Cambridge Science Park

Economic Evidence Review

A report by Volterra Partners, December 2021

1 METHODOLOGY USED IN THE EMPLOYMENT LAND REVIEW

Summary of methodology for Employment Land Review

1.1 The Greater Cambridge Employment Land and Economic Development Evidence Study (herein 'the Employment Land Review' or 'ELR') aims to provide an independent assessment of demand to assist GC in deciding planning policy to determine development that should and shouldn't be brought forward. As presented in Table 1, the ELR concludes that over the period of 2020-2041, after accounting vacancy rates, a total of 664,311sqm of floorspace is required to meet demand. Given the current development in the planning pipeline is currently greater than this, a net negative floorspace requirement for B-class uses is identified of -39,998sqm.

Table 1 ELR final floorspace demand, including pipeline

Table 40:Demand Supply by Use Class, Greater Cambridge (sqm) 2020-2041

Use Class	Need	Inc. vacancy margin 7.5%	Supply	Balance	Comments
B1 *	N/A	-	283,708	+283,708	Includes 150,000 Genome Campus
B1a	103,221	110,963	101,120	-9,861	-
B1b	477,902	513,745	276,823	-236,922	Genome Campus likely to include high B1b element
B1c	16,506	17,744	16,232	-1,512	Need reflects positive approach for South Cambs
B2	-25,074	-25,074 (N/A)	-76,032	-50,958	-
B8	43,659	46,933	22,462	-24,471	Shortfall identified
NEC	-	-	TBC - AAP	-	-
Total	**616,214**	**664,311**	**624,313**	**-39,998**	**-**

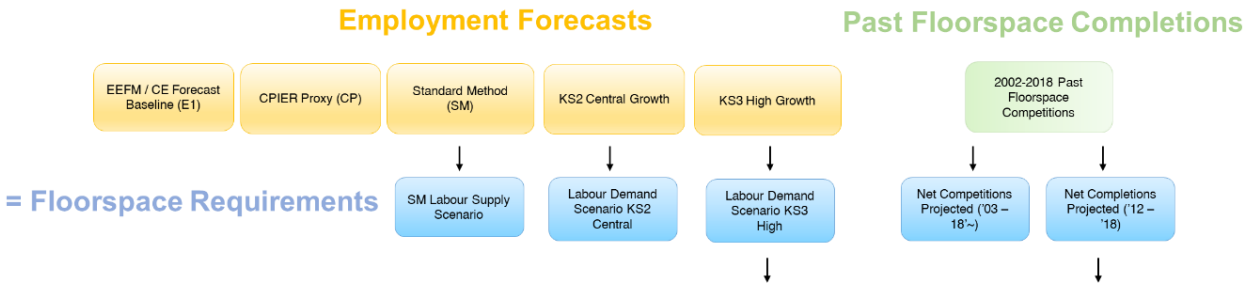
Source: GL Hearn

1.2 The methodology for the ELR broadly follows the following process:

- Identify **existing employment levels and trends** using a combination of BRES and other data sources;
- Take existing modelled growth rates from other sources, apply over period 2020-2041, and supplement with own modelling of key sector growth to generate **5 employment forecasts**;
- **Take forward 3 of these employment forecasts**, and assign jobs growth to use classes using 2 digit SIC codes to **estimate employment growth within each use class** and a jobs to FTE conversion;
- Use **one density for each use class to convert FTE growth to floorspace need**;
- Supplement the 3 estimates for floorspace need with forecast need using 2 scenarios from previous completion rates (2002-2018 and 2012-2018) to get **5 scenarios for floorspace need under each use class**;
- Take forward **one scenario for floorspace need under each use class**, depending on market feedback and identified growth rates (KS2 for B1a and B1b space and net completions 2012-2018 for B1c, B2 and B8);
- **Apply a vacancy rate** of 7.5% to identified need to get a gross estimate of floorspace need under each use class;

- **Subtract pipeline development** under each use class to estimate net floorspace requirement.

Figure 1 Overview of methodology



Final Requirements (0 vacancy rate):

Table 39:Recommended Floorspace Requirements, Greater Cambridge (sqm)

Use Class	Cambridge	South Cambridgeshire	Greater Cambridge	Source
B1a	38,491	64,730	103,221	Labour Demand KS2 (Higher)
B1b	88,852	389,050	477,902	Labour Demand KS2 (Higher)
B1c	-16,905	16,506	-399*	Net completions '12-'18
B2	-7,287	-17,787	-25,074	Net completions '12-'18
B8	-50,190	93,849	43,659	Net completions '12-'18
Total	**52,961**	**546,348**	**599,309**	-

Source: GL Hearn
* reflects net position but planning for growth in SC is recommended

Final Requirements (7.5% vacancy rate + pipeline):

Table 40:Demand Supply by Use Class, Greater Cambridge (sqm) 2020-2041

Use Class	Need	Inc. vacancy margin 7.5%	Supply	Balance	Comments
B1 *	N/A	-	283,708	+283,708	Includes 150,000 Genome Campus
B1a	103,221	110,963	101,120	-9,861	-
B1b	477,902	513,745	276,823	-236,922	Genome Campus likely to include high B1b element
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B8	43,659	46,933	22,462	-24,471	Shortfall identified
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Total	**616,214**	**664,311**	**624,313**	**-39,998**	-

Source: GL Hearn

Employment forecasts

1.3 The ELR forecasts that there will be an increase of between **40,100 and 92,100 additional jobs** in Greater Cambridge (GC) over the period of 2020-41.

1.4 These employment forecasts were arrived at through a two-step process:

- Considering estimates of historic data;
- Applying different modelling approaches.

1.5 Various data sources were considered by the ELR to estimate past and current employment:

- **BRES**, ONS data, an employer survey of the number of jobs held by employees
- **CBR** method, academic research from the Centre for Business Research, based on companies house data (unlike BRES which is Inter-Departmental Business Register);
- **CBR-BRES**, a blended method where CBR combined both BRES and their own companies house data;
- **EEFM**, a model that uses in-region estimates for the East of England to develop economic, demographic and housing trends in a consistent fashion. Historic baseline data for the EEFM relies heavily on BRES, but this includes estimates for a range of self-employment jobs. This results in a higher jobs estimate than BRES alone;

- **CE**, a similar model developed by Cambridge Econometrics (CE) to the one used by EEFM. It includes improved R&D estimates to the EEFM model. The new estimates of R&D employment are therefore higher than in the previous EEFM estimates. This results in a higher CAGR (3.2%) than in the EEFM scenario (2.2%) for Greater Cambridge.

1.6 The different sources provided quite a different range of results. Even for existing employment there is a range of between 140,096 jobs in 2017 under the CBR data and 209,081 under CE's estimates. Growth rates vary even more substantially between 2.2% and 5.8% over 2011-2017 (low growth drive by EEFM data, high growth by CBR data). Overall, BRES and CBR data alone was found to underestimate the need for employment in the area – with the ELR reporting that these estimates were:

"Modest and well below that observed over the recent and longer term past, with the differences being most pronounced in a number of specific sectors."

1.7 **BRES and CBR data alone therefore were not used as the basis for any employment forecasts.**

1.8 In total, **five scenarios** of employment growth over 2020-41 were developed using a combination of these sources. Specifically:

- **E1** is an economic projection, based on the EEFM forecasting model that provides a set of economic baseline forecasts prepared by Cambridge Econometrics (CE). It is an integrated model for economic, demographic and housing trends. This scenario is not taken forward to the rest of the assessment.
- **CPIER proxy**: This derived future broad aggregate employment approximations for the two districts by applying the CPIER growth rate, for Cambridgeshire and Peterborough Combined Authority area as a whole, at district level to CE's 2017 employment estimates. The ELR notes this is recognised only as a proxy, and is not suitable to be used for the wider study work, and therefore not taken forward to the rest of the assessment.
- **SM:** is driven by population projections; it considered the homes and population likely to be created through the standard method from the NPPF. The additional population was then converted into an employment forecast by sector by CE.
- **Key sectors 2 (KS2)**: This forecast identified key sectors based on growth rates (health, hotels and food, R&D, professional services, and ICT) and applied the midpoint growth between the E1 model and growth rates over the period 2010-2017 to these sectors, which generates a higher forecast.
- **KS3**: much like KS2, except the 'lower quartile' between the E1 model and 2010-2017 growth rates is used for key sectors. Generates higher forecast than E1, but lower than KS2.
- **KS1**: as above but uses only trend growth for key sectors. Calculated in appendix but not taken forward. This is not officially referred to as a scenario of employment in the main ELR document, hence why we refer to five scenarios and not six.

1.9 **0** summaries the results from these scenarios. The employment forecasts arising from the five different scenarios vary substantially as they all originate from different methodologies. The ELR concludes that **a range between the central and higher scenarios (KS2 – KS3) is preferred**, and does not reference the other forecasts through the rest of the document (apart from the SM scenario, but this is mainly for comparison purposes).

Table 2 ELR employment forecasts, 2020-41

	Total at 2041	2020-2041 change	Annual implied growth rates
EEFM/CE forecast baseline (**E1**)	255,600	40,100	0.8%
Standard Method (**SM**)	257,600	45,761	0.9%
CPIER proxy (**CP**)	314,000	92,100	1.7%
2001-2017 annual average change	272,300	55,300	1.1%
2011-2017 annual average change	352,189	125,200	2.1%
KS3	277,000	58,400	1.1%
KS2	299,100	78,700	1.5%

NB: The ELR mixes up KS2 and KS3 at this point and for the remainder of the document. KS2 should be higher than KS3 but for all subsequent tables and figures in the report are labelled the wrong way round.

Employment land need

1.10 In total, the ELR establishes **five different scenarios for employment land need**. Three of which, are based on the employment forecasts. For those based on the employment forecasts, the **SM**, **KS2 and KS3** are utilised. Whilst the final two are based on net competitions of floorspace from 2002-18 and 2012-2018.

1.11 After establishing these employment forecasts, the ELR converts these increases in employment into land requirements. A variety of assumptions were made around the following in order to do this:

1. FTE conversion;
2. Sectors to use classes;
3. Employment densities;
4. Vacancy rates.

FTE conversion

1.12 The employment forecasts for total employment by sector were converted into forecasts for **Full-Time Equivalent (FTE) employment by sector**. This was done through analysis of the proportion of full- and part-time jobs in the area on a sector by sector basis and for each authority. Assumed to be done under an industry standard methodology (and potentially done on a sectoral basis), but there is no further detail on this in the ELR.

Sectors to use classes

1.13 GL Hearn consider the proportion of employment in each of the sectors which is likely to take place in B1a, B1b, B1c, B2 and B8. They use **2-digit SIC codes** to do this**.** Although the exact SIC code to use class alignment is not shown, **Table 8** shows a broad sector to use class alignment.

Employment density

1.14 Employment densities are then applied to turn the employment estimates into floorspace requirements. This took account of the HCA Employment Densities Guide: 3rd Edition (Drivers Jonas Deloitte, 2015) alongside local evidence gathered through stakeholder and property market consultations.

1.15 The ELR then applies employment densities to each:

- B1a = 9 (NIA), 11 (GEA)

  - Based on a blend between business park, serviced office and general office floorspace and assuming that the GEA of buildings is on average 20% higher than the net internal area.
- B1b = 28 (GEA)
  - Based on examination of application information by use class type and employment type at several research park locations.
  - Note this is a critical assumption. All others used are within the ranges included in the densities guide. The densities guide for B1b suggests 40-60. This results in land allocation which is between 30% and >50% lower.
- B1c = 47 (GIA), 49 (GEA)
  - Matches Densities Guide exactly.
- B2 = 38 (GEA)
  - Broadly matches Densities Guide (36 but on GIA there rather than GEA here).
- B8 = 70 (GEA)
  - Matches the minimum figure used in the Densities Guide (gives a range of 70-95).

1.16 As well as producing scenarios based around historic employment growth, **two scenarios** were developed based on historic net completions of floorspace. Data on past competitions of B class floorspace from 2002-2018 was considered, and then rolled forward across the period 2020-41.

1.17 This provides a total requirement of a net change of between 196,296sqm and 567,504sqm under the 5 different scenarios (minimum given by SM, maximum by net completions 2012-2018). The other scenarios forecast 416,392sqm in the central scenario, 541,655 sqm in the higher scenario, and 427,308sqm through applying historical completion rates between 2003 and 2018 (see **Table 3**).

1.18 This gives five total scenarios, with requirements ranging from 196,000 – 568,000sqm. The five scenarios are laid out in detail in **Table 3**. If the densities from the employment density guide were to be applied for KS2 and KS3, the amount of B1b floorspace that is required could increase by 114%, to over 1m sqm.

Table 3 ELR, scenario floorspace requirements

Use class	KS2	KS3	SM	Net completions 2003-2018	Net completions 2012-2018
B1				29,925	37,968
B1a	103,221	80,362	40,653	104,328	223,272
B1b	477,902	375,497	118,734	306,516	288,099
B1c	-20,471	-20,471	-6,736	-20,601	-399
B2	-50,969	-50,969	-20,915	-46,431	-25,074
B8	31,973	31,973	64,560	53,571	43,659
Total	**541,655**	**416,392**	**196,296**	**427,308**	**567,504**
B1b (40 density)	*682,720*	*536,440*	*?*	*306,516*	*288,099*
Resulting Total	***746,474***	***577,335***	***?***	***427,308***	***567,504***
B1b (60 density)	*1,024,080*	*804,660*	*?*	*306,516*	*288,099*
Resulting Total	***1,087,834***	***845,555***	***?***	***427,308***	***567,504***

1.19 Of these scenarios, the ELR chooses the most appropriate estimate for each class. It does justify why these decisions are made, however any justification is weak – referencing general market feedback. For B1b use class the ELR takes the highest forecast need, however as noted above this is potentially still an underestimate as it is so dependent upon the density used. The result of this is presented in **Table 4**.

Table 4 Final floorspace need by use class, 2020-41

Use class	Greater Cambridge Floorspace Requirement	Source
B1a	103,221	Labour Demand KS2 (Higher)
B1b	477,902	Labour Demand KS2 (Higher)
B1c	-399*	Net completions '12-'18
B2	-25,074	Net completions '12-'18
B8	43,659	Net completions '12-'18
Total	**599,309**	-

1.20 These results show a decline in need for B1c/B2 floorspace. The ELR notes that labour demand forecasts for B1c/B2 floorspace should be viewed cautiously. Recent completions trends show a slow-down in light / heavy industrial floorspace loss as the manufacturing and related sector of the economy stabilises after a period of decline.

1.21 The ELR then plans for a margin of **vacancy in future needs of 7.5%** and pipeline supply to give the following final requirements in **Table 5.**

Table 5 Final floorspace need by use class, with pipeline, 2020-41

Table 40:Demand Supply by Use Class, Greater Cambridge (sqm) 2020-2041

Use Class	Need	Inc. vacancy margin 7.5%	Supply	Balance	Comments
B1 *	N/A	-	283,708	+283,708	Includes 150,000 Genome Campus
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Source: GL Hearn

As above – there is some supply of B1 space that they cannot assign to B1a, b or c, so consider it in a separate category in the table.

2 OUR ISSUES WITH THE ELR METHODOLOGY

Summary of our issues

- **Issues using historic trend data to forecast future growth**
  - When historic trend data has been constrained, this approach will underestimate requirement for growth. In housing allocations there would be some consideration of price to account for this.
  - Issues assigning sectoral jobs into use types – who knows if manufacturing jobs are really B1b, B1c, B2 or B8? This is particularly important for evolving types of economic activity where the sectoral make-up and resulting floorspace requirements are not well understood, such as mid-tech.
  - Even within their modelling, they discount 2012-2018 growth rates of key sectors as unsustainable – very arbitrary.
  - No certainty in data – even the 2017 data sources for total employment vary by up to 50%.
- **Issues using employment densities**
  - Results are **very** sensitive to the assumed B1b density of 28sqm per FTE. If 40-60 were used as recommended by the density guide, the B1b space required could increase by over 114% to over 1m sqm.
- **Issues using pipeline supply**
  - May not come forward.
  - Very dependent on one scheme (150,000sqm of space at the Wellcome Genome Campus).
  - Don't know which B1 type is being delivered – it may be that it's all delivered as B1, in which case there will still be a massive need for B1b and R&D space.
- **Lack of consideration of mid-tech**
  - Within use classes, mid-tech is a mix of classes, so demand for specific mid-tech B2 may be increasing even where overall B2 demand is falling.
  - No consideration of future high-growth sectors, because these are based on historical sectors and then taken for future growth.

Historical trend data

2.1 The forecasting work done relies on projecting forward past-trends. Historical data in both employment growth and floorspace completions contribute to the identified floorspace need.

2.2 Firstly, the ELR pulls together a variety of sources of past employment data. It is unclear how granular the data for some of these sources goes, and the justification for taking forward some methods over others isn't always perfectly clear. The underlying data for total employment levels varies wildly, with 2017 total employment ranging from 140,096 jobs in 2017 under the CBR data to 209,081 under CE's estimates.

2.3 A bigger issue is that GC is known to be an area which has historically faced a shortage of commercial floorspace due to historical and heritage constraints. Commercial floorspace rates in the area are amongst the highest in the UK. As a result of a historical lack of delivery, identifying growth using historical delivery will understate the need for space. Businesses couldn't previously expand because they couldn't get the premises, and as a result they cannot hire more people. Historical data would therefore reflect this, and basing future floorspace need on this would underestimate the potential that the economy has, by projecting forward past constraints to continue in the future.

2.4 Demand for office, laboratory and R&D space has been increasing in GC in recent years, with this trend only set to continue. The demand for this type of floorspace was reflected

in its strongest six-monthly figure take up in the second half of 2016, where 388,900 sq ft of space was acquired by firms.[1] The demand is strongest within specific parks as identified in the ELR, with recent research by Bidwells showing that science & technology parks account for almost 61% of Cambridge's office and laboratory floorspace. This high level of demand has been reflected in prices, with prime office rents rising over 28% from the end of 2015 to 2019, a 7.4% increase per year. The cost of commercial office space has now reached a new peak in Cambridge, equivalent to approximately £45 per sq ft.

2.5 Furthermore, whilst Cambridge's technology parks have historically served technology firms well and allowed the formation of high-technology clusters, the existing commercial spaces in Cambridge increasingly do not match the requirements of mid-tech firms. This is not considered under the usual B1, B2 and B8 split of floorspace. Whilst demand for mid-tech space has been growing, other forms of B1c, B2 and B8 space have seen a reduction in demand. As a result there is substantial demand for tailored mid-tech space that will not be reflected in the stated use categories or met in future development.

2.6 The rise in rents and the lack of suitable available space for mid-tech firms has not been picked up in the ELR methodology, and this leads to our conclusion that the ELR understates floorspace demand over the plan period.

Issues using employment density

2.7 The ELR methodology applies a single employment density to each use class. These densities fundamentally drive the results, but appear to be based on very little research / evidence (or at least, this is not presented in the evidence base making it very difficult to conclude it is robustly justified). Almost the entirety of floorspace need is driven by B1b space, and therefore a small change in the applied employment density of this class would result in a large change to the total need.

2.8 The B1b employment density of 28sqm GIA per FTE used in the ELR lies significantly below the range recommended in the Employment Densities Guide of 40-60 NIA per FTE. Doubling the employment density used for B1b to 56sqm GIA per FTE to be in line with the Employment Densities Guide would result in the need for 500,000sqm of further space than is currently the case.

Issues using pipeline

2.9 The floorspace requirement summary notes that GC have a huge supply of B1 floorspace in the pipeline. The Wellcome Genome Campus expansion accounts for around 50% of the supply.

2.10 **Table 5** notes that most of the need is already catered for in the pipeline, with only c. 40,000sqm left to be provided. Even under a reasonable assumption, there has to be an acknowledgment that not all this floorspace will come forward, but no assumption is made for this. The **Development Strategy Topic Paper** acknowledges that historically the whole of GC has seen a significantly greater quantum of floorspace in permissions than in delivery (page 29).

2.11 The current pipeline is also very high risk, with a large portion of the supply coming in the form of the Wellcome Genome Campus expansion. To put such a high percentage of the need for GC in one development is a high risk. Firstly, because there is no guarantee that the development will come forward. Furthermore, currently it is not fully understood what type of space will be delivered on the development. The ELR lays out a need for all types of B1 floorspace specifically, but then they have a big supply of general B1 floorspace that

1 Bidwells, 2019. Our view on Cambridgeshire Offices & Labs.

more than covers this individual need. Without knowing what floorspace this will specifically cover, it cannot be certain it will satisfy the requirements they have predicted.

Lack of consideration of mid-tech

2.12 We believe that the emerging mid-tech sector is not appropriately considered or acknowledged in these requirements, leading to a substantial under-provision of space which, if taken forward, will result in constraints on employment growth in the future. **The following section 3** speaks in more detail about the importance of mid-tech and why it is not covered in the ELR. The following points summarise this:

- Mid-tech is not included in the 'key sectors' that are used to forecast employment need as these identify previously growing sectors, rather than future growth sectors;
- The densities and use classes used to estimate future floorspace need may not be appropriate for the mid-tech sector.

3 WHAT IS MID-TECH, AND WHY IS THIS MISSING IN ELR CONSIDERATIONS

Mid-tech in Greater Cambridge

3.1 The science and technology industry is a large and expansive industry, comprising of firms varying in scale and specialisms. It is also a sector which doesn't fit neatly into just manufacturing or service sector categories – its elements overlap with many of the classic definitions, making it hard to define.

3.2 The classification of these sub-categories is based on measuring the direct R&D intensity and indirect R&D intensity associated with intermediate and investment goods.[2] R&D intensity is defined as direct R&D expenditures as a percentage of production (gross output). Using this approach from the literature, has enabled us to approximate the levels of mid-tech employment in various areas. **Table 6** shows the definition used to do this. The definition is not perfect, and will no doubt change over time as this highly innovative sector continues to evolve and grow. But having a definition allows us to analyse relative performance and the extent of clustering in these industries.

Table 6 Mid-tech sector

Mid Tech Services	Mid Tech Manufacturing
Architectural and engineering activities and related technical consultancy	Manufacture of chemicals and chemical products
Technical testing and analysis	Manufacture of electrical equipment
Environmental consulting activities	Manufacture of machinery and equipment
Space transport	Manufacture of motor vehicles, trailers and semi-trailers
Quantity surveying activities	Manufacture of other transport equipment;
Other research and experimental development on natural sciences and engineering	Manufacture of coke and refined petroleum product
	Manufacture of rubber and plastic products
	Manufacture of other non-metallic mineral products
	Manufacture of basic metals
	Manufacture of fabricated metal products, except machinery and equipment
	Repair and installation of machinery and equipment

Source: Based on SIC2007 codes and ISIC REV. 3 Technology Intensity Definitions (OECD)

3.3 The mid-tech sector classifies employment outside of standard sectoral definitions. It contains some of the most productive parts of manufacturing combined with research & development focused service sectors.

3.4 When we dig into the sectoral detail, we find that the LSOA of CSP has a very clear speciality in high-tech and mid-tech employment. On average nationally and regionally, mid-tech employment constitutes just 7% of total employment. In Cambridge this is higher, at 10%; in South Cambridgeshire this is still higher at 23%, and when the local area around CSP is considered, mid-tech employment makes up a staggering 35% of the total employment. This drives home the specific concentration of the employment supported at CSP.

2 Hatzichronoglou (1997)

Table 7 Mid-tech employment

Area	Total employment	Mid-tech employment	Mid-tech % of total
CSP LSOA	12,000	4,250	35%
South Cambridgeshire	91,500	21,350	23%
Cambridge	111,500	11,060	10%
East	2,870,500	207,100	7%
UK	27,154,000	1,852,000	7%

ONS, 2021. BRES 2019. Volterra estimates of mid-tech definitions (included both mid-tech services and manufacturing)

Why in Cambridge? The importance of clustering?

3.5 Greater Cambridge is internationally renowned as an area that fosters scientific and technological innovation within an institutional climate that exhibits academic excellence through expansive research and development practices.

3.6 One major facet of the technological industry, which is an integral part of the success that has seen the industry grow significantly, is the fact that many science and technology-based firms tend to operate within close proximity of each other, otherwise known as clustering. Clusters can be succinctly defined as geographic concentrations of interconnected firms and institutions within a particular sector.[3] Other technology clusters around the world have reaped the rewards associated with clustering, including knowledge-spillovers, competition and complementary firms/industries, all helping to create agglomeration economies.

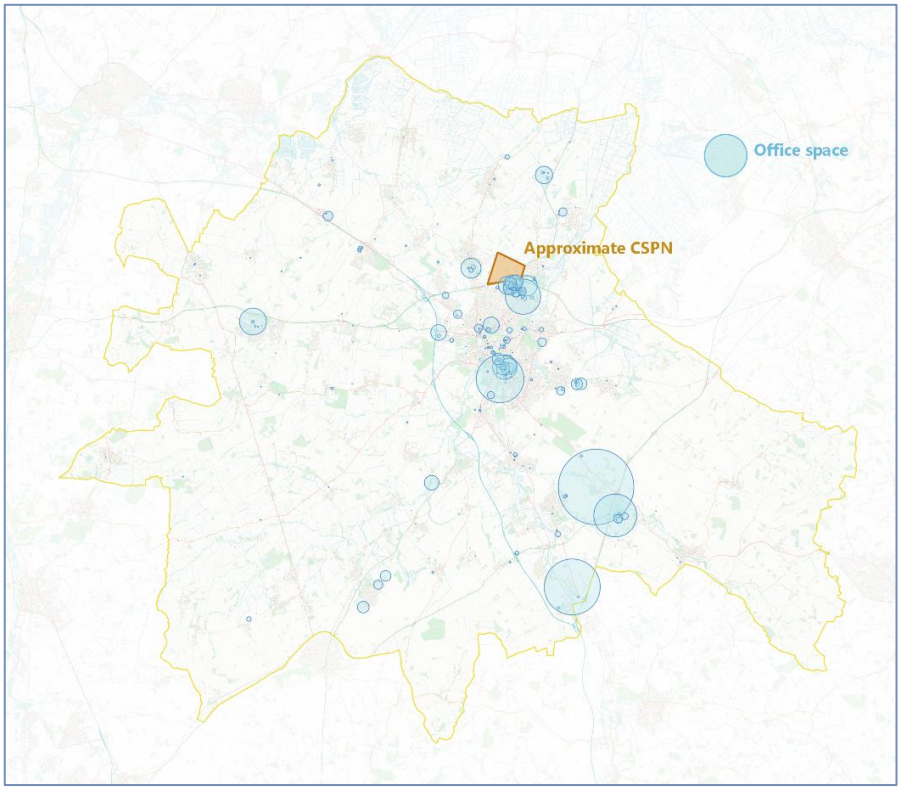
3.7 More specifically, supported by significant literature, the key benefits associated with the clustering of tech firms include (but are not limited to):

- Knowledge spillovers: Heterogeneous firms with varying competitive advantages interact with one another, leading to transfer of knowledge and best practise across firms over time.
- Access to labour: Highly-skilled workers are attracted to areas where clusters exist in the knowledge that a range of specialist employment opportunities will be readily available to them.
- Access to supply chains: Clustering can lead to a condensed supply chain, where firms from different industries co-locate, increasing efficiency. An example of this is in the Great Munich region, where high-tech and knowledge-oriented services firms have become integrated alongside more traditional manufacturing firms, enhancing the co-ordination of activity throughout the supply chain.

3.8 **Figures 3 and 4** show the existing location of office space and industrial space across Greater Cambridge. There are clear patterns in office space, potentially driven by strong clustering effects, whereby lots of co-locating space can be found at the north and south of Cambridge city centre. Individual large developments of office space can be seen at business parks and research campuses around the edge of the city. Industrial space is more dispersed around the authority, with many individual developments located on key transport links outside the city centre. There does exist a strong cluster of industrial space running down the east of the city centre, with CSP located at the northern end of this cluster.

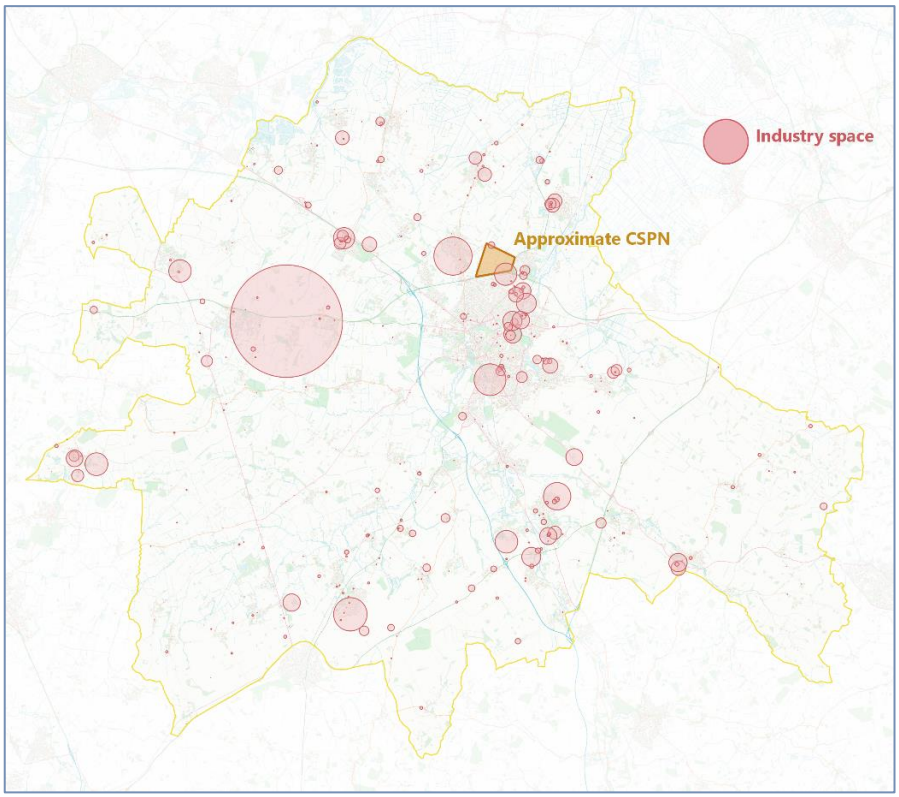
3 Clusters and the New Economics of Competition (Michael Porter, 1998, p. 78)

Figure 2 Location of office space in Greater Cambridge



Source: Valuation Office Agency, 2021.

Figure 3 Location of industrial space in Greater Cambridge

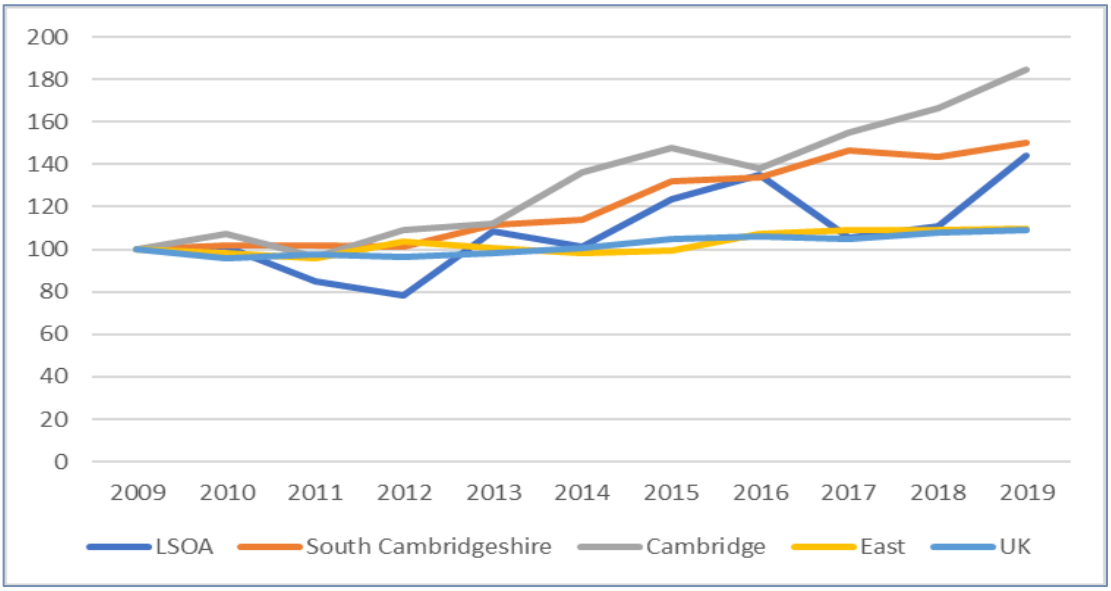


Source: Valuation Office Agency, 2021.

Growth in mid-tech employment

3.9 The mid-tech sector has seen strong demand in recent years and a current shortage of available space. **Figure 4** shows the employment growth in the sector over the past decade. Greater Cambridge has shown consistently higher growth in the sector than the national level. The growth across Greater Cambridge as a whole has been consistently above that of the CSP LSOA, despite a sizeable increase in percentage terms from 2018-19 for the latter. The current shortage of available space threatens to stunt the expansion of the mid-tech sector in Greater Cambridge. Therefore, a significant additional delivery of mid-tech space is needed to enable Greater Cambridge to continue to be at the forefront of translating academic research into commercial innovation.

Figure 4 Mid-tech employment growth at different geographies



Source: ONS BRES, Volterra estimates of mid-tech definitions

3.10 Generally, this type of employment typically needs to operate from larger buildings with more of a quality industrial nature and does not readily operate from the stock of offices and laboratories currently available within the local market.

3.11 Without expanding the provision of mid-tech space, the growth of currently thriving and high-productivity businesses in the area will be constrained. To continue to promote growth and meet the seven big themes identified for the emerging Local Plan, Greater Cambridge will have to ensure the delivery of significant additional commercial floorspace, and mid-tech floorspace should be a key priority within this.

3.12 Previously Volterra forecast that mid-tech growth in Greater Cambridge could be between 250 and 1,000 each year, under 3 different scenarios. Realised growth in mid-tech employment since this date (addition of 2019 data) was broadly in line with the higher growth scenario.

Figure 5 Previous forecast growth

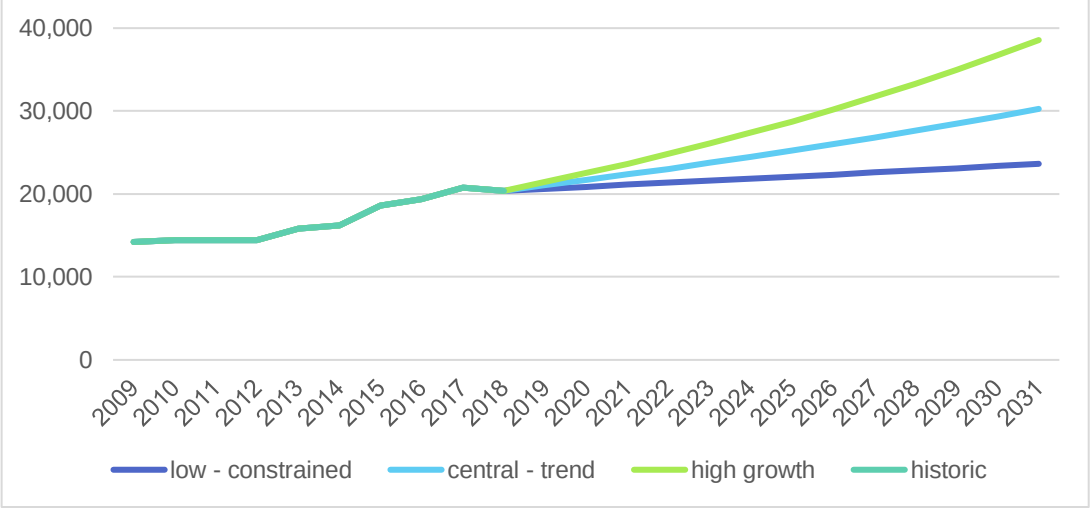
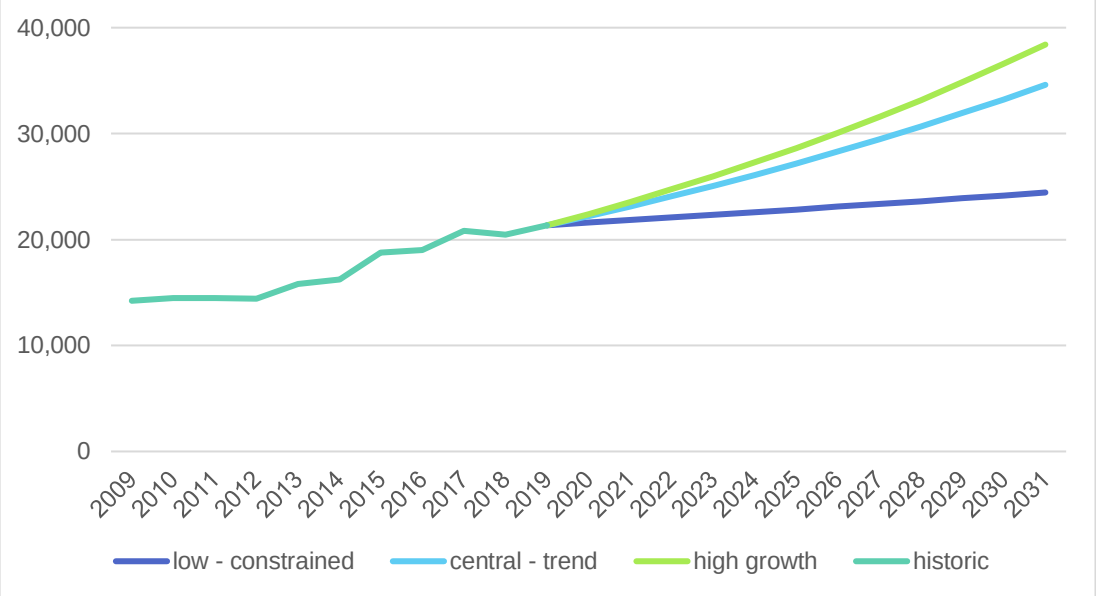


Figure 6 Updated forecast growth



Mid-tech is not considered in the ELR

3.13 We believe that this sector is not represented well enough in the ELR, and therefore that the floorspace requirements do not take into account for the potential of mid-tech in GC.

3.14 Firstly, the future employment forecasts were based on growth rates from 'key sectors' that aligned with those identified as Greater Cambridge's most significant local economic clusters. The ELR identified sectors that had high employment growth in both the EEFM E1 dataset, and the CBR/BRE hybrid dataset. The following sectors were identified and used to impact on future growth:

- Health and care;
- Hotels and restaurants;
- Computer related;
- Research & development;

- Professional services.

3.15 CSP is identified within the ELR as being a hub for life sciences employment, which mis-defines the nature of its commercial floorspace. All these sectors are identified using previous research undertaken by Cambridgeshire and Peterborough Independent Economic Review 2016, which looked at the existing strengths of the Cambridgeshire and Peterborough economy, rather than future sectors likely to experience growth. Policy is then undertaken on the basis that floorspace for each of these clusters should be provided for, with no consideration of the fact that these may not be the clusters GC should be prioritising for growth.

3.16 It is reasonable to assume that some of the sectors in the research and development, and maybe the professional services sectors included parts of mid-tech. However, it is not noted how these sectors have been defined. It is likely that growth in mid-tech was not fully represented in the employment forecasts in the ELR.

3.17 Mid-tech is a new and upcoming sector, that classifies employment outside of standard sectoral definitions. It contains some of the most productive parts of manufacturing combined with research & development focused service sectors.

3.18 Secondly, the ELR aligns sectors to use classes using 2-digit SIC codes. Although the specific SIC code to use class alignment is unavailable, the following is shown in the ELR:

Table 8 ELR, appendix E, land use classification of sectors

APPENDIX E: Land Use Classification of Sectors

The following table sets out the assumptions in converting jobs to floorspace requirements.

	B1a	B1b	B1c	B2	B8	Other
Agriculture & fishing						100%
Mining & quarrying						100%
Food manufacturing			20%	80%		0%
General manufacturing			20%	80%		0%
Chemicals excl. pharmaceuticals			20%	80%		0%
Pharmaceuticals			20%	80%		0%
Metals manufacturing			20%	80%		0%
Transport equipment, machinery & equipment, etc			50%	50%		0%
Electronics		25%	25%	50%		0%
Utilities						100%
Waste & remediation				20%		80%
Construction						100%
Wholesale				10%	70%	20%
Retail						100%
Land transport				20%	20%	60%
Water & air transport					20%	80%
Hotels & restaurants						100%
Publishing & broadcasting	50%		40%	5%	5%	0%
Telecoms	80%				20%	0%
Computer related activities	70%	30%				0%
Finance	80%					20%
Real estate	60%					40%
Professional services excl. R&D activities	70%	25%				5%
Research & development	20%	80%				0%
Business services excl. employment activities	40%	20%				40%
Employment activities	14%	6%	6%	6%	8%	60%
Public administration	61%					39%
Education						100%
Health & care						100%
Arts & entertainment						100%
Other services						100%

3.19 Mid-tech most likely fits into several of these sectors, spreading across all the various B classes – and so it is unclear where exactly it would fall in terms of use class percentage wise. Innovative sectors such as mid-tech need a variety of types of space, and don't fit neatly into any one given floorspace definition.

3.20 The guidance in the employment density guide acknowledges the changing nature of working patterns, and the fact that "employment density is much more closely aligned to the type of activity undertaken within the property rather than its location or building type".

3.21 The guidance goes on to note that due to this uncertainty and the constantly evolving nature of this issue, the guidance requires "the user to exercise their professional judgement to identify any specific factors that may result in a different employment output than is shown in the general trends within the matrix."

3.22 As the ELR does not consider mid-tech as a sector, and does not note it's already high existing presence in Cambridge, this specific need is not represented in the ELR's requirements.

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