Newry, Mourne & Down District Council:

Employment Space Demand 2018-2030

October 2020

Eoin Magennis

Ulster University Economic Policy Centre

Contents

1. Introduction

1. Since 2016 Newry, Mourne & Down District Council (NMDDC) has supported the work of the Ulster University Economic Policy Centre (UUEPC) to develop a Local Government Economic Forecast Model. The UUEPC are using the model to forecast a variety of labour market, demographic & economic output variables for each of the 11 Northern Ireland (NI) Local Councils.

2. As part of the sponsorship agreement the UUEPC have provided NMDDC with a series of 'bi-annual' economic forecasts and presentations based upon the outputs of the local model. The UUEPC are also able to provide NMDDC with additional economic research and analysis.

4. In June 2019 senior members of staff from NMDDC met the UUEPC to discuss various inputs needed for the Council's Local Development Plan (LDP), currently under development. One request was for an estimate of future demand for employment space within the council area, which would help advise on how current land zoned for industrial use or future developments might meet any demands raised by future employment patterns.

5. To date the Council have published several papers in the LDP process, including a paper entitled 'Employment and Economic Development' as well as a Preferred Options Paper. The 'Employment and Economic Development' paper provides a wealth of detail on current land developments, the current annual uptake of this land as well as some estimates for the projected future employment creation. The paper also highlights the relative hubs of economic activity in the council area, including Newry, Downpatrick and Warrenpoint, and their potential demand for employment space.

6. To assist this analysis the UUEPC agreed to provide an estimate of future employment demand which is based upon the Centre's current (Summer 2019) Economic Outlook as it applies to the Council area. To complete the assignment the UUEPC have used employment forecasts across two[1] scenarios for the NMDDC area from the Summer 2019 Economic Outlook as a basis for estimating the likely employment space demand the council may require over the period of the LDP. A full description of the modelling methodology used can be found in section 5.2.

7. **After the first draft of the report was presented to the LDP Steering Group meeting in January 2020 the impact of the COVID-19 pandemic – not least in terms of uncertainty around longer-term economic forecasting – has come into view. This final draft of the report takes these events into account, in particular the potential shape of the economic recovery and the implications of this for demand for employment space**.

[1] The two scenarios used are the Baseline and Upper.

2. The Labour Market in Newry, Mourne & Down

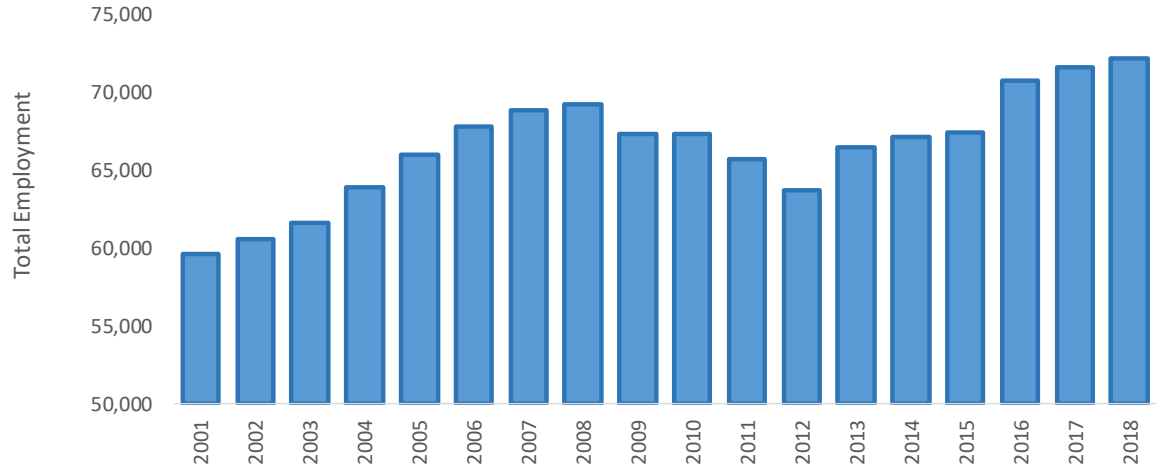
2.1. Current Performance

8. As the Local Development Plan (LDP) takes a longer view this section of the report details the employment profile of the NMDDC area from 2001 onwards. The profile focuses on workplace employment within the Council area, as opposed to the employment patterns of its residents, as this best reflects the demand for employment space within NMDDC.

9. In 2018 there were a total of 72,200 people employed in workplaces located in the NMDDC area, which is a new record. The total represents just over 8% of all people employed in NI. Since 2001 the NMDDC area has gained around 12,500 new jobs, representing an average of more than 700 jobs being added each year since 2001.

10. Retail and Health are the two sectors which have been the main drivers of job creation since 2001 with both contributing nearly 6,000 jobs (or 46% of the total jobs created). In contrast, sectors such as Construction and Agriculture have lost around 2,100 jobs since 2001, one a lasting effect of the 2008-2012 recession and the other an ongoing structural change in a still important sector.

Figure 1: Total Employment Level, Newry; Mourne & Down, 2001-18



Source: NISRA (BRES) & UUEPC Local Model Summer 2019 Outlook

11. Figure 1 also shows how the trend in total employment has not been smooth. The significant boom to 2008 was followed by a sharp recession and then a recovery, in particular since 2015, to new record levels. **This should caution against an expectation of any smooth upward trend ahead to 2030, even if we set new workplace employment records in that period.**

12. The 2001 to 2008 boom period saw a significant level of employment growth with an additional 9,600 new jobs created. The Construction and Retail sectors were the main drivers of employment growth, creating almost 4,000 jobs. Construction growth saw significant levels of local house/office building in the NMDDC area, but also resulted from proximity to the Irish market which saw a massive Construction boom.

13. The severe recession from 2008 to 2012 saw significant contraction in workplace employment, with 5,600 jobs being lost. The Construction sector was worst affected by the recession, as building activity slowed dramatically and house prices fell 43% in the NMDDC area.[2] During the recovery period employment growth trends returned to those of pre-2008 with 8,500 jobs created.[3] Manufacturing and Health are the sectors which have driven growth, creating almost half of the additional jobs since 2012. The growth has come across both advanced and food manufacturing firms marking a change from the previous boom.

Table 1: Total Employment Change, Newry, Mourne & Down, 2001-18

	Net Change		
	2001-08	2008-12	2012-18
Agriculture	-400	0	-500
Mining and quarrying	0	-100	0
Manufacturing	-1,000	-800	2,100
Utilities	0	0	0
Water supply & waste	300	-100	200
Construction	1,400	-3,200	500
Retail	2,600	-600	400
Transportation	300	-300	100
Accommodation	600	-300	700
Information & Comm's	200	300	400
Financial activities	200	-200	0
Real estate	300	0	0
Professional & scientific	800	0	800
Administration services	1,300	300	200
Public Admin' & defence	100	0	-400
Education	900	-600	400
Health & social work	1,300	0	2,100
Arts and entertainment	300	-200	600
Other services	400	-100	900
Total	9,600	-5,600	8,500

Source: NISRA (BRES) & UUEPC Local Model Summer 2019 Outlook
Note: Totals may not add due to rounding

2.2 Sectoral Composition

14. Figure 2 over shows a sectoral mix in 2018 in the NMDDC area which is more heavily balanced to the private sector (73%) than in NI more generally (70%). The two largest employing private sector sectors are Retail and Manufacturing, with these sectors making up around 29% of total employment, a slightly higher share in comparison to around 26% of total employment in NI.

15. Although the NMDDC area is less reliant on public sector jobs than in NI more generally, Health is a large public sector employer with 15% of total

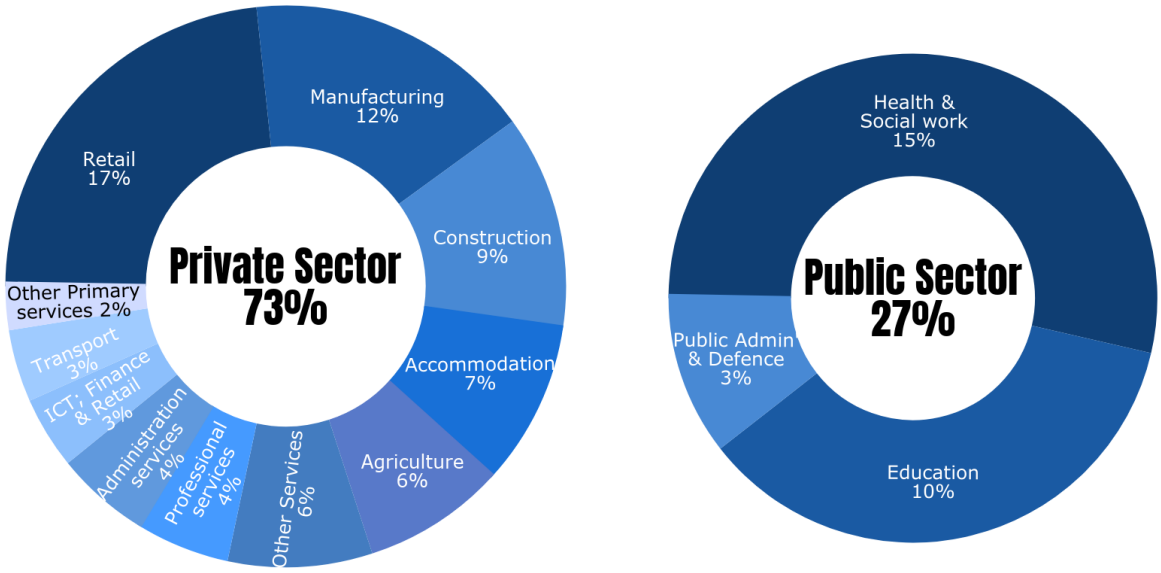
[2] The average is taken as a four-quarter average for 2008 and 2012 and NI average house prices fell by 42%. See Department of Finance, 'NI House Price Index statistical reports' (Q1 2019); https://www.finance-ni.gov.uk/publications/ni-house-price-index-statistical-reports

[3] Employment growth averaged 2.2% per annum in 2001-2008, compared to annual rates of 2.1% in 2012-2018.

workplace employment in the Council area in this sector, or the second largest employing sector.

16. Importantly for the purposes of this report, **the non-retail Services sectors[4] have more than doubled their share since 2001 to employ 19% of those working in the NMDDC area** pointing to a changing type of employment space over the long term.

Figure 2: % of Total Employment by Public/Private sectors, Newry; Mourne & Down, 2018



Source: NISRA (BRES) & UUEPC Local Model Summer 2019 Outlook
Note: Totals may not add due to rounding

2.3. The District Electoral Area (DEA) Profile

17. While the NMDDC area is more dependent on the private sector – and more specifically on the Retail and Manufacturing sectors – than NI more generally, this economic activity is unevenly spread across all Council (or other administrative) areas. **The aggregate sectoral profile is therefore unlikely to be representative of all parts of the council area**.

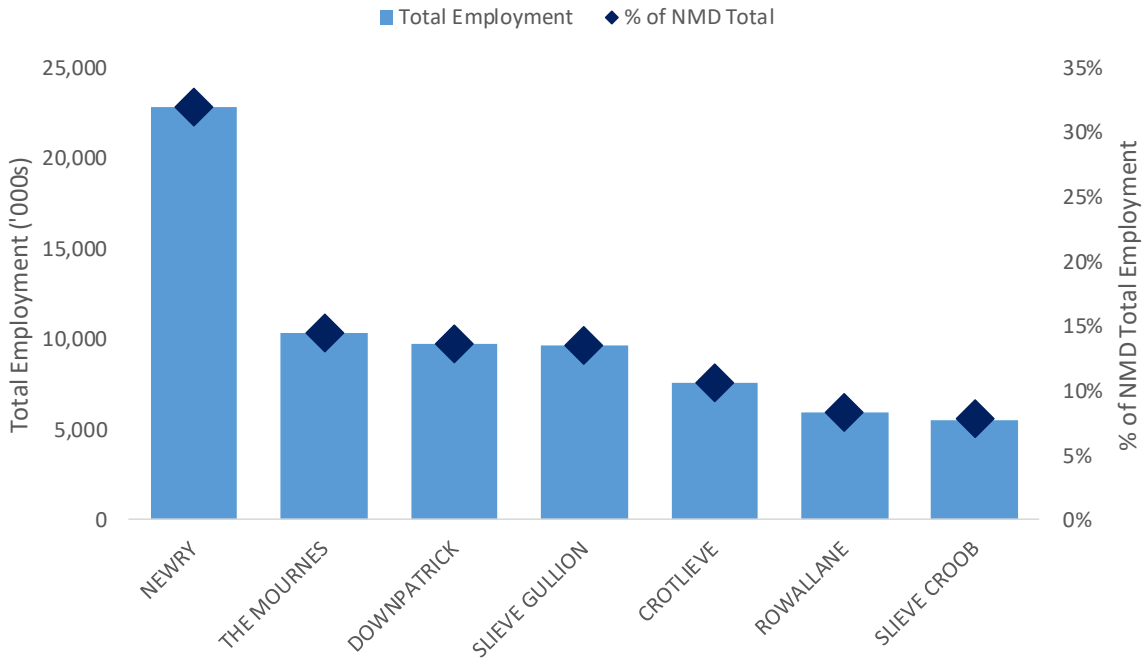
18. To provide a more granular level analysis of employment in the council area, UUEPC has analysed BRES data at the District Electoral Area (DEA) level – covering the seven DEAs within the NMDDC area – for the years 2013, 2015 and 2017.[5] Figure 3 over shows the total workplace employment for each of

[4] Services include Professional Services, Administrative Services, ICT, Financial Services, Real Estate and Other Services (which can include personal services such as hairdressers, etc).
[5] The seven DEAs are Crotlieve, Downpatrick, Newry, Rowallane, Slieve Croob, Slieve Gullion and The Mournes.

the seven DEAs in 2017. Newry DEA had the highest share of total employment in the NMDDC area, with around 22,900 people employed there or 32% of total employment. Since 2013 total employment in Newry DEA has increased by over 1,200, which accounts for almost a quarter of all job change in the NMDDC area.

19. The other six DEAs are quite similar in shares. Slieve Croob DEA has the lowest total employment (5,500) of all the DEAs, accounting for just under 8% of all workplace employment in the NMDDC area. However, since 2013, Slieve Croob DEA has seen a total of 800 jobs created, a much higher growth rate than in Newry DEA.

Figure 3: Total Employment (Nos & % of Total), Newry, Mourne & Down DEAs, 2017



Source: NISRA (BRES) & UUEPC Analysis

20. The BRES data allows the profiling of four broader sectors – Construction, Manufacturing, Services[6] & Other[7] - for the DEAs for the same years. Table 2 over shows the sectoral concentrations, through employment shares, for each of the DEAs in 2017.

21. The specialisation at a DEA level reveals expected features, such as larger towns (Downpatrick and Newry) having a higher dependence on service-based sectors – and thus the type of employment space which supports these workforces – with shares between 81% and 85%. In comparison, Services sectors have a lower share of total DEA employment in more rural DEAs (such as Slieve Gullion), less than 60%.

[6] The broad Services group includes the larger Public sector services and Retail, and the smaller Professional, ICT and Financial Services.
[7] Other is made up of the following sectors: Agriculture, Mining & Quarrying and Utilities (Electricity and Water Supply).

Table 2: Total Employment by Broad Sector (% of DEA total), Newry, Mourne & Down DEA's, 2017

	% of DEA Total				
	Construction	Manufacturing	Other	Services	Total
CROTLIEVE	20.6%	18.2%	3.6%	57.6%	100.0%
DOWNPATRICK	3.6%	2.4%	8.7%	85.3%	100.0%
NEWRY	4.6%	5.7%	8.5%	81.2%	100.0%
ROWALLANE	11.4%	11.5%	5.2%	71.9%	100.0%
SLIEVE CROOB	13.6%	15.8%	8.9%	61.7%	100.0%
SLIEVE GULLION	10.1%	24.4%	16.4%	49.1%	100.0%
THE MOURNES	11.6%	17.6%	6.6%	64.2%	100.0%
NMD Council Total	9.2%	12.1%	8.6%	70.2%	100.0%

Source: NISRA (BRES) & UUEPC Analysis

22. The rural DEAs have a higher concentration of employment in 'Other' (which is partly based on the use of natural resources). This broad sector accounts for between 7% and 9% of employment in the Mournes and Slieve Croob DEAs, an outlier DEA in Slieve Gullion, and around average in more urban DEAs.

23. Table 2 also highlights that the Manufacturing sector (and therefore industrial employment space) is a key employer in at least three DEA areas (The Mournes, Slieve Gullion and Crotlieve) with shares of total local employment ranging from 18% to 24%. The importance of one large employer in a DEA can be summed up by the example of the airplane seat manufacturer, Rockwell Collins, which is based in Kilkeel in the Mournes DEA.

24. Table 3 highlights the importance of the relative concentrations of certain sectors at a DEA level to the entire NMDDC area. This is done by showing the concentrations (% of NMDDC total) of each Broad sector across each of the seven DEAs in 2017 with a 'Total' column showing the actual share of the DEA of total employment in the NMDDC area.

Table 3: Total Employment by Broad Sector (% of NMD total), Newry, Mourne & Down DEAs, 2017

	% of Council Total				
	Construction	Manufacturing	Other	Services	Total
CROTLIEVE	23.8%	16.0%	4.5%	8.7%	10.6%
DOWNPATRICK	5.3%	2.7%	13.9%	16.5%	13.8%
NEWRY	16.1%	15.0%	31.6%	36.9%	32.4%
ROWALLANE	10.3%	7.9%	5.0%	8.5%	8.5%
SLIEVE CROOB	11.5%	10.2%	8.0%	6.8%	7.6%
SLIEVE GULLION	14.8%	27.2%	25.8%	9.4%	12.6%
THE MOURNES	18.2%	21.0%	11.1%	13.2%	14.5%
NMD Council Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: NISRA (BRES) & UUEPC Analysis

25. What becomes clear in Table 3 is that the Newry DEA has the highest proportion of service-based sectors within the NMDDC area, with more than a third (37%) of all service jobs located in Newry. Since 2013 the service sector in Newry DEA has continued to expand, creating an additional 1,100 jobs (94% of all jobs created in the Newry DEA). Part of this is the growth in ICT, given the continued expansion of First Derivatives and the success and growth of STATsports in recent years.

26. As for Manufacturing, Table 3 like Table 2 shows how The Mournes and Slieve Gullion DEAs have the highest proportions of the Council area's employment

in this sector. The two DEAs contribute almost half (48%) of all employment in Manufacturing for the NMDDC area and reflects the continuing importance of Manufacturing in some of the more rural DEAs.

27. Finally, almost a third (32%) of all 'Other' employment in the NMDDC area is in the Newry DEA, most likely due to higher concentration of Utilities workplaces in the area. Crotlieve DEA has the highest concentration of Construction workers of all DEA's in the NMDDC area, accounting for almost a quarter (24%) of that sector's total employment.

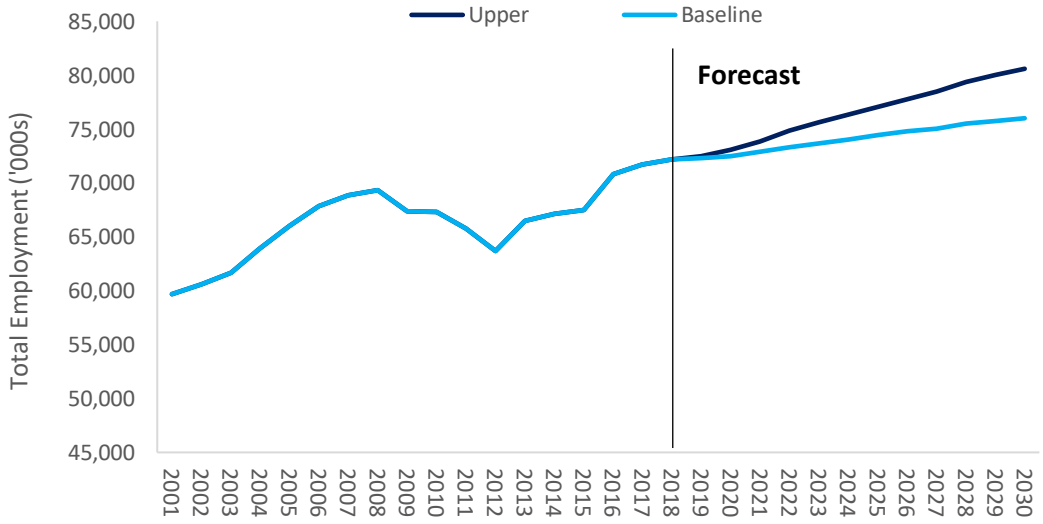
2.4. Future Performance and Recovery after COVID-19

28. This section outlines the potential future performance of the labour market across the NMDDC area using forecasts from the UUEPC Summer 2019 Economic Outlook and research on recovery scenarios after COVID-19.[8]

29. The forecasts used here include two scenarios, both of which incorporate a different potential outcome based on NI, UK and global economic trends and events. The scenarios are:
    - **Baseline –** this scenario assumes an orderly UK exit from the EU towards a future trading relationship and is deemed the 'most likely outcome'; and
    - **Upper –** this aspirational scenario is one where the NI employment rate in 2028 has converged with the current (higher) UK rate, thus pointing to a much stronger economic activity and labour market performance.

30. Figure 4 shows the performance in total employment since 2001 and the trends under the two scenarios for 2018-2030. In the Baseline scenario the total employment for the NMDDC area is expected to reach around 76,000, marking an increase of 3,800 jobs over the next 12 years. In the aspirational Upper scenario the forecast is that total employment will increase by around 8,400, reaching a total employment of around 80,600 by 2030.

Figure 4: Total Employment Outlook, Newry, Mourne & Down, 2001-30



Source: NISRA (BRES) & UUEPC Local Model Summer 2019 Outlook

[8] UUEPC, 'Potential economic consequences of COVID-19 in Northern Ireland: Revised estimates and Council-level view' (29 May 2020) and 'Pathways to economic recovery after COVID-19 in Northern Ireland' (5 August 2020).

31. Table 4 shows the change in employment by sector over the next 12 years under the two scenarios. In the Baseline scenario, Manufacturing, Professional Services and Health are expected to be the largest growth sectors over the next 12 years with around 1,800 jobs potentially created across the three sectors. In contrast, Agriculture and Public Administration may experience a small number of job losses from a combination of structural changes within each of the sectors (including automation of some tasks and jobs).

32. Similarly, Health, Manufacturing and Professional Services are forecast to be the main drivers of employment growth in the Upper scenario with 3,700 jobs forecast to be created between the three sectors. In the particular case of Professional Services, it may be an example where a wider shift in the NI sectoral structure and a convergence with the structure of the UK's economy is taking place, driven in part by growth spillovers from both Belfast and Dublin along the economic corridor between the two cities.

Table 4: Total Employment Change by sector, Newry, Mourne & Down, 2018-30

Column1	Baseline	Upper
Agriculture	-123	30
Mining and quarrying	-1	-1
Manufacturing	672	1,401
Utilities	-1	2
Water supply & waste	34	64
Construction	481	801
Retail	47	217
Transportation	112	186
Accommodation	308	639
Information & Comm's	335	906
Financial activities	71	437
Real estate	0	20
Professional & scientific	523	1,211
Administration services	248	406
Public Admin' & defence	-37	-3
Education	169	380
Health & social work	609	1,069
Arts and entertainment	183	357
Other services	185	286
Total	**3,817**	**8,407**

Source: NISRA (BRES) & UUEPC Local Model Summer 2019 Outlook
Note: Totals may not add due to rounding

33. These forecasts are clearly hedged with uncertainty given the impacts we are currently feeling from the COVID-19 pandemic and the uncertainty this creates for economic outcomes. **From other research the UUEPC estimate that the NMDDC area will see a worse-than-average economic impact – in terms of economic growth and potential for job losses – but the Council area may well be better-equipped to recover also.** Job creation will continue during what may become a decade of recovery with the same growth sectors as in Table 4 driving this.

34. The report does not include forecasts at the DEA level because of the impacts that even one large job announcement or closure could have on employment

at such a local level. However, we explore how the general sectoral trends under the two scenarios will have varying impacts across the DEAs.

3. Estimating Employment Space Demand

35. This section of the paper applies the anticipated change in total employment in the NMDDC area to estimate the demand for workspace that this is likely to give rise to. The approach used forms the basis of similar projects that the UUEPC has completed for Belfast City Council (2016) and Mid & East Antrim Borough Council (2018), in both cases to help inform their own LDP.

36. To begin it is important to enter some caveats when interpreting the estimates of employment space demand in the NMDDC area out to 2030. These include:
    a) The significant challenges posed by using a 12-year forecasting period. Given that most economic models tend to assume that many of the factors which impinge upon the economy can be taken as 'givens', then the impact of 'Black Swan' events – such as the COVID-19 pandemic with its potentially huge impacts are often missed.[9]
    b) A decade is also long enough to make major structural shifts in either the economy[10] or the use of technology more likely. The employment forecasts include a level of automation[11], but there may be other floor space implications not built into the employment space estimates.[12]
    c) The estimates of employment space demand do not account for changes in employment trends and their potential knock on effects on densities. For example, an increased trend towards teleworking and "hot-desking"[13] could result in more fluid office designs, thereby triggering changes in employment densities over time. Therefore a general sensitivity analysis has been applied to make some allowance for these trends (see section 3.2).
    d) This paper has not considered the current (or potential future) supply of employment space in the NMDDC area, something which is needed in order to give a fuller understanding of land use suitability.

3.1 Local Council Impacts

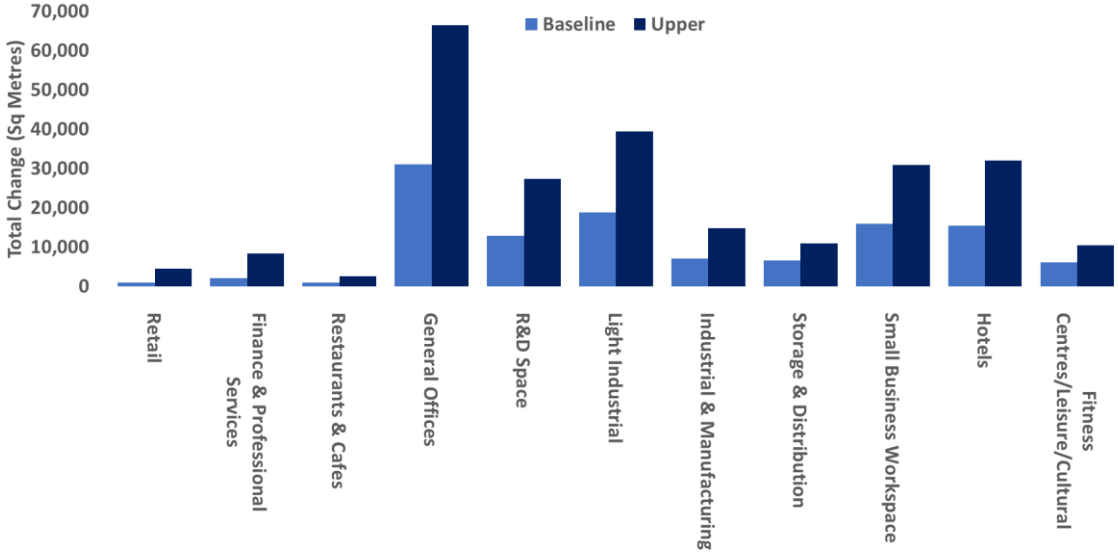
37. This section of the report outlines the expected changes in demand for employment space in the NMDDC area using the Baseline and Upper scenarios as set out in Section 2.4). For example, the Upper scenario employment space demand will result from the expected changes in requirement in the NMDDC area if NI's employment rate was equal to that of the current UK employment rate – equivalent to an additional 8,400 jobs being created in the Council area.

---

[9] The 2008 banking crisis or pandemics can be regarded as Black Swan events; see Nassim Nicholas Taleb, *Black Swan: The impact of the highly improbable* (2007).
[10] Brexit is one example of a major structural shift in the economy.
[11] UUEPC, 'Intelligent Futures: Working with automation and digitisation to deliver sustainable employment and growth' (December 2019).
[12] Research by McKinsey suggests that automation may not have a significant impact on the size of floorspace needed and that densities might rise in some sectors; see McKinsey Global Institute, *Where machines could replace humans and where they can't (yet)* (July 2016).
[13] Current research suggests that working patterns are changing but have not (as yet) had the significant impact expected on workspace; see CIPD, *Working Lives UK* (April 2018).

38. Figure 5 shows the change in employment space demand over the next 12 years (2018-30) in the two scenarios. In the Baseline scenario – in which the NMDDC area is forecast to see an additional 3,800 jobs by 2030 – it is estimated that an additional 117,600 sq. metres of employment space would be required to meet the projected employment growth. Under this scenario the General Office space (Use Class B1A) would require the most additional space at around 31,000 sq. metres. This is in large part due to the increase of Professional Service & ICT jobs which jointly create around 800 jobs by 2030. There is also expected to be a requirement for further Small Business Workspace and Hotels (Use Classes B Mixed and C1) of around 15,000 sq. metres each. How far each of these can be served by extensions to current provision or the supply of new builds will be something that further research will help establish.

Figure 5: Total Anticipated Employment Space Demand Change by Business Class Use & Scenario, Newry; Mourne & Down, 2018-30



Source: NISRA (BRES) & UUEPC Local Model Summer 2019 Outlook

39. In the Upper scenario there is an estimated additional requirement in the NMDDC area of 264,200 sq. metres of employment space. Here, General Office and Light Industrial space are likely to see the greatest level of demand, as a result of increased levels of Professional Services and Manufacturing employment.

40. In both scenarios it is forecast that there will be a demand for additional General Office, Small Business Workspace and R&D Space. This is in line with the expected job creation that is forecast to occur in the Professional & Technical Services sector, with job creation ranging from 500 to 1,200 jobs over the next 12 years. The requirement for additional R&D employment space, if designated as innovation space aimed at start-ups and smaller firms looking to add scale to their business, could lead, in time, to the development of the next wave of successful new firms to follow Norbrook, First Derivatives and STATsports.

41. While the small sample sizes mean it is not possible to profile the expected employment space demand for each of the seven DEA's, it is possible to offer a proxy of the potential employment space demand using the current employment share of each sector in the NMDDC area total. As the Newry DEA

in 2017 contained over a third (37%) of all service-based jobs in the NMDDC area, we could assume that this DEA in 2017 required 37% of all the service-based employment space demand in NMD available in 2017. Therefore, Newry DEA might take up around a third of any additional requirement for this Use Class.

42. Likewise, the Mournes and Slieve Gullion DEAs in 2017 had almost half (48%) of all Manufacturing employment in the NMDDC area. From this, we could assume that the two DEAs had around half of all Manufacturing employment space in the Council. One caveat, in this case, is that it is not clear whether any additional employment in this sector is likely to be in larger plants or smaller workspaces and thus the nature of the likely demand is unclear. Again, consultations with experts in the area of market supply may provide further insight.

3.2 Sensitivity Analysis

43. When considering the estimates of employment space demand in the section above it is important to remember that these are based on the current work structure remaining unchanged (i.e. the level of telecommuting and/or 'hot-desking' staying largely the same). In addition, it is often the case that additional jobs being created may not necessarily require the use of new land or new buildings. Many businesses are likely to expand within their own current footprint.

44. This section of the report will try to incorporate the likely change in working environments and work structure by conducting some sensitivity analysis with 10% and 20% of employment growth being absorbed by the current provision of space. These assumptions can be revised with greater availability of data and knowledge on the likely impact of relevant variables such as changing work environments and automation.[14]

45. Table 5 over shows the 10% to 20% assumption applied to the Baseline and Upper scenarios. In summary, Table 5 shows the following:
    - Under the **Baseline Scenario** the employment space demand when no sensitivity analysis is applied the employment space demand is 117,500 sq metres. When, the sensitivity analysis is applied the employment space demand ranges from 94,100 sq metres to 105,900 sq metres.
    - Under the **Upper Scenario** 264,000 sq metres of employment space demand is required when no sensitivity analysis is applied. Once the sensitivity analysis is applied the employment space demand ranges from 211,000 sq metres to 237,800 sq metres.

[14] Recent research highlighted in *The Economist* ('Covid-19 has forced a radical shift in working habits', 17 September 2020) suggests as many as 40% of jobs could be done in home-based or more flexible settings. A further factor, and one being taken forward in another study, is an audit of the current (and potential future) employment space supply within the council area.

Table 5: Total Employment Space Demand Change by Business Class Use (10% to 20% Capacity absorption), Newry; Mourne & Down, 2018-30

		No Capacity Absorption		10% Capacity Absorption		20% Capacity Absorption	
		Baseline	Upper	Baseline	Upper	Baseline	Upper
A1	Retail	1000	4400	900	4000	800	3500
A2	Finance & Professional Services	2100	8300	1900	7500	1700	6600
A3	Restaurants & Cafes	900	2500	800	2300	700	2000
B1A	General Offices	31000	66400	27900	59800	24800	53100
B1B	R&D Space	12900	27300	11600	24600	10300	21800
B1C	Light Industrial	18800	47900	16900	43100	15000	38300
B2	Industrial & Manufacturing	7000	14700	6400	13200	5700	11800
B8	Storage & Distribution	6500	19300	5900	17400	5200	15400
B Mixed	Small Business Workspace	15900	30900	14300	27800	12800	24700
C1	Hotels	15400	31900	13900	28700	12300	25500
D2	Fitness Centres/Leisure/Cultural	6000	10400	5400	9400	4800	8300
	Total	117500	264000	105900	237800	94100	211000

Source: Home and Communities Agency, Employment Densities Guide 3rd Edition (Dec 2015) & UUEPC Local Model Summer 2019 Outlook
Note: Totals may not add due to rounding

4. Conclusion

46. To conclude, just before the COVID-19 pandemic began, the economic forecast was for an additional 3,800 to 8,400 jobs to be created in the NMDDC area by 2030. Specifically, using the Baseline scenario which the UUEPC consider to be the most likely outcome, an additional 3,800 jobs are forecast to be created in the NMDDC area by 2030.

47. However, the risks posed to employment and economic growth from COVID-19 are expected to be severe. In NI as a whole the UUEPC has estimated that Gross Value Added could fall by as much as 12% in 2020, and by the same percentage in NMDDC. The knock-on effect of this is that 22,000 jobs may have been furloughed or subject to lay-off by the end of the year.[15] The good news is that a recovery of sorts has already begun as restrictions on the ability of businesses to trade have been eased since late May (albeit with significant social distancing restrictions still in place and a proportion of the 22,000 jobs still impacted).

48. This leaves a significant mountain to climb in any recovery. Although we do not yet have an estimate of what the recovery might look like in NMDDC, the UUEPC analysis suggests that the recovery back to where we were in late 2019 could take between **four and five years** for NI as a whole, taking us out to 2023 at the earliest. This gloomy outlook is unlikely to be very different locallly with the economy struggling for part of the LDP period.

49. Using the latest employment forecasts the UUEPC has generated a series of estimates of demand for employment space for the NMDDC area. In the Baseline and Upper scenarios there is a range of additional space – from 117,500 to 264,000 sq metres – required.

50. It is also likely that some of the employment space demand will not require the acquisition of any new land/building and may, in fact, be absorbed by the current workspace provisions. To illustrate this the UUEPC have applied some sensitivity analysis, whereby 10% to 20% of employment growth is absorbed by current provision. To illustrate this the potential impact upon the Baseline Scenario suggest that the requirement for additional employment space might range from 94,100 sq metres to 105,900 sq metres.

51. Finally, the report outlines the relative specialisations that are located within the NMDDC area at a DEA level (see Section 2.3). Although the paper has not been able to credibly forecast total employment (and thus the demand for workspace) in each of the DEAs, the shares of sectoral employment in the Council area as a whole do provide some pointers. For example, in 2017, Newry DEA had 37% of total service sector employment in the NMDDC area, which may equate to around a third of service-based employment space demand centring on the city. How far, this extends into the lifetime of the LDP is an open question but we should not be surprised to see demand for use classes such as General Office and Finance & Professional Services continuing to follow current trends.

[15] UUEPC, 'Potential economic consequences of COVID-19 in Northern Ireland: Revised estimates and Council-level view' (29 May 2020).

5. Appendices

5.1 Appendix 1: Cambridge Business School, UUEPC UK forecast model

1. The Cambridge Business School UK forecast model (UKMOD) is an econometric (or structural) model. It describes how sets of exogenous variables (i.e. determined outside the model, such as world trade or the oil price), policy instruments and economic shocks, determine a set of endogenous variables (e.g. GDP or price inflation).

2. The model is Keynesian in that it is largely concerned with determining demand. The structure of the model is conventional within the Keynesian tradition with aggregate demand determined as the sum of household consumption, investment, government consumption, exports and imports. Supply side variables such as capital stock and labour supply are determined endogenously (or semi-endogenously in the case of labour).

3. It is thus substantially different from the UK Government Office of Budget Responsibility model and similar models, which are based on forecasting the trend in the UK economy's potential output and the economy's path back to that trend from any given starting point.

4. The model is based on relationships and interrelationships econometrically estimated on past annual data. The model consists of 250 variables with data from 1950 to the present, 80 econometric equations and 145 identities. It is based on the post-Keynesian approach of Wynne Godley[16] described as follows:
   - 4 sector approach: households, companies, government and foreign;
   - Stock-flow consistent with tendency for ratios of assets to incomes not to diverge too far from long-term averages;
   - Consumer spending depends on borrowing as well as income, assets and liabilities;
   - Mark-up pricing (i.e. consumer prices rise with wage and other costs of production); and
   - Wages determined as attempts to gain a traditional share of value-added but constrained by changes in the employment rate.

5. The forecasts generated by the model are conditional on a number of exogenous variables chiefly reflecting government fiscal policy and economic conditions outside the UK. The key exogenous variables include world trade (weighted by UK markets), government fiscal policy plans (tax rates and nominal spending plans), the short-term interest rate (used as a policy variable to target consumer price inflation), interest rates in the USA, and the global price of oil and other raw materials.

6. Of particular relevance to future employment space requirements is how the forecast model addresses the labour market and sectoral employment. Unlike the OBR (which uses assumptions) UKMOD uses an econometric equation to forecast the number of people employed in the market sector.

[16] Wynne Godley and Marc Lavoie, *Monetary Economics* (Houndmills, 2007)

The equation has a long-term relationship between employment in the market sector and GDP, the capital-labour ratio, real average wages in the market sector, the level of house building and interest rates. There is also a term for the real value of company shares. This equation has some unconventional features, including a strong long-term influence from interest rates. Market sector employment has a substantial impact on the overall macro-economic forecast and is sensitive to precise specification. The equation includes terms for labour demand (GDP) and supply (real wage).

7. Other long-term influences in the equation are the capital-labour ratio and the interest rate. The capital-labour ratio has a negative coefficient indicating that, when capital replaces labour, employment will be lower for any given level of GDP. The inclusion of an interest rate term reflects the repayment cost of existing debt. When this is high, post-interest profits are reduced and pressure to cut costs, including labour, is increased. This is an important factor in the unexpectedly high level of job creation during the period of unprecedentedly low interest rates since 2008.

8. The Labour Force Survey measure of the number of people unemployed and available for work is also forecast using an equation. In this equation the long-term influences on the number of unemployed people are GDP, the number of people employed, the size of the working-age population and the number of people aged over 64 in employment. The latter are likely to displace more people of working age into unemployment for any given level of jobs. The number of new firms formed each year also appears to have a direct impact on unemployment, over and above its impact on jobs. The number of over-64s in employment is forecast as a trend and is predicted to increase from around 1 million to 2 million over ten years. International migration of working-age people into the UK has short-term influences on unemployment through its impact on the working-age population. In the long term the rise in unemployment is offset by higher employment induced via lower wages caused by the higher migration.

9. A detailed exposition of the UK Forecast Model can be found online[17].

[17] The CBR Macro-Economic Model of the UK Economy (UKMOD); Judge Business School Cambridge (2015); http://www.cbr.cam.ac.uk/fileadmin/user_upload/centre-for-business-research/downloads/working-papers/wp472.pdf

5.2 Appendix 2: Study Methodology

10. Since the mid-1960s a research literature has developed which might be called a judgemental or applied employment space demand analysis. This analysis was based first on population ratios and then, from the 1970s, increasingly on sectoral employment numbers and varying types of workspace. The analysis has developed over time to reflect other variables such as rental values, vacancy rates and other changes in supply (obsolescence, demolition, etc).[18]

11. The methodology used by the UUEPC is one which converts forecast employment by sector into square metre requirements for various types of employment space. To do this the UUEPC uses the third edition of the *Employment Densities Guide*, published by the then Home and Communities Agency for England (now Homes England) in November 2015. The guidance includes an estimate of the average density of Square Metres per Full-Time Equivalent employee for different business sectors and sub-sectors described as Use Classes (eg: A1-Retail-High Street) as detailed in Table 6 below.

12. The steps followed in the UUEPC methodology include the following:
    - The UUEPC have estimated an Adjusted Mid-point density figure (m^2) for each sub-sector. The guidance uses a series of 'First Measures' (eg: GIA[19], GEA[20] and NIA[21]) and, for consistency and ease of comparison, the UUEPC has converted each of these into GIA. This measure has been chosen as both NIA and GEA can be converted into GIA.
    - The conversion assumptions used by UUEPC are taken from the *Employment Densities Guide*. To convert NIA to GIA, a reduction of 15-20% acts as a suitable assumption for converting gross to net areas in non-industrial properties. To convert GEA to GIA, the general benchmark is a reduction of 5%.
    - In the next step the UUEPC calculated a matrix for class use by sector, which is presented in Appendix 3 This matrix is used in order to convert employment data (by UK Standard Industrial Classification or SIC) into Use Class categories (A1 to D2 as in Table 6). For example, for those employees who work in the Manufacturing sector, 30% of those are

[18] For a survey of this literature see Rabianski, J.S. & Gibler, K.M. (2007), 'Office demand analysis and estimation techniques: A literature review, synthesis and commentary', *Journal of Real Estate Literature*, 15(1), 37-56.

[19] GIA or Gross Internal Area refers to 'the entire area inside the external walls of a building and includes corridors, lifts, plant rooms, service accommodation (e.g. toilets).' GIA is a widely used metric for calculating building costs, marketing, valuation, property management and rating (in England and Wales) of industrial buildings (including ancillary offices), warehouses and leisure units and also the valuation of new residential developments.

[20] GEA or Gross External Area includes walls, plant rooms and outbuildings, but excludes external space such as balconies and terraces. GEA is more narrowly used for calculating building costs for large industrial and warehouse buildings, planning applications and approvals, council tax banding, and rating in Scotland for industrial buildings.

[21] NIA or Net Internal Area is commonly referred to as the 'net lettable or "usable" area of offices and retail units, which includes entrance halls, kitchens and cleaners' cupboards, but excludes corridors, internal walls, stairwells, lifts, WCs and other communal areas. NIA is a metric widely used for marketing, valuation, property management and rating for offices, shops and supermarkets.

classified as belonging to the R&D space, 20% as Industrial & Manufacturing and 50% as Light Industrial.

- Finally, the projected employment by sector under each of the three UUEPC scenarios between 2017 and 2030 is applied to the use class by sector matrix to calculate a sq metre demand by year out to 2030.

Table 6: Employment Densities, England 2015

Use class	Sub category	Sub sector	Density (Sq. metres)	First Measure	Adjusted Mid-Point (Sq. metres)
A1	Retail	High street	15-20	NIA	20.6
		Foodstore	15-20	NIA	20.6
		Retail warehouse	90	NIA	105.8
A2	Finance and professional services		16	NIA	18.8
A3	Restaurant and Cafes		15-20	NIA	20.6
B1A	General offices	Corporate	13	NIA	15.3
		Prof Services	12	NIA	14.1
		Public sector	12	NIA	14.1
		TMT (Tech, media & Telecoms	11	NIA	12.9
		Finance and insurance	10	NIA	11.8
	Call centres		8		9.4
B1B	R&D Space		40-60	NIA	58.8
B1C	Light industrial		47	NIA	55.2
B2	Industrial and Manufacturing		36	GIA	36.0
B8	Storage and Distribution	National distribution centre	95	GEA	90.3
		Regional distribution centre	77	GEA	73.2
		Final mile distribution centre	70	GEA	66.5
B Mixed Classes	Small business Workspace	Incubator	30-60	B1a, B1b	52.9
		Maker spaces	15-40	B1c, B2, B8	27.6
		STUDIO	20-40	B1c, B8	28.9
		Co-working	10-15	B1a	14.7
		Managed workspace	12-47	B1a, b, c	34.7
B8 / SUI Generis	Data centres	Wholesale	200-950	NIA	675.6
		Wholesale dark site	440-1400	NIA	1081.0
		Co-location facility	180-540	NIA	423.0
C1	Hotels	Limited service/budget	1 per 5 beds	GIA	50.0
		Mid-scale	1 per 5 beds	GIA	50.0
		Upscale	1 per 5 beds	GIA	50.0
		Luxury	1 per 5 beds	GIA	50.0

D2	Fitness centres	Budget	100	GIA	100.0
		Mid-market	65	GIA	65.0
		Family	65	GIA	65.0
	Cinema		200	GIA	200.0
	Visitor and cultural attractions		30-300	GIA	165.0
	Amusement and entertainment centres		70	GIA	70.0

Source: Home and Communities Agency, *Employment Densities Guide* 3rd Edition (Nov 2015)
Note: The adjusted Mid-Point represents the sq. metres employment density in GIA terms

5.3 Appendix 3: Use Class by Sector

				Sector																		
				Agriculture	Mining and quarrying	Manufacturing	Utilities	Water supply & waste	Construction	Retail	Transportation	Accommodation	Information & Comm's	Financial activities	Real estate	Professional & scientific	Administration services	Public Admin' &	Education	Health & social work	Arts and entertainment	Other services	**Total**
	A1	Retail	High Street	0%	0%	0%	0%	0%	0%	45%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**45%**
	A1		Foodstore	0%	0%	0%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**18%**
	A1		Retail Warehouse	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**9%**
	A2		Finance and professional services	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	70%	0%	8%	0%	0%	0%	0%	0%	**87%**
	A3		Restaurants & Cafes	0%	0%	0%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	**25%**
	B1A	General Offices	Corporate	0%	0%	0%	0%	0%	0%	0%	14%	0%	7%	0%	30%	0%	16%	0%	30%	30%	14%	15%	**157%**
	B1A		Prof services	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	70%	38%	16%	0%	0%	0%	0%	0%	**158%**
	B1A		Public sector	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	8%	100%	70%	70%	0%	0%	**263%**
	B1A		TMT (Tech, media & telecoms)	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	8%	0%	0%	0%	0%	0%	**28%**
	B1A		Finance and insurance	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	30%	0%	0%	32%	0%	0%	0%	0%	0%	**69%**
	B1A		Call centres	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	B1B		R&D Space	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%	**45%**
	B1C		Light Industrial	50%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	**108%**
	B2		Industrial and manufacturing	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**20%**
	B8	Storage and distribution	National distribution centre	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**29%**
	B8		Regional distribution centre	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**29%**
Class	B8		Final mile distribution centre	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**29%**
	B Mixed Class	Small Business Workspace	Incubator	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	8%	4%	0%	0%	0%	7%	8%	**33%**
	B Mixed Class		Maker spaces	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	8%	4%	0%	0%	0%	7%	8%	**33%**
	B Mixed Class		Studio	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	4%	0%	0%	0%	14%	15%	**40%**
	B Mixed Class		Co-working	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	4%	0%	0%	0%	14%	15%	**40%**
	B Mixed Class		Managed workspace	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	4%	0%	0%	0%	7%	8%	**26%**
	B8	Data centres	Wholesale	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	B8		Wholesale dark site	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**50%**
	B8		Co-location facility	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	C1	Hotels	Limited service/budget	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**25%**
	C1		Mid-scale	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**25%**
	C1		Upscale	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**25%**
	C1		Luxury	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**25%**
	D2	Fitness centres	Budget	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	D2		Mid Market	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	D2		Family	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	8%	**15%**
	D2		Cinema	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	8%	**15%**
	D2		Visitor and cultural attractions	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	8%	**15%**
	D2		Amusement and entertainment centres	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	8%	**15%**
			Total	**100%**	**0%**	**100%**	**0%**	**0%**	**0%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	