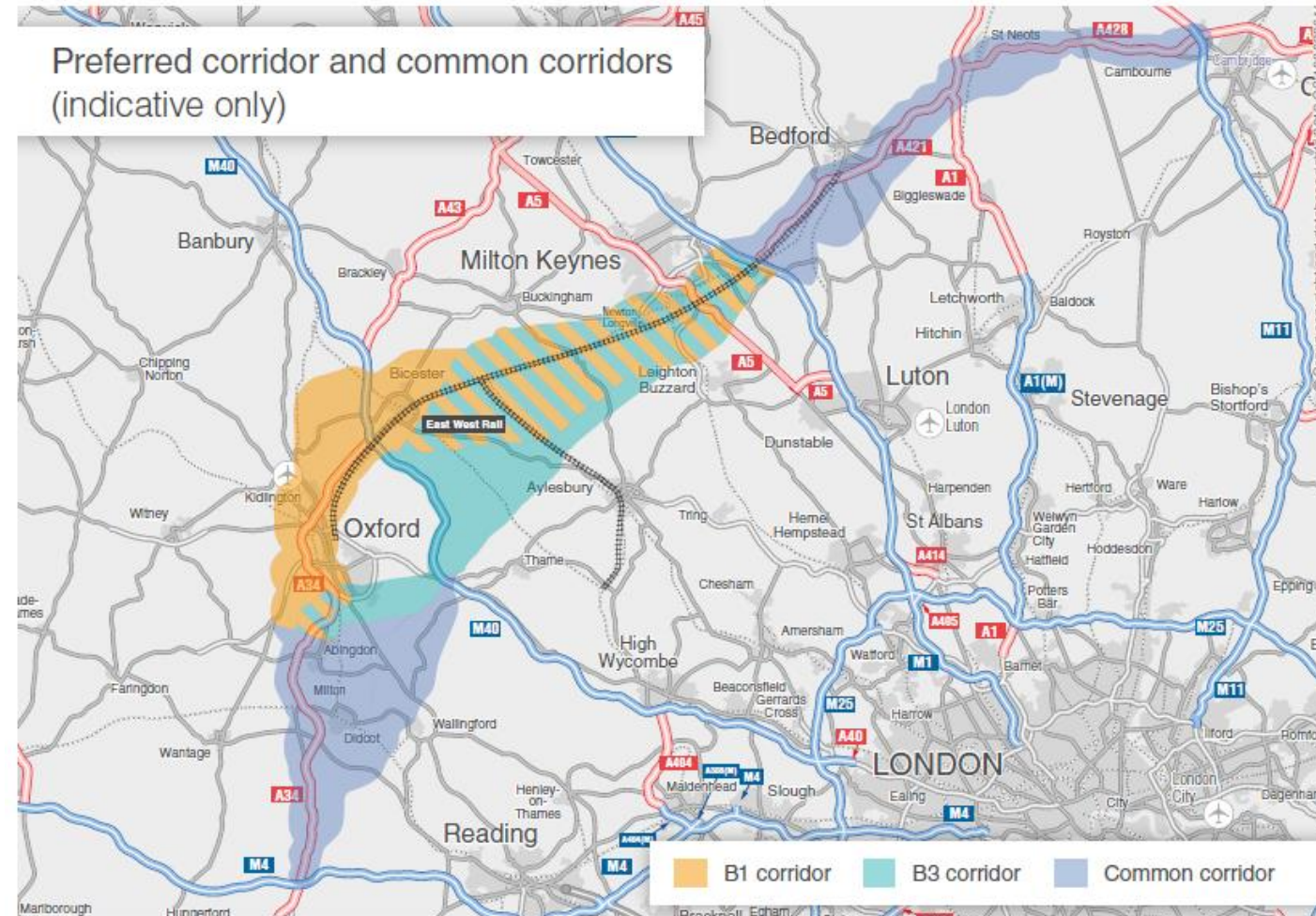
The business activity within these clusters has been identified as both fast growing and globally significant

[Relevant Corridor clusters identified here are Motorsport Valley and Golden Research Triangle and, to some extent, Digital and Creative London]

[Source: Centre for Cities and McKinsey & Company, (2014), *Industrial Revolutions: Capturing the Growth Potential*]

Current plans for a transport corridor are approaching consultation stages, with some ideas for what the East-west link will look like

Preferred corridor and common corridors
(indicative only)



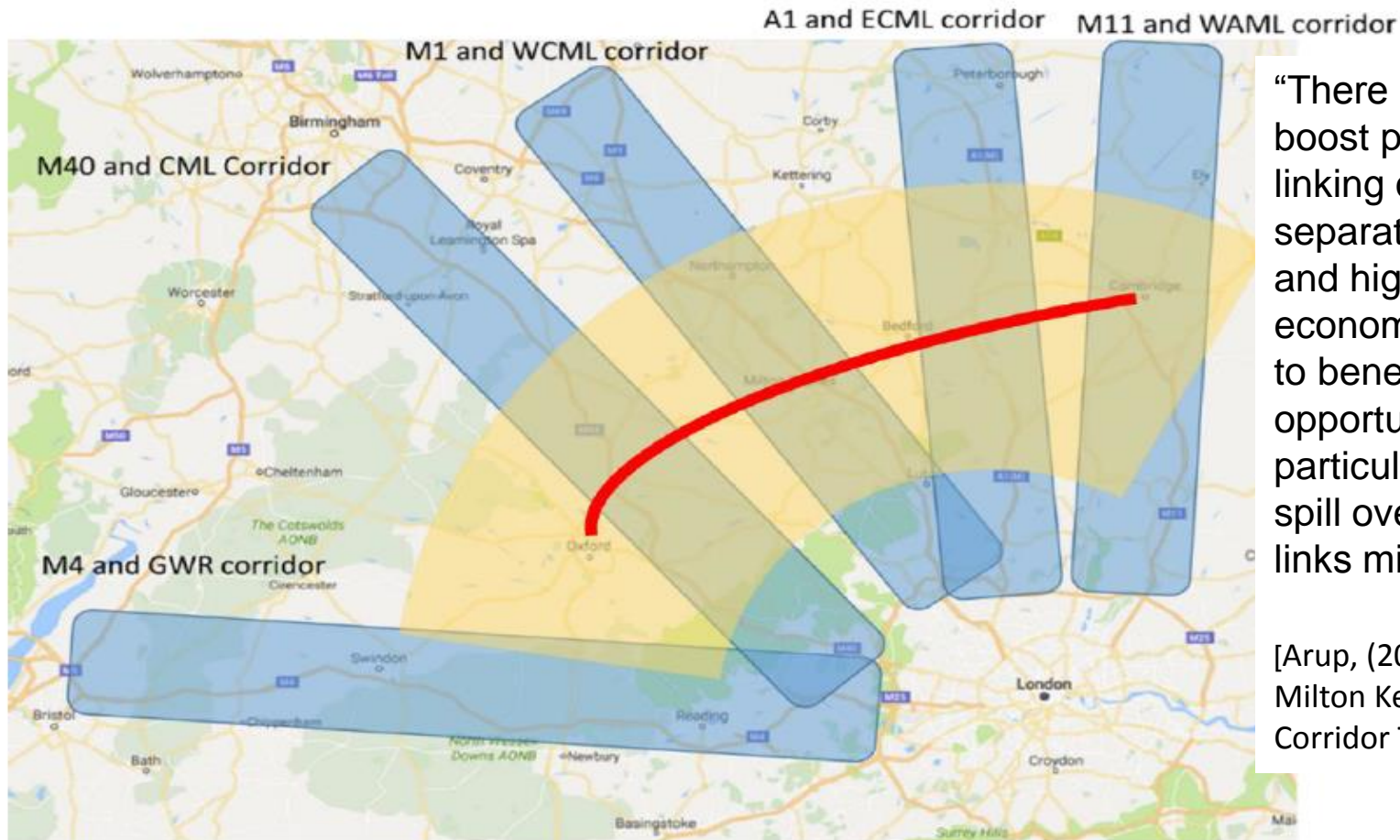
Predicted benefits:

- Reduction in journey times by up to 40 minutes
- Bring an additional **384,000 people** into a 45-minute drive time of **Milton Keynes** and **470,000 more** into the **Oxford Science Park**.



This improved transport link presents significant growth potential for these clusters in the growth corridor...

Transport Corridors Crossing the Cambridge-Oxford Region with proposed new East-West linkage shown in red (approximate route).



“There is the potential to boost productivity by linking centres with separately strong and high value economies to allow them to benefit from the opportunities, particularly for knowledge spill over – that those links might offer.”

[Arup, (2017), Cambridge Milton Keynes-Oxford Corridor Transport workstream]



...which can be supported by joint marketing and promotion to global investors, which may help to prevent commercialisation activity going overseas



Research suggests there are four attributes which help clusters thrive:

- ▶ **Presence:** A reputation as a world-leading cluster and the physical infrastructure and shared technology to support this.
- ▶ **Connectivity:** The right people networks linking the enterprise community.
- ▶ **Capability:** World-class skills and the ability to acquire them locally.
- ▶ **Support:** Financial, regulatory, and professional support designed around the needs of local enterprise.

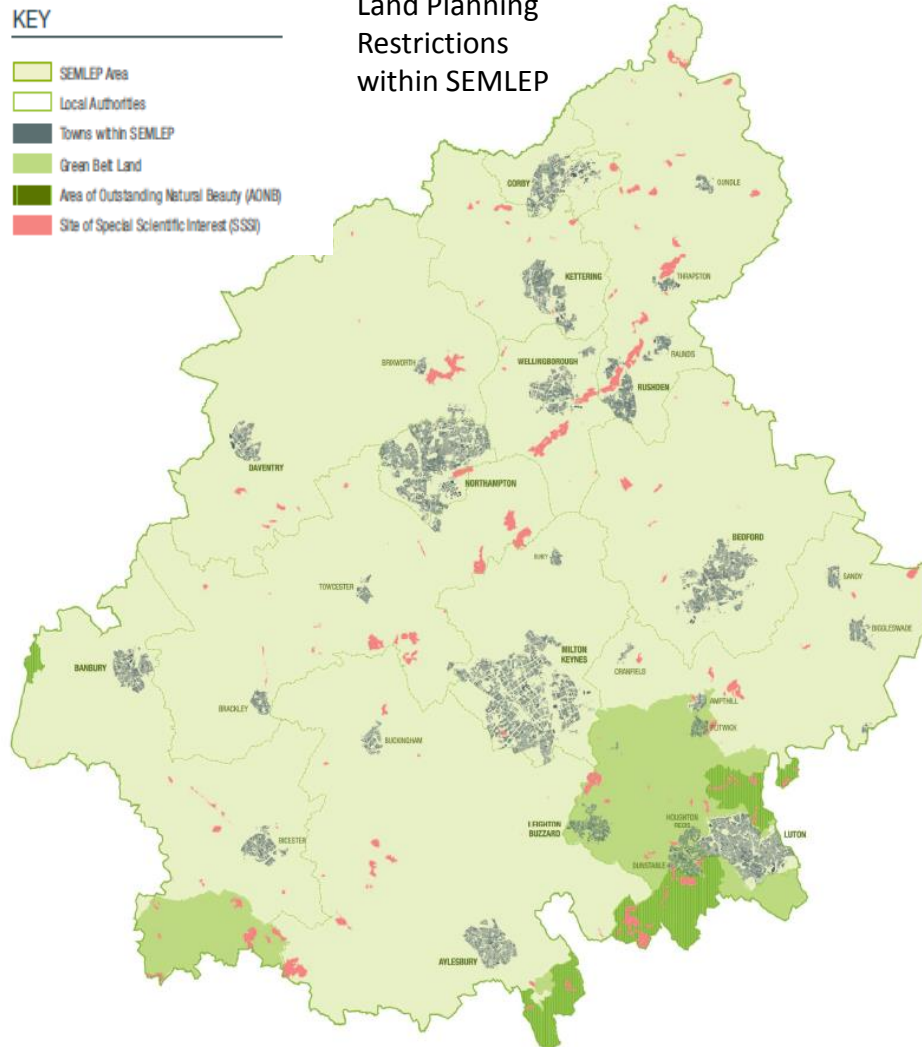
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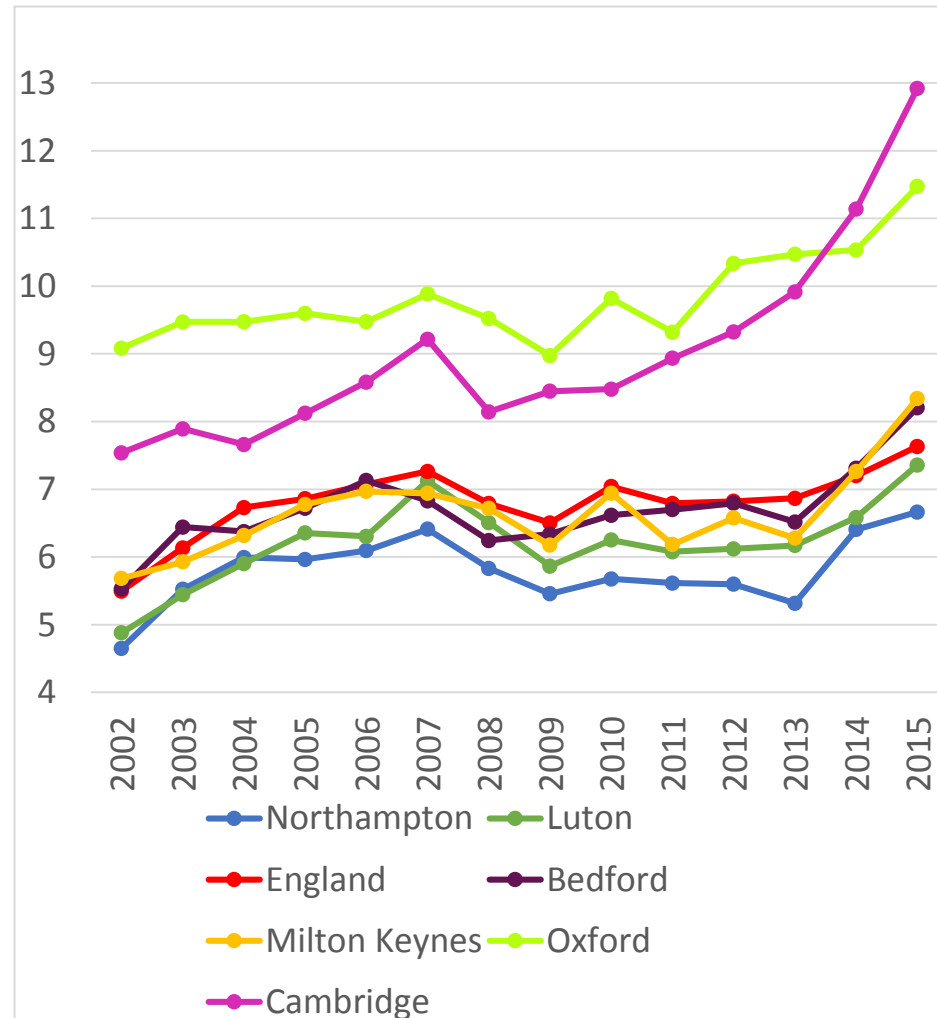
[Source: Centre for Cities and McKinsey & Company, (2014),
Industrial Revolutions: Capturing the Growth Potential]



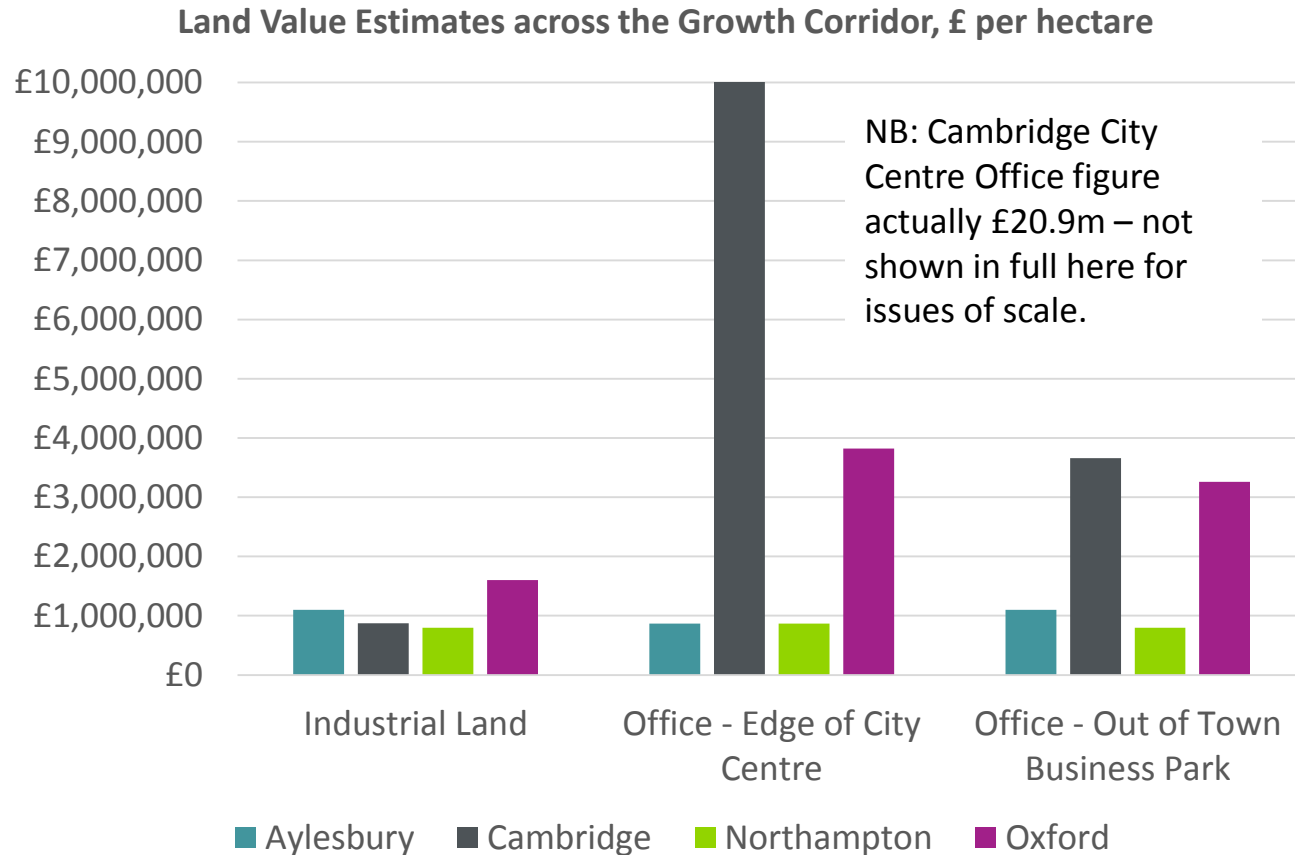
SEMLEP already has commercialisation and testing strengths, and its lack of planning restrictions and relatively affordable land means it could take on more of a commercialisation and testing role within the Corridor (I)



Housing Affordability Ratios, 2002-2015



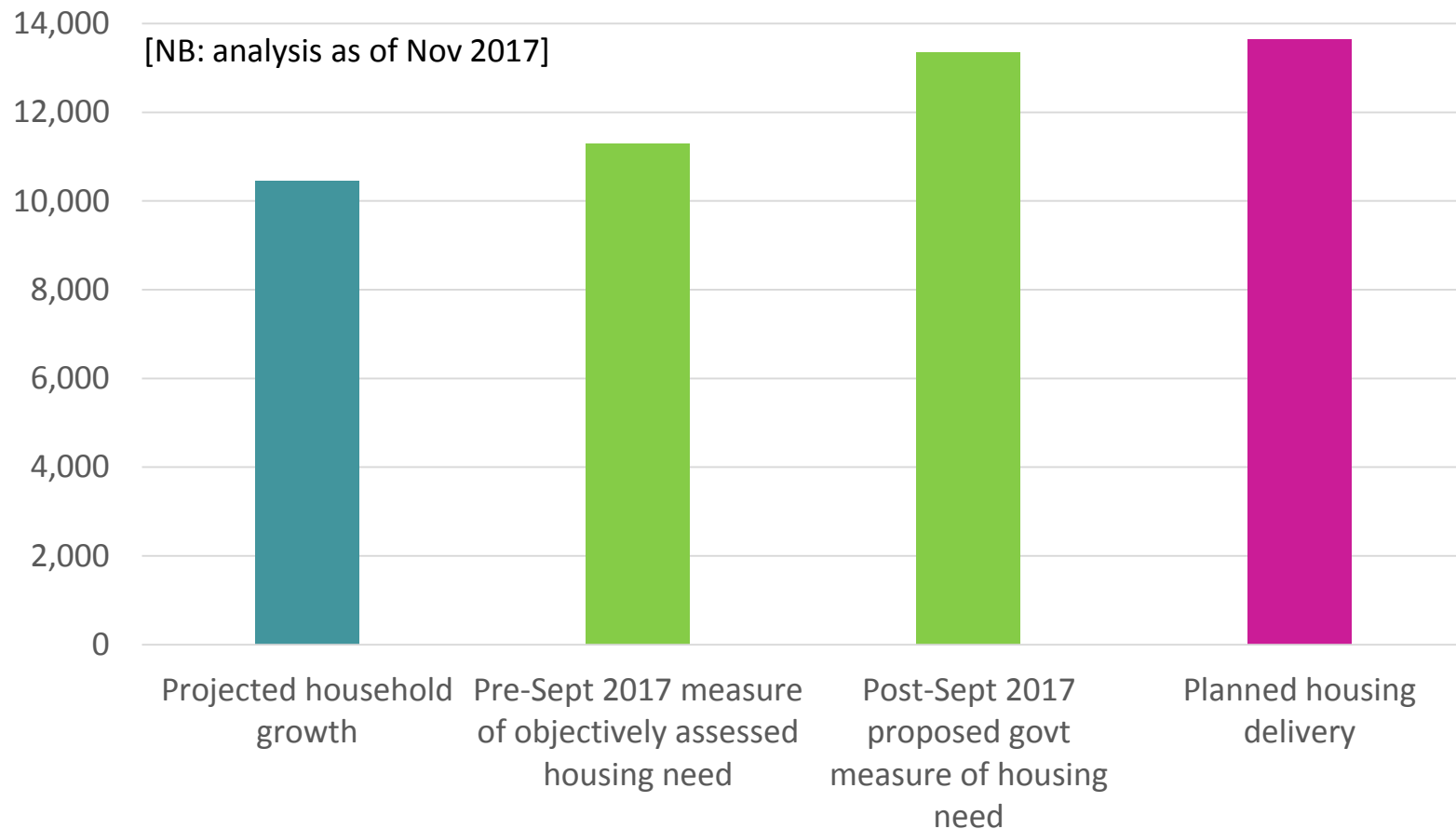
SEMLEP already has commercialisation and testing strengths, and its lack of planning restrictions and relatively affordable land means it could take on more of a commercialisation and testing role within the Corridor (II)





Unlike in other parts of the Corridor, planned housing delivery in SEMLEP is in line with housing need...

Housing Need and Planned Delivery in SEMLEP, 2016/17-2025/26 (annual figures)



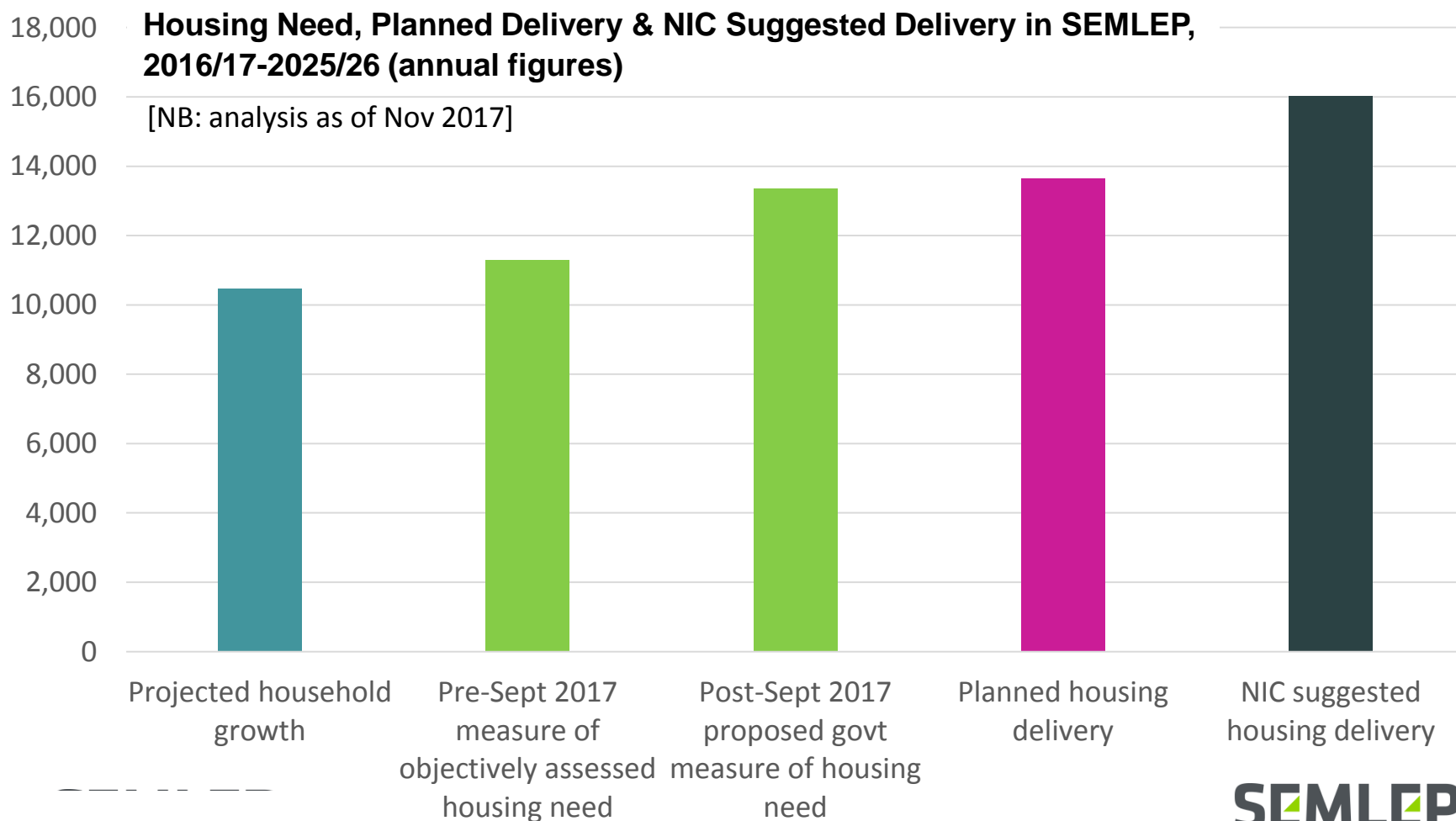
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[Sources: ONS 2014-based household projections; SEMLEP-collated figures from SHMAs & Local Plans; MHCLG, (2017), *Planning for the Right Homes in the Right Places*]



...although delivery stands at c.80-85% of planned levels, and Growth Deals and the Growth Corridor work are likely to see the level of ambition scaled up still further



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[Sources: ONS 2014-based household projections; SEMLEP-collated figures from SHMAs & Local Plans; MHCLG, (2017), *Planning for the Right Homes in the Right Places*; NIC, (2017), *Partnering for Prosperity*]

Such ambition will involve major delivery challenges and require innovative thinking and funding to be successful. However, there are also opportunities from large-scale growth to trial new approaches to meeting future needs.

Some of the issues that need to be tackled/considered include:

- ▶ Forward funding of infrastructure
- ▶ Reinstated link between population growth and service funding?
- ▶ New – and smarter – approaches to energy provision
- ▶ Modern methods of construction?
- ▶ Future-proofing, including:
 - ▶ Electric charging infrastructure
 - ▶ New ‘live-work’ models, with supporting Broadband infrastructure
 - ▶ Preparing for the needs of an ageing population



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