

## **VALE OF WHITE HORSE LOCAL PLAN 2031 EXAMINATION**

### **STAGE 2 of PART 1 STRATEGIC SITES AND POLICIES.**

#### **SUBMISSION BY EAST HENDRED PARISH COUNCIL**

#### **MATTER 9 STRATEGY FOR SOUTH EAST VALE SUB-AREA (Policies 15 & 16)**

9.1 & 9.2 My submission deals with Sites 12 & 13 & alternative sites under Matter 6.

#### **9.3 Are the Identified and safeguarded Employment Sites listed in Policy 15 soundly based and deliverable?**

**Are there other sites which would more appropriately meet the identified need for employment land?**

#### **PROPOSALS FOR A HARWELL CAMPUS MASTER PLAN.**

- 1.1 Policy 15 merely states that 209 hectares of employment land will be provided for business and employment growth, in accordance with Policy 6. Policy 6 refers to 219 hectares. Harwell Campus is the largest site in which 94 hectares of Enterprise Zone and 35 hectares outside the EZ.
- 1.2 Local Plan 2011 Policy E7 requires proposals to be considered in the context of a Comprehensive Approach to the whole of Harwell Campus. (I understand that to mean a requirement for an adopted Master Plan before any permission is granted). That has not happened, nor is it proposed in the Local Plan 2031 under Policies 6 or 15. A similar policy E5 relates to Milton Park.
- 1.3 Policy E7 states that Development will be permitted for B1 & B2 uses subject to:
  - i) A Travel Plan for the whole Campus to make financial contributions to implement sustainable transport initiatives, (A comprehensive travel plan requires an adopted Master Plan of the scale & type of development).
  - ii) Contributions to upgrade the access from the A34, A4185, A417
  - iii) Development will need to accord to a Comprehensive Landscape Plan protecting open space, perimeter landscaping and wildlife habitats, and creating new habitats,
  - iv) Proposals will harm the character and appearance of the surrounding area, taking account of location, scale, bulk & height,

- v) Lighting schemes will have minimal impact in terms of light pollution,
- vi) Small scale Ancillary facilities will be permitted under Policy E13.

It is considered that a similar policy to Policy E7 should be included in the Local Plan 2031.

- 1.4 Paragraph 11.55 states that over 4,000 employees work there on c.300 hectares. This demonstrates that a significant percentage of new development will simply re-house the existing 4,000 employees many of who occupy out-dated accommodation.
- 1.5 A similar situation existed with Culham Science Centre in the South Oxfordshire Core Strategy. A Draft Supplementary Planning Document was published in 2014. It said that with the JET Fusion research project closing c. 40,000 sq.m. of floorspace will need to be upgraded or replaced, with much being over 45 years old. South Oxfordshire Core Strategy Policy CSEM 3 provides for an additional 1,000 new jobs at Culham based on an agreed Master Plan.
- 1.6 The Master Plan identifies a c. 20-40 metre wide belt of structural landscaping around the site boundaries. New development will generally be restricted in height to the adjoining buildings to mitigate the landscape impact of development. Sites for new development and redevelopment are identified, concentrated in the central and western areas, with buildings being removed to the north east, south and east.
- 1.7 The participant seeks a Policy in the Plan setting out the principles to be included in an adopted Harwell Campus Master Plan, to be approved before any new development is permitted. This would provide certainty as to the planning framework against which development proposals will be assessed. That would include:
  - i) Providing a description and layout of the existing floorspace, hardstanding, landscaping and habitat, and its impact on the AONB.
  - ii) Providing for an agreed level of, and locations for, redevelopment to cater for existing employees (say 100,000 sq.m floorspace for 4,000 existing employees), and for new development for new occupiers, (say 100,000 sq.m. of floorspace for 4-5,000 employees, based on the CE Report ECON 02 page 117 Table K.4).

- iii) Setting out a substantial landscape belt around the site boundaries, comprising open space, landscape & habitat. Including proposals to protect and enhance existing landscaping to mitigate the impact of development, e.g. the bund and Nature Reserve to the south, and woodland and the proposed ground reclamation by Magnox of two nuclear power stations etc on 100 hectares by 2050.
- iv) Preparing a Travel Plan and setting financial contributions from developers for sustainable transport initiatives for buses and cyclists and for road improvements of the access from the A34, A4185 and A417.

**THE SOUNDNESS OF THE EMPLOYMENT PROPOSALS FOR HARWELL CAMPUS.**

2.1 Further information has become available on the Size & Health of the UK Space Industry by the Consultancy, London Economics, October 2014, commissioned by the UK Space Agency.

2.2 It identifies the breakdown of jobs in Upstream & Downstream Sectors.

**THE BREAKDOWN AND GROWTH OF JOBS IN THE UK SPACE SECTORS**

**UPSTREAM SECTOR (Fig 0.10)    DOWNSTREAM SECTOR (Fig 0.12)**

Satellite/payload manuf.	36%	Broadcasting (BSkyB)	74%
Ground segment	31%	Satellite Comms.	8%
Research & Consultancy	16%	Defence	6%
Spacecraft manuf.	8%	Navigation	5%
Jobs 2003/4 (Fig 0.5)	5,472		9,925
Jobs 2013/14	7,798		27,844
Growth 2003-13	+ 2,326 (11%)	(89 %)	+ 17,919
Growth per Year	+233		+1,792

2.3 The Council's estimate of c. 5,400 jobs in Research in the EZ and 2,500 jobs in Satellite technology in Table 4.2, page 31, of the CE Report, was based on Harwell attracting 10% (10,000 jobs) of a projected jobs growth of 100,000 employees, from turnover increasing from £11 billion to £40 billion per year, or 10% of the estimated global market. (CE Report page 21 and Dept of Business, Innovation & Skills Press Release dated 9<sup>th</sup> November 2012).

2.4 It states:

***"A proportion of those (10,000) jobs (say 4,000) will be located in existing sites at Harwell,... and are therefore included in the above figures (+5,400 net in Harwell and Milton Park)...and 2,000 outside Oxfordshire. That leaves 4,000 jobs in the county .... of which 2,500 jobs will be located in the Vale of White Horse."***

In the Examination, the Council accepted that 5%, not 10%, of the projected 100,000 employment growth would be attracted to Harwell EZ, i.e. 5,000 jobs, out of a total adjustment for economic growth of 12,300 jobs.

2.5 In 2013/14, the Downstream Sector's turnover, £10 billion, was 90% of the total, with £1.2 billion in the Upstream Sector, (Fig 0.2). Thus the achievement of the £40 billion per year turnover target will rely primarily on the Downstream Sector, dominated by Broadcasting (74% of employees).

2.6 The study concluded on page 14 that the turnover target could be met, but:

***The target is unlikely to be achieved by the current space industry members alone, as Broadcasting is unlikely to be able to deliver the growth needed.... In all likelihood the space industry needs to expand into new markets in terms of applications to realise the targets."***

Thus it concluded that Broadcasting (BSkyB) alone, with 20,000 employees (74% of Downstream employees), is unlikely to meet this target. It will therefore require other applications of Space Science in the Downstream Sector, (e.g. satellite communications, defence and navigation), to grow in new markets to realise the target. These sectors currently had 5,000 employees 2013/14 (19% of Downstream jobs).

2.7 Harwell Campus's existing facilities and proposed Research and Development (R & D) facilities relate primarily to research activities. But the study found that just 7% of turnover in the Upstream Sector and 4% of turnover in the Downstream Sector was Research and Development expenditure. Just 2% of turnover was Internal Funded Research & Development, with the remainder relying on External funding.

2.8 On the evidence, above, the NPPF test that Housing and Economic Assessments should be “realistic but aspirational” when set beside the exceptional circumstances test in paragraph 116 on AONBs, has not been met for the following reasons:

- i) 90% of the turnover and jobs growth is in the Downstream sector,
- ii) That sector is dominated by Broadcasting (BSkyB) (74% of jobs).
- iii) The Broadcast sector is not expected to meet the growth target to achieve an increase to £40 billion turnover (10% of global market), nor is it located at Harwell,
- iv) That requires other Downstream sectors e.g. satellite communications, defence and navigation to grow new markets from a 2013/14 base of c. 5-7,000 jobs. The main companies in satellite communications are based in Stevenage and Guildford.
- v) No allowance has been made for a proportion of new jobs being likely to be included in the Economic Baseline estimate of 10,000+ additional jobs, or likely to be located outside the UK.
- vi) For Research & Development, which Harwell Campus is seeking to attract, only c. 5% of total turnover was in R & D, with 2% of turnover being internally funded Research & Development.
- vii) Neither in this report for the UK Space Agency, nor the Government’s response to the Space Strategy, nor the letter from the European Space Agency, is the forecast growth of 100,000 jobs by 2031 substantiated by robust evidence.

#### PROPOSED AMENDMENT

The above trend adjustment for economic growth should be amended to 5,400 net new jobs in Research activities at Harwell and Milton Park, above redevelopment for c. 4,500 existing employees at Harwell. The 2,500 jobs in Satellite technology should be included within the 5,400 net jobs at Harwell, and not be additional to it, to avoid double counting of Research activities jobs or the forecast increase in jobs in the Economic Baseline forecasts, see below.

#### JUSTIFICATION

The amendment would avoid double counting of Research activities at Harwell.

The reduced jobs growth would have implications on the need for new housing, particularly the need for new housing in the AONB.

**EMPLOYMENT PROJECTIONS BY BROAD SECTOR. CE Report Table E4-5.**

**BROAD SECTOR ALT. POP. PLANNED ECON. GROWTH ADJUSTMENT**

Agriculture	+700	+700	-
Mining	-	-	-
Manufacturing	-	+3,200	+3,200
Electricity etc	-	-	-
Construction	+1,000	+1,100	+100
Distribution	+1,000	+1,500	+500
Transport	+700	+2,400	+1,700
Accommodation	+1,300	+1,400	+100
IT & Comms.	+200	+2,100	+1,900
Finance/business	+5,100	+9,800	+4,700
Govt services	+600	+700	+100
Other services	+100	+100	-
<b>TOTAL</b>	<b>+10,700</b>	<b>+23,000</b>	<b>+12,300 jobs</b>

**SUMMARY OF ABOVE TRENDS JOBS GROWTH CE Report Table 4.2, page31.**

Enterprize Zone	5,400
Satellite Technology	2,500
Advanced Engineering	500
Environment	100
Retail/Distribution	1,700
<b>TOTAL</b>	<b>+10,200 jobs + 2,200 indirect jobs (Table 5.3).</b>

#### **9.4 Is the Policy relating to Didcot A Power Station, Policy 16, soundly based?**

3.1 No, The CE Report, ECON02, page 117, Table K.4, on Employment Sites states:

***“ Didcot A is surplus to requirements, and is subject to remediation which will take 3 years, following which it should be available for development.***

***The total site is likely to be a mix of Housing and Employment, with current estimates of 29 hectares for employment, although conceivably a higher proportion could go for Housing.”***

Core Policy 16 states that up to 29 hectares of the 49-59 hectare site will be reserved for a range of employment uses, but other uses could include Housing, ancillary retail, institutional use and Community use.

3.2 The Local Plan 2031 has a surplus of supply of employment land to meet the need for 23,000 new jobs with 219 hectares provided under Policy 6. Under NPPF paragraph 22,

***“land allocations should be regularly reviewed having regard to the relative need for different land uses.”***

3.3 The employment land surplus arises from the G.L. Hearn assumed plot ratio of 4,000 sq.m. floorspace per hectare. That means that 800,000 sq.m floorspace could be constructed on 200 hectares. Assuming an employment ratio of 25 sq.m floorspace per job, (compared to the 12 sq.m. floorspace per job for office employment applied by G.L. Hearn), the estimated number of jobs would be 32,000 jobs.

Thus, the amount of employment land required to accommodate the c. 17,000 B Class jobs predicted by G.L. Hearn would be around c.100-150 hectares, instead of 219 hectares. Hence the anticipated surplus of employment land.

3.4 The difference is primarily due to Harwell and Milton Park EZ being treated as new employment land, although the land on both sites has been in employment use for many years. Hence it is not new employment land.

3.5 It is considered that the mitigation of the impact of large scale development in the AONB, and the surplus of employment land, justifies consideration of a Strategic Housing Allocation at Didcot A, further housing at Valley Park (where there is an application for 4,250 dwellings), and other employment sites.

3.6 In terms of the housing distribution strategy in Core Policy 3 on Settlement Hierarchy, these sites should be released for housing before Sites

12 & 13 North & East Harwell Campus in the AONB.

- 3.7 The Didcot Growth Accelerator, which provides £400,000 of funding for a Didcot Master Plan provides the opportunity to address constraints on Redevelopment, in terms of transport, services, ground remediation etc.
- 3.8 Consideration should be given to the opportunities for Government supported (Housing Corporation) high density affordable and low cost housing from the redevelopment of a Brownfield site at Didcot A, which would not be available on Greenfield sites to the North & East of Harwell Campus, in the AONB.
- 3.10 The “better offer” described by the Council to the Harwell Campus sites appear to refer to the sites being more attractive to house builders for upper market or executive housing, rather than lower market and affordable housing. A comment made by East Hendred residents working at Harwell Campus is that Government salaries for Scientific Researchers are so low that they cannot afford market housing and do not qualify for affordable housing.
- 3.11 At Didcot’s Great Western Park in December 2015, just 12 x 4 bed houses were available from Taylor Wimpey at £335,000 - £485,000. Smaller one two and three bed dwellings were not available, but would cost £275,000-£300,000. It would not be unreasonable for housebuilders selling dwellings in the AONB to seek a 20% or more premium on those prices, because they were perceived to be a “better offer.” This would make them even less affordable.

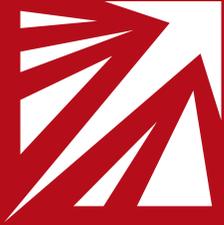
## 5. CONCLUSIONS

It is concluded that Housing Sites 12 & 13 do not meet the tests in paragraph 116 for the following reasons:

- i) By using the most recent CLG Household Projections, as set out in the PPG, the housing requirement is reduced by 720 dwellings, on the Council’s evidence, compared to the 2010/11 Household Projections,
- ii) The housing requirement is reduced by adopting a Start Date of 2014, so that the housing & economic assessments take account of past trends, and FUTURE demand (i.e. after 2014), as set out in the PPG,
- iii) The housing requirement should be reduced by 1,500 dwellings to reflect the close linkage with South Oxfordshire D.C. area. and Didcot Garden Town in particular. An estimated net imbalance of commuter

travel into Science Vale from South Oxfordshire, based on high levels of new housing and low levels of employment land in South Oxfordshire, is estimated to reduce the need for housing in The Vale by c. 1,500 dwellings,

- iv) Housing at Harwell Campus does not comply with the re-definition of Core Policy 3 on Settlement Hierarchy. This re-designates Harwell Campus as an Employment Location. Development at Harwell Campus would not benefit the rural economy in Towns, Service Centres or Large Villages in the Vale.
- v) The Council's case that land at Harwell Campus is "a better offer" than Didcot A is not justified in relation to the Core Planning Principles in the NPPF.
- vi) The housing requirement double counts above trend new jobs in Research activities, 5,400 jobs, and 2,500 jobs in Satellite applications. The CE report ECON02 states that 4,000 of these are already included in the Research activities sector. The Council accept they are limited to 5% of the proposed growth of Space Science jobs. The sector is dominated by Broadcasting (BSkyB) which is not expected to meet the growth target, and is not based in The Vale. No account has been taken of any jobs being located outside the UK.
- vii) There is scope for providing housing outside the AONB, such as at Didcot where only 29 hectares out of 49-59 hectares at Didcot A has been allocated and at Valley Park,
- viii) There would be significant harm to the valued landscape of the AONB from large scale development from public viewpoints, including The National Trail, (The Ridgeway), the National Cycleway, a historic Bridleway known as The Golden Mile. Allocations for housing would prejudice the integrity of the AONB by providing support for other large scale development in the AONB, such as Omission sites.
- ix) A recent Sec of State Appeal decision demonstrates that even in a locally designated landscape, the harm to the landscape can outweigh the social and economic benefits.



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# Executive Summary: The Size & Health of the UK Space Industry

OCTOBER 2014



## About London Economics

London Economics (LE) is a leading independent economic consultancy, headquartered in London, United Kingdom, with a dedicated team of professional economists specialised in the application of best practice economic and financial analysis to the space sector. As a firm, our reputation for independent analysis and client-driven, world-class and academically robust economic research has been built up over 25 years with more than 400 projects completed in the last 7 years.

We advise clients in both the public and private sectors on economic and financial analysis, policy development and evaluation, business strategy, and regulatory and competition policy. Our consultants are highly-qualified economists with experience in applying a wide variety of analytical techniques to assist our work, including cost-benefit analysis, multi-criteria analysis, policy simulation, scenario building, statistical analysis and mathematical modelling. We are also experienced in using a wide range of data collection techniques including literature reviews, survey questionnaires, interviews and focus groups.

Drawing on our solid understanding of the economics of space, expertise in economic analysis and best practice industry knowledge, our Aerospace team has extensive experience of providing independent analysis and innovative solutions to advise clients (both public and private) on the economic fundamentals, commercial potential of existing, developing and speculative market opportunities to reduce uncertainty and guide decision-makers in this most challenging of operating environments.

All consultants of our Aerospace team are highly-qualified economists with extensive experience in applying a wide variety of analytical techniques to the space sector, including:

- Insightful and accurate market analysis and demand forecasting;
- Analysis of industrial structure, strategy and competitive forces;
- New technology adoption modelling;
- Estimation of public utility benefits;
- Opportunity prioritisation and targeting to maximise exploitation of investment;
- Sophisticated statistical analysis (econometrics, regression);
- Economic and financial modelling, including: Cost-Benefit Analysis (CBA), cost effectiveness analysis, Value for Money (VfM), impact assessment, policy evaluation, business case development, cash flow and sustainability modelling.

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## Introduction

Since 1992, the UK Space Agency<sup>1</sup> has periodically surveyed organisations in the UK that supply, or make use of, the space sector. The objectives of the survey are to:

- establish the industry's general size and health;
- inform industry and the Government of the day
- promote the UK space sector overseas;
- provide an input into the formulation of UK space policy; and
- track progress towards the policy objectives (e.g. The Space Innovation and Growth Strategy 2014-30).

The series of studies, entitled the Size and Health of the UK Space Industry, provide a historically consistent series of observations on the state of the UK space industry, and thus represent a unique resource for assessing developments in the industry. The UK Space Agency commissioned London Economics to conduct the 2014 version of the study, covering 2011/12 and 2012/13, and this document presents an Executive Summary of the main findings.

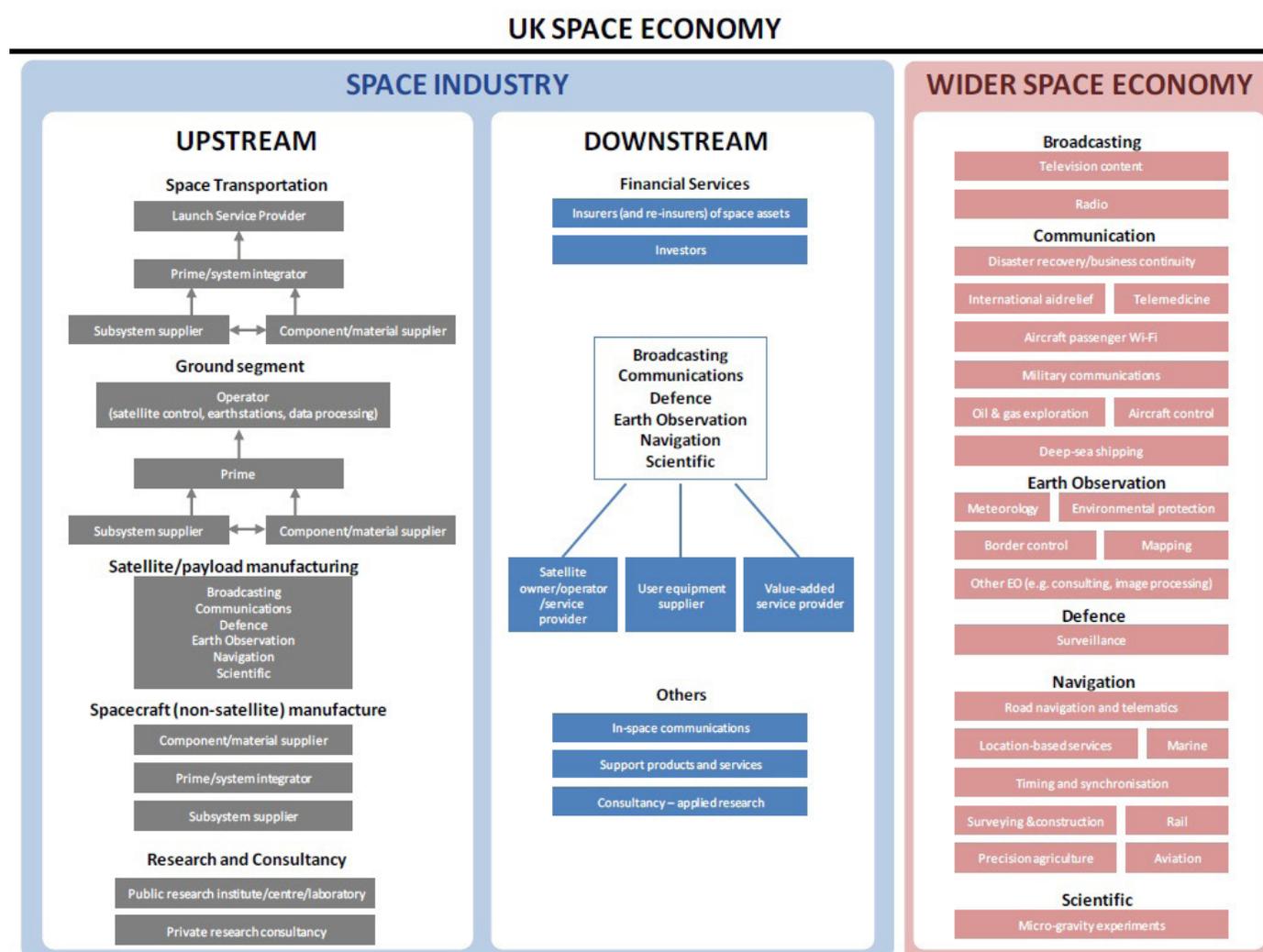
The study has historically focused on the space industry, split into upstream and downstream segments. However, reflecting a growing belief that this definition of the industry is too narrow to capture the sector's future growth, particularly with reference to space-enabled applications, the 2014 analysis reflects three discrete segments of the space economy: upstream space industry (infrastructure and technology), downstream space industry (direct space services) and the wider space economy (space-enabled value-added applications).

The cornerstone of the research is an industrial survey, sent to over a thousand organisations in the UK. Reflecting the expanded space economy definition, the invitee count was increased substantially with a key focus on the industry supply chain (e.g. microelectronics firms) and the wider space economy (e.g. space-enabled value-added service providers). The survey results were supplemented by additional targeted stakeholder consultations, desk-based research of publicly available data sources and a statistical model to estimate inputs for non-responding organisations. The survey questionnaire was based on previous years' surveys and thus ensures a high level of comparability over time – a crucial feature of the study.

With the expanded list of invitees, the definition of the space economy differs from that of the space industry used in previous editions of the study. The quantitative results presented in the report pertain to the space industry to preserve the consistency of the historical data series. 464 invited organisations were deemed to be in the space industry.

The estimates are based on 303 companies, which either - responded to the survey, were estimated from previous responses, use of statutory annual accounts, or as part of the group of organisations that fall below the statutory reporting threshold. The UK space industry ranges from international market leaders with subsidiaries all over the world, to UK subsidiaries of international companies, on to start-ups and small enterprises.

Figure 0.1: Definition of the UK space economy



Source: London Economics

### Size of the industry

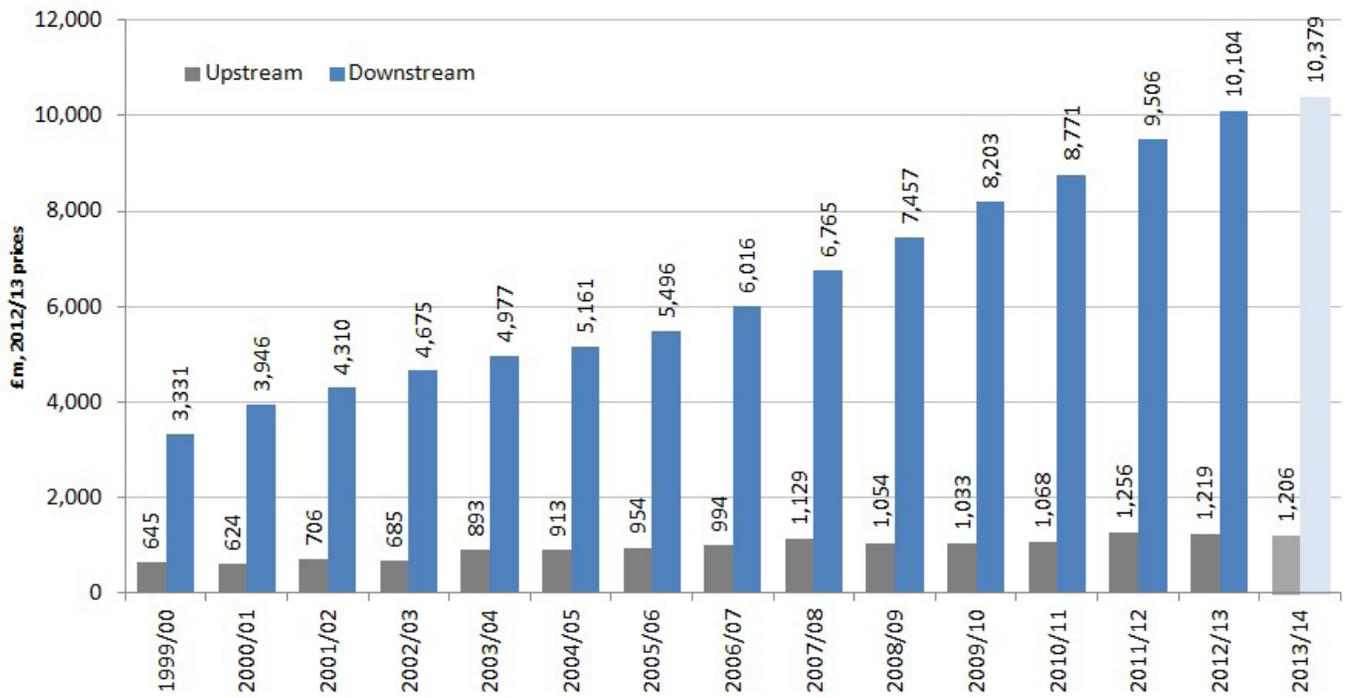
Space industry turnover in 2012/13 was found to have increased by 15% in real terms<sup>2</sup> in the two years since 2010/11 (an annual average of 7.3%<sup>3</sup>), to £11.3 billion. Consolidated revenue grew slightly slower than overall space industry revenue, indicating that the space organisations are sourcing more and more inputs from other organisations within the industry. Though still well above the growth rate of the wider economy, space industry growth has slowed slightly, as compared to the 7.5% growth observed annually between 2008/09 and 2010/11.

The downstream sector has enjoyed stable growth over the survey period, with turnover increasing by 15% in real terms since 2010/11. The upstream sector had a very strong year in 2011/12, before contracting slightly in 2012/13. Total upstream turnover growth over the period amounts to 14%. The downstream sector dominates – at £10.1 billion in 2012/13 it accounts for 89% of total industry.

<sup>2</sup> That is, over and above the inflation rate in the economy.

<sup>3</sup> Computed as the compound annual growth rate (CAGR).

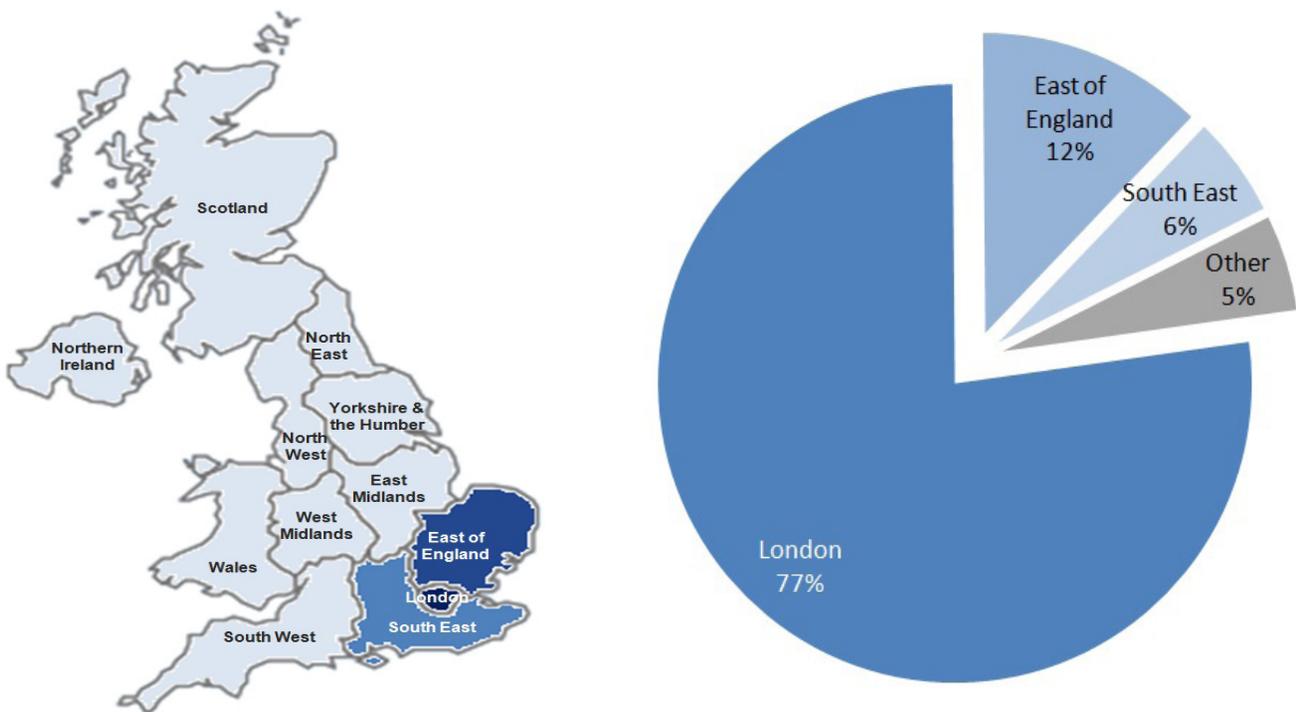
**Figure 0.2: UK downstream and upstream space industry turnover 1999/2000 - 2013/2014**



Note: 2013/14 forecast based on survey responses and analysis of annual accounts.  
 Source: London Economics analysis

The London, East of England, and the South East regions dominate space turnover, accounting for 95% of total turnover. The dominance is slightly greater in downstream turnover, where the three regions make up 95% of the total. Upstream exhibits a little more geographic dispersion, with London, East of England and South East accounting for 88% of turnover.

**Figure 0.3: Regional distribution of space industry turnover 2012/13**



Note: Based on location of UK headquarters.  
 Source: London Economics analysis

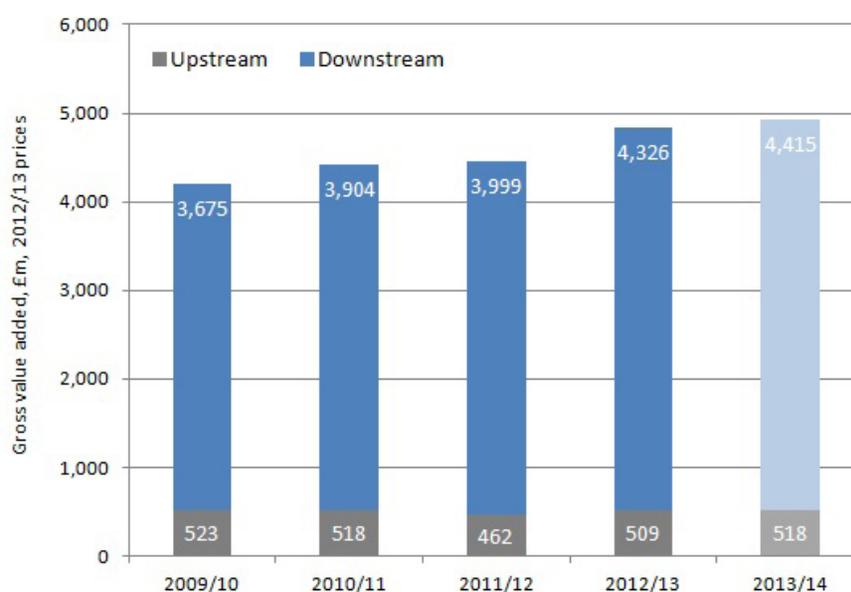
## Economic impact of the UK space industry – Value-Added

A key economic impact of any industry or company is its Gross Value-Added (GVA), which is its contribution to the national GDP. GVA is defined as turnover less the cost of intermediate goods excluding labour costs, and is equivalent to salaries and taxes paid, and profits earned.

Direct GVA of the space industry amounted to £4.8 billion in 2012/13, from a turnover of £11.3 billion. The UK space industry therefore contributes to UK GDP to a similar extent as passenger rail transport and motion picture production. The downstream sector contributes 89% of direct GVA, and has had a steady increase over the last two survey periods. The upstream sector on the other hand has exhibited more fluctuation, with growing input costs among key large firms, resulting in a real decrease of upstream GVA since 2010/11.

Comparing GVA results between this survey period and the previous survey period – strong growth in turnover, but a weaker increase in GVA (GVA of £4.4 billion from a turnover of £9.8 billion, at 2012/13 prices) – suggests that the UK space industry has experienced additional demand for its output, and has satisfied the demand by purchasing an increased share of intermediate inputs.

**Figure 0.4: UK space industry gross value added 2009/10 - 2013/14**



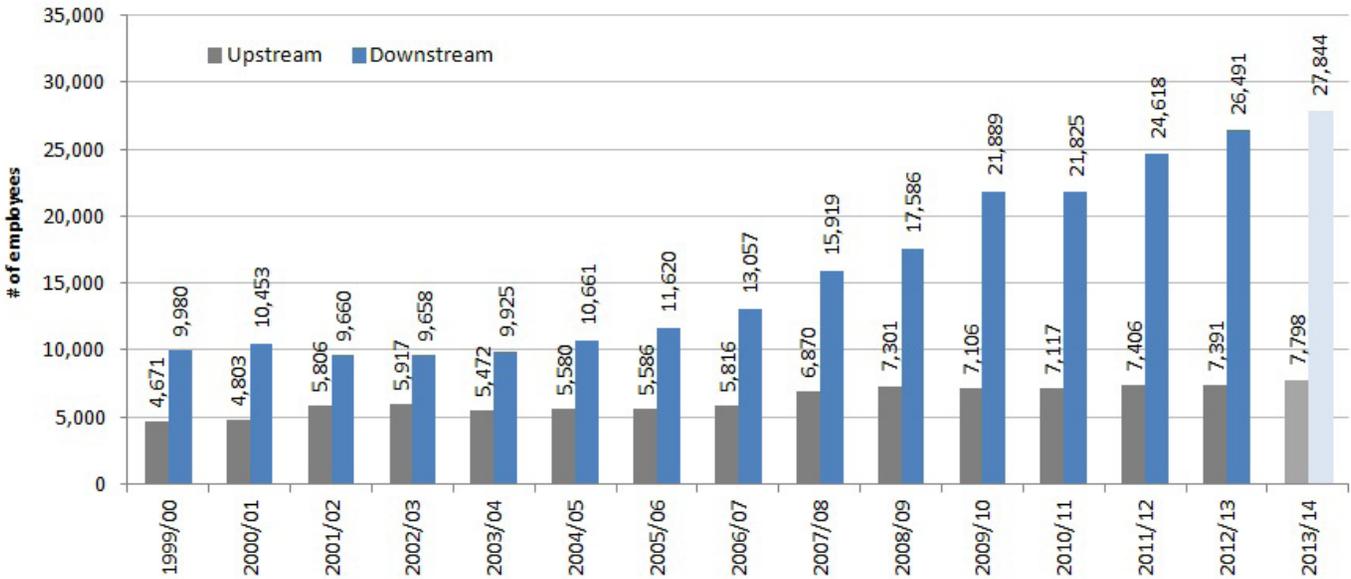
Note: 2013/14 forecast based on survey responses and analysis of annual accounts.

Source: London Economics analysis

# Economic impact of the UK space industry – Employment

Employment in the UK space industry has increased to 34,300 employees (an increase of 18.7% since 2010/11), helped by significant hiring by the largest employer (BSkyB) and the rest of the downstream sector (up by 21%). The upstream sector grew at a slower rate (4% over the period).

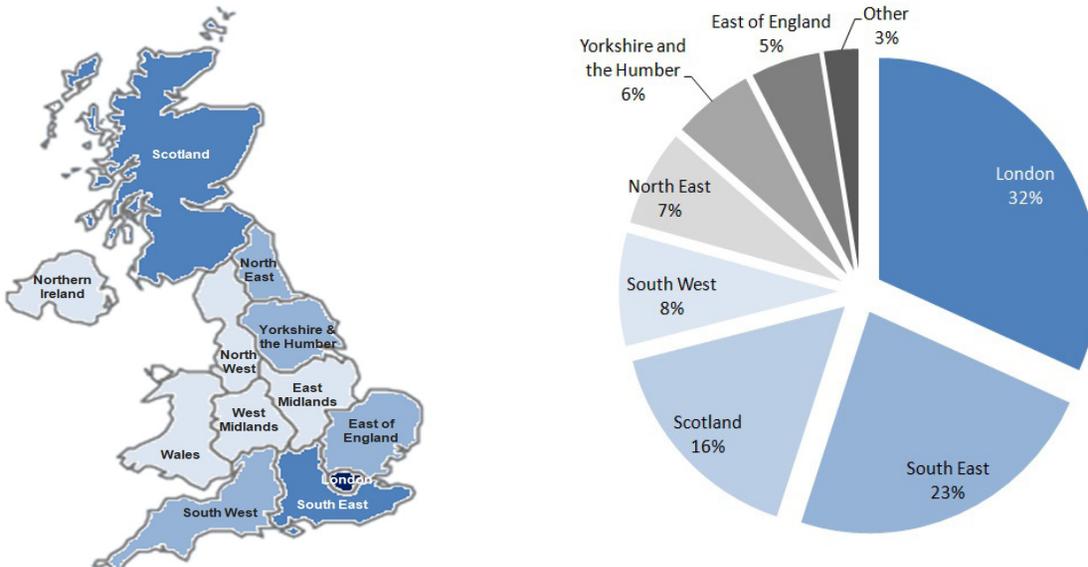
**Figure 0.5: UK downstream and upstream space industry employment 1999/2000-2013/14**



Note: The figure excludes employment levels supported by firms for which a corresponding estimate of turnover was not available, standing at approximately 400 employees. 2013/14 forecast based on survey responses and analysis of annual accounts.  
Source: London Economics analysis

The 2014 questionnaire was the first to ask respondents to indicate the split of UK employment by region. As with turnover, London and the South East dominate the majority of space employment, but unlike turnover, Scotland comes third with 16% of UK space employment in 2012/13. The difference between turnover and employment can be explained by companies tending to have headquarters in or near London, and production sites or customer support in other regions.

**Figure 0.6: Regional distribution of space employment, 2012/13**



Note: Based on regional distribution of employees across the UK as indicated by survey respondents.  
Source: London Economics analysis

## Economic impact of the UK space industry – Multiplier impact

In the analysis of Gross Value-Added, it is reasonable to include contribution beyond the direct contribution of the industry itself. Activity in the space industry requires inputs from the supply chain. For example manufacture of satellites requires intermediate inputs such as electronic subsystems, which might not be produced in the absence of space industry demand. The associated GVA of the supply chain is known as the Indirect GVA contribution of the space industry. Further to the indirect effect, employees in the space industry and supply chain spend their salaries in yet other sectors of the economy. Capturing these effects in the calculation is known as estimating the induced effects of the industry.

In total, the UK space industry contributes £10.8 billion to UK GDP through direct (£4.8bn), indirect (£3.0bn) and induced (£3.0bn) effects, equivalent to a Type II GVA multiplier of 2.2.

**Figure 0.7: The total economic impact of the UK space industry, value added 2012/13**



Source: London Economics analysis

The UK space industry also supports employment in addition to the jobs supported by firms in the industry. Intermediate inputs need people to produce them, and retail and service industries need people to do the work. It is found that the UK space industry supports 72,000 jobs through indirect and induced effects in addition to the 34,300 jobs supported by direct employment. This result is equivalent to a Type II employment multiplier of 3.1, yielding an estimated total UK-based employment supported of 106,300 jobs in 2012/13.

**Figure 0.8: The total economic impact of the UK space industry, 2012/13**

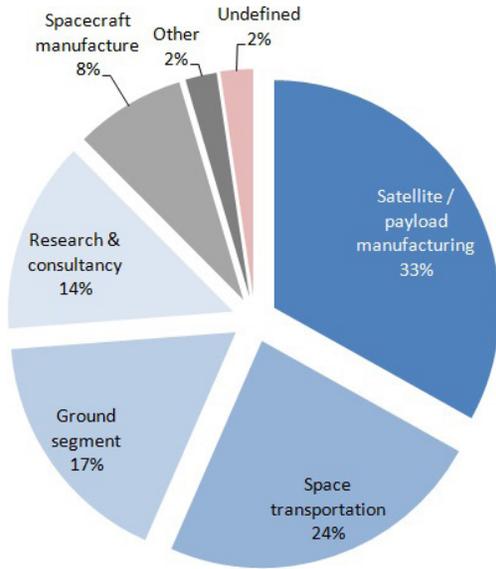


Source: London Economics analysis

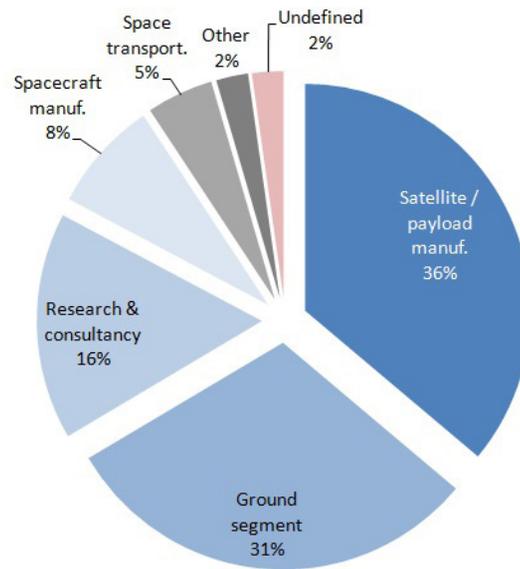
## Sub-sectors

The breakdown of employment by upstream business sector appears similar to the split of turnover by these categories, with satellite / payload manufacturing contributing the largest share of 36% of employment supported by the sector. However, key differences arise for the ground segment and space transportation subsectors. Whereas the ground segment market accounts for 17% of upstream industry turnover, the respective share of employment amounts to 31%. In the other direction, though the space transportation subsector accrues 24% of upstream turnover, only 5% of upstream jobs are supported by space transportation (such a ratio is consistent with launch service provision and brokerage).

**Figure 0.9: Upstream sector turnover by sub-sector, 2012/13**



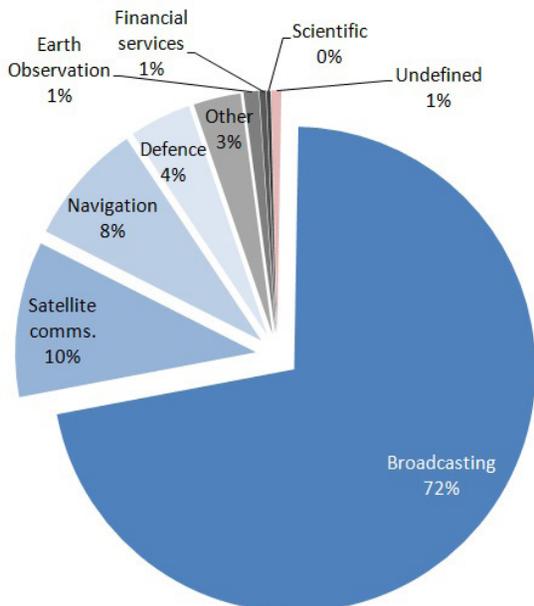
**Figure 0.10: Upstream sector employment by sub-sector, 2012/13**



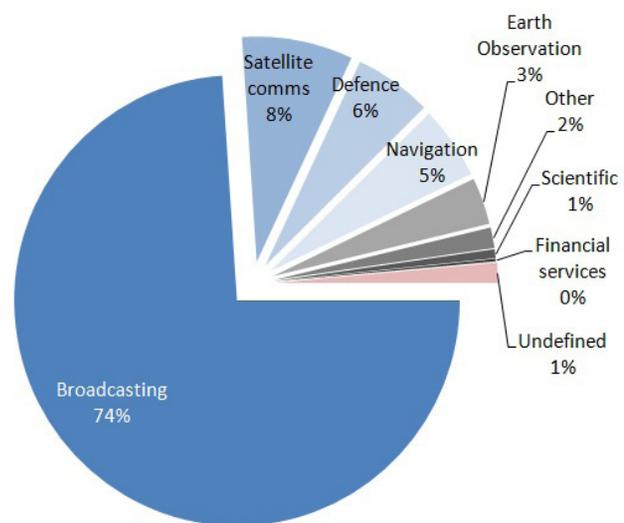
Source: London Economics analysis

Downstream employment similarly aligns with the distribution of turnover across downstream subsectors, and continues to be dominated by broadcasting, even more so in 2012/13 than in 2010/11, with broadcasting’s share increasing from 65% to 74% over the period. The growth in downstream employment is linked with BSkyB’s staff expansion, adding 1,200 customer-facing staff to its workforce in 2012 alone<sup>4</sup>. The second and third largest employment shares are supported by the satellite communications (8%) and defence subsectors (6%).

**Figure 0.11: Downstream sector turnover by business category, 2012/13**



**Figure 0.12: Downstream sector employment by business category, 2012/13**



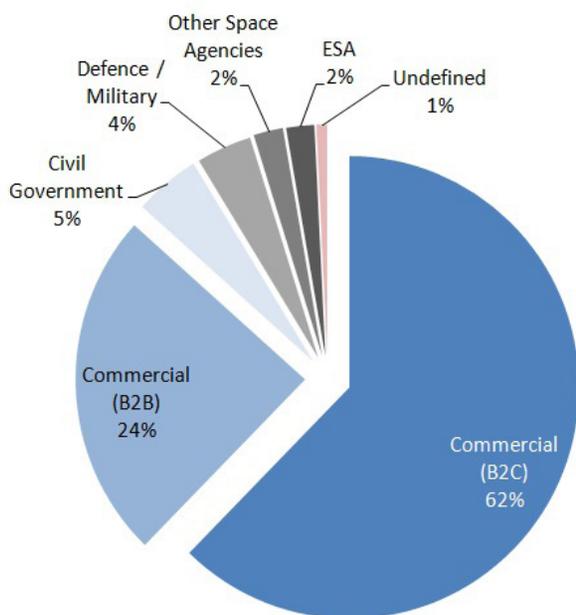
Note: Satellite communications include communications other than broadcasting, such as telecommunications and Internet.  
Source: London Economics analysis

<sup>4</sup> British Sky Broadcasting Group Plc (2012) Annual Review 2012, available at: [http://annualreview2012.sky.com/\\_assets/downloads/pdfs/Sky\\_Annual\\_Review\\_2012.pdf](http://annualreview2012.sky.com/_assets/downloads/pdfs/Sky_Annual_Review_2012.pdf)

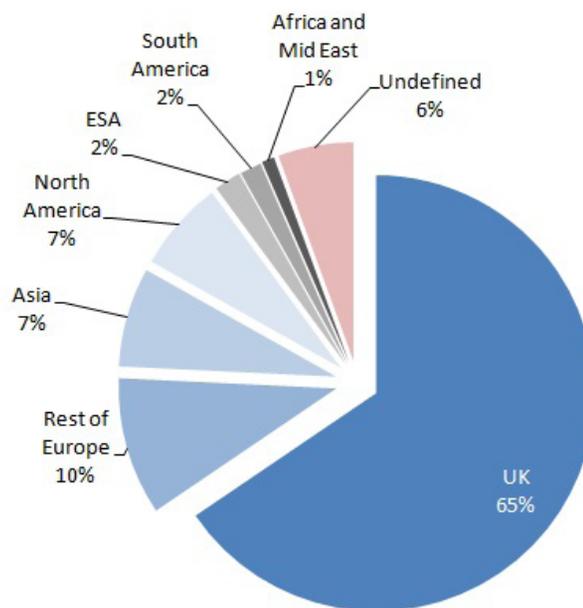
## Customers

In 2012/13, business-to-consumer (B2C) sales accounted for 62% of total sales from the space industry, with sales to businesses (B2B) representing 24% of sales. These proportions have remained almost constant since 2010/11, and total turnover generated from B2C and B2B customers has increased from £8.3 billion in 2010/11 to £9.8 billion in 2012/13, which equates to a real compound annual growth rate of 8.7%. Commercial sales to consumers and businesses are concentrated in the broadcasting application and to lesser extent in the satellite communications application.

**Figure 0.13: Market share by customer type, 2012/13**



**Figure 0.14: Market share by customer location, 2012/13**



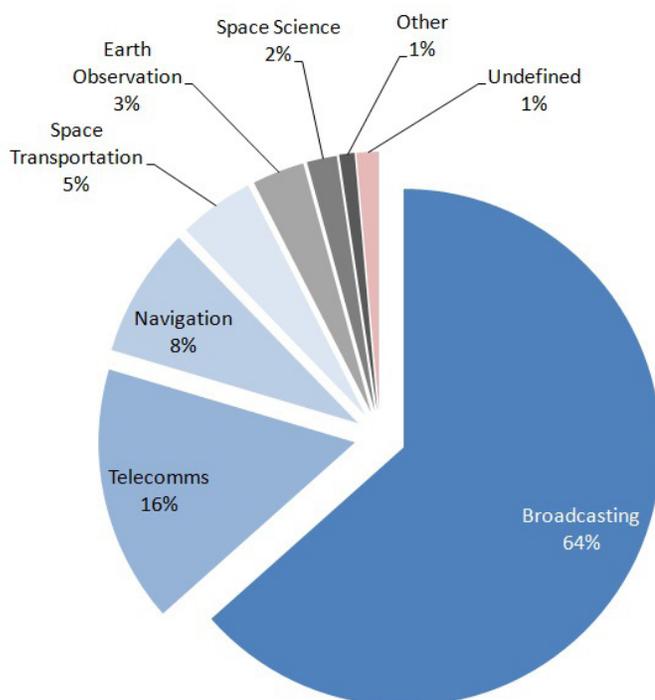
Source: London Economics analysis

The UK remains the key market for the UK space industry, with 65% of turnover coming from domestic customers, but this share is falling. The composition of customer location is changing, with the corresponding share in 2010/11 being 78%. The value of UK sales has grown in real terms, so the decreased share is actually being driven by growth in export sales. Turnover generated from Asian customers has doubled since 2010/11, sales in Europe outside the UK have grown by 50% and sales to the Americas grew by 11%. Only sales to Africa and the Middle East have experienced a minor decrease (less than 1% since 2010/11).

## Applications

The largest application in terms of revenue remains broadcasting, as has been the case for the last 5 issues of the study. Telecommunications has decreased in real value terms, but remains the second largest application. Navigation has increased by a factor of three since 2010/11 and now generates 8% of total turnover, while space transportation has increased even faster and represents around 5% of turnover, thus exceeding the turnover generated in Earth Observation. With a UK Spaceport planned for 2018, this growth is encouraging.

**Figure 0.15: UK Space turnover by application, 2012/13**

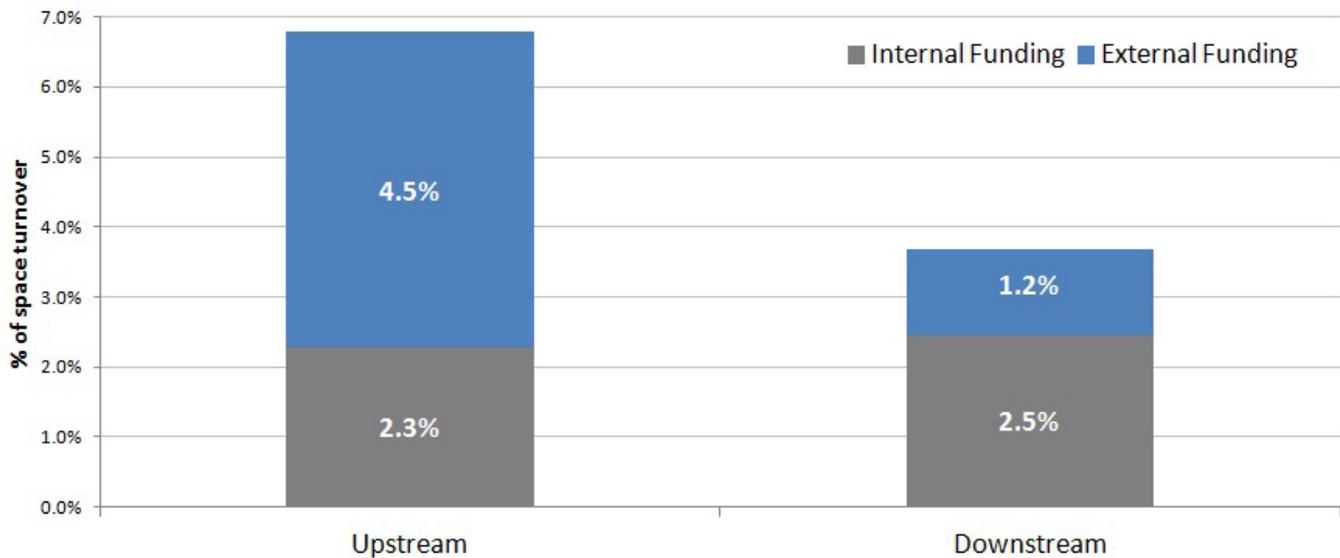


Source: London Economics analysis

## Research and Development

R&D investment in the downstream segment is increasing. Following difficult years of financial and economic challenges, the results suggest that the levels reported in the 2008 edition of the study could return. In 2012/13, an equivalent of 3.7% of the downstream sector's turnover was invested in research and development activities, up from 0.8% in 2010/11. The upstream segment exhibits a higher R&D intensity but a different trend: the proportion of upstream turnover invested in R&D activities has been falling over time, from nearly 15% in 2006, to 5.2% of turnover in 2012. However, upstream R&D intensity recovered to 6.8% in 2012/13, albeit with a slightly lower 2.3% of turnover funded from internal sources (was 3.3% in 2010/11).

With the equivalent of 9.3% of direct GVA in the industry invested in Research and Development, the UK space industry compares favourably to key economic sectors such as telecommunications and computer programming/information services (3.4% and 4.1%, respectively). However, the much larger motor vehicles and parts sector and pharmaceuticals invest greater proportions of GVA than the space sector with 16.2% and 60.7%, respectively.

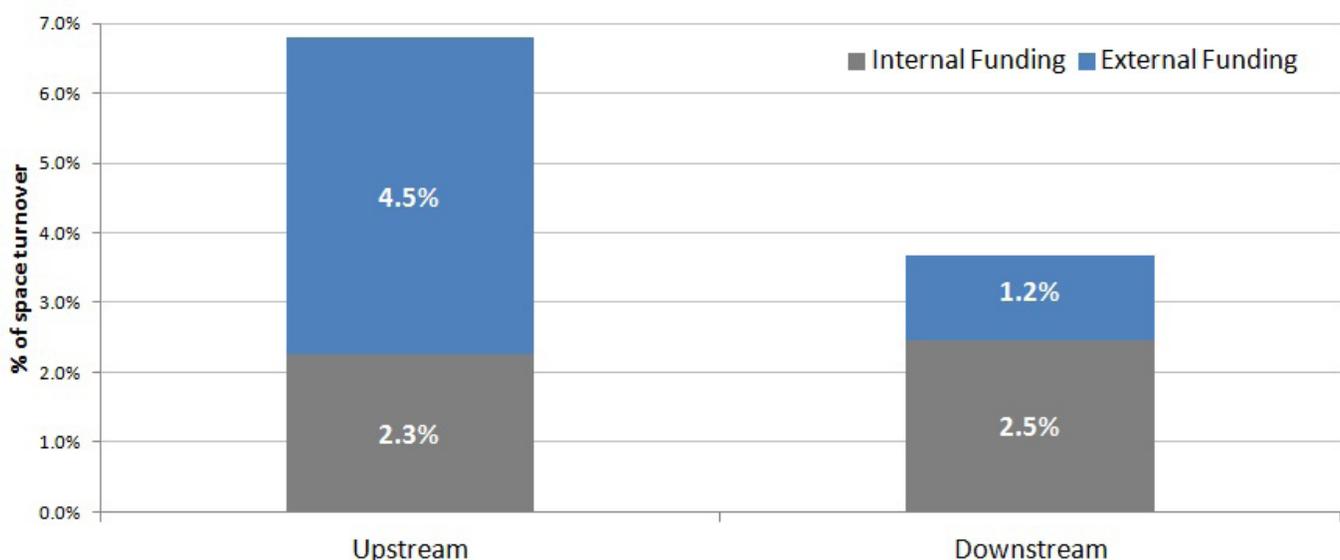
**Figure 0.16: UK Space research and development expenditure, 2012/13**

Source: London Economics analysis

## Beyond 2014

Looking towards the future, survey respondents reported experience of barriers to growth and, on balance, cautiously optimistic expectations for future growth over the next three years:

- **Barriers to growth** were encountered by 70% of survey respondents in the last two years: Large organisations have experienced a lack of demand, while small organisations have difficulty accessing working capital and investment capital.
- **Small organisations have very optimistic outlooks**, with 79% of all respondents expecting performance in the next three years to be greater than the previous three years. These organisations do, however, only account for 64% of space turnover.

**Figure 0.17: Growth prospects 2014-2017**

Note: 79 respondents out of 111 space industry respondents, accounting for £1,538 million turnover in 2012/13.

Source: London Economics analysis

## The wider space economy

An innovation on previous studies of the Size and Health of the UK Space Industry has been the extension of scope to cover the 'space economy', including the manufacturers, operators and providers of space-based services in the 'space industry', but also the commercial consumers of these services which use space-enabled technologies (e.g. satellite navigation, satellite imagery, mapping, meteorological forecasts, satellite broadband, satellite broadcasting content providers) in their operations, research and/or service provision in the UK.

The wider space economy contains two general types of entities: professional entities that employ space services to enable or enhance their own offerings; and users of space services whose productivity is improved as a result of space services.

In the attempt to engage the wider space economy and quantify its size, 228 companies were invited to participate in the survey. However, despite targeted invitations, just 12 companies participated, so supplementary analysis was undertaken of company accounts, finding that:

- Space services support various activities ranging from disaster relief, telemedicine, navigation of leisure craft, to broadcast of entertainment programming and sports.
- Earth observation enables or significantly enhances delivery of products and services among half the respondents to the survey question, implying existence of a significant community applying the service.
- Satellite navigation enables a smaller proportion of survey respondents, but does enable a large community of smartphone app developers, providing benefit to end-user consumers.
- The wider space economy comprises companies in multi-billion pound industries, with space-enabled revenue conservatively estimated as upwards of £1.5 billion. Additional benefits in terms of cost savings have not been monetised.

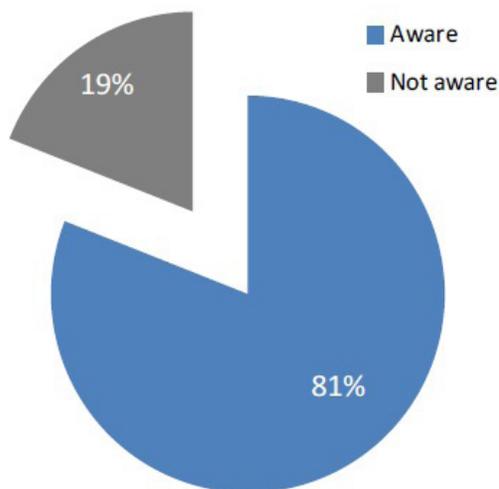
## Performance of the UK Space Agency

**81% of respondents are aware** of the UK Space Agency's growth promotion activities. Among larger (medium-sized SMEs and large) organisations, this number increases to 85%, and in the downstream the proportion is 87%.

**The UK Space Agency's ability to target high growth opportunities** is confirmed by 89% of respondents, with 52% respondents rating performance as 'good' or 'very good'. Small organisations' ratings exhibit a broad range of opinions, with 18% saying the UKSA's ability at targeting opportunities is 'very good', and 4% saying 'very poor'.

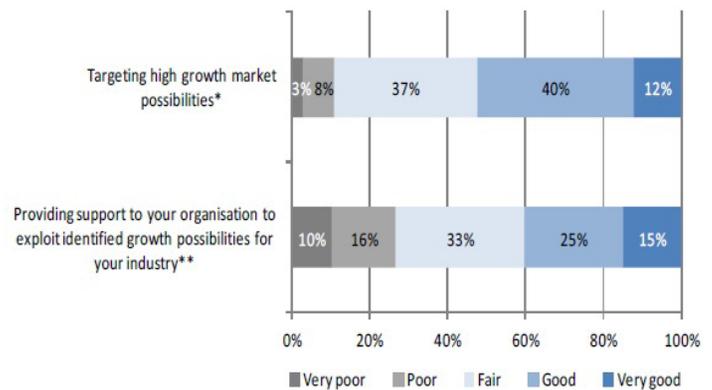
**73% of respondents approve the UK Space Agency's ability to provide support** in exploiting growth opportunities and 40% rate performance as 'good' or 'very good'. Among small enterprises, however, 35% of respondents say support is 'bad' or 'very bad'.

**Figure 0.18: Awareness of UK Space Agency’s growth promotion activities**



Note: 84 respondents.

**Figure 0.19: Performance of the UK Space Agency in delivering growth in delivering growth**



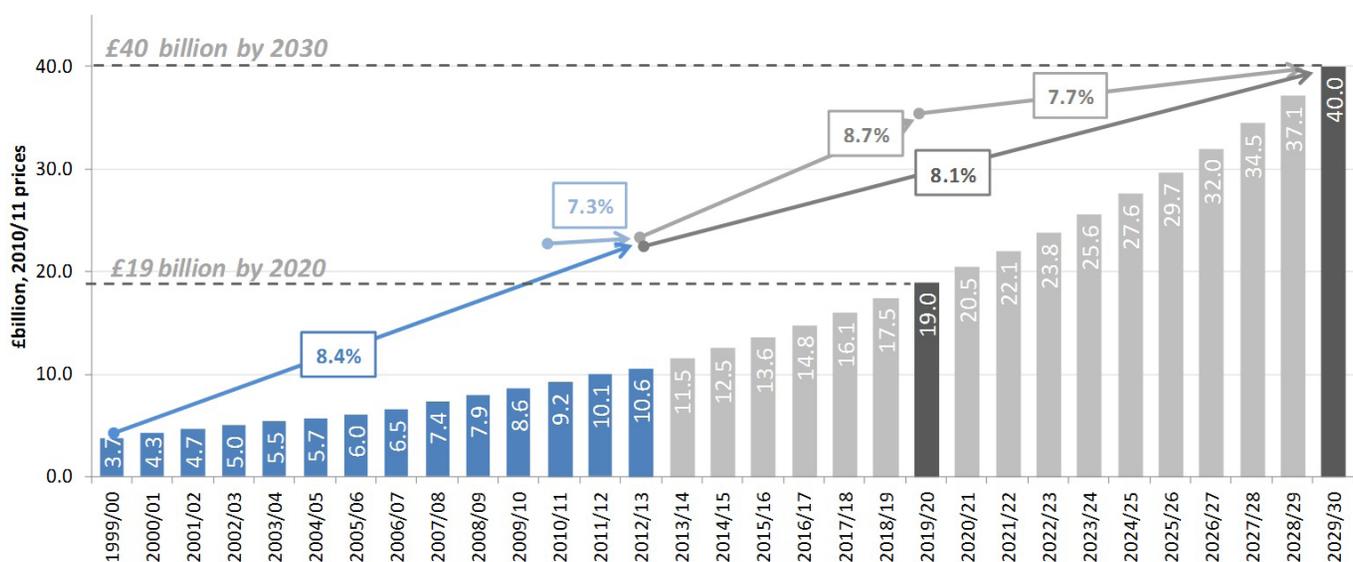
Note: \* 65 respondents. \*\* 67 respondents

Source: London Economics analysis

## Towards the Space Growth Action Plan objectives

The study further analysed the current position and considered the future growth path required to achieve the government’s objectives, as set out in the Space Innovation and Growth Strategy 2014-30 and the Space Growth Action Plan, in the context of actual historical growth rates. The conclusion is that a continuation of historical growth trends would be sufficient to reach the target of 10% of the global space economy in 2030, as shown in Figure 0.20.

**Figure 0.20: Space Growth Action Plan targets**



Note: Arrows indicate compound annual growth rates of UK space industry. Figure does not include forecasted turnover for the 2013/14 financial year, but instead presents values required to achieve the target of £19 billion by 2019/20 (based on a compound annual growth rate of 8.7% from 2012/13 to 2019/20). All values are in 2010/11 prices, the base year of the Space Growth Action Plan.

Source: London Economics analysis and Space Innovation and Growth Strategy Steering Board (2013)

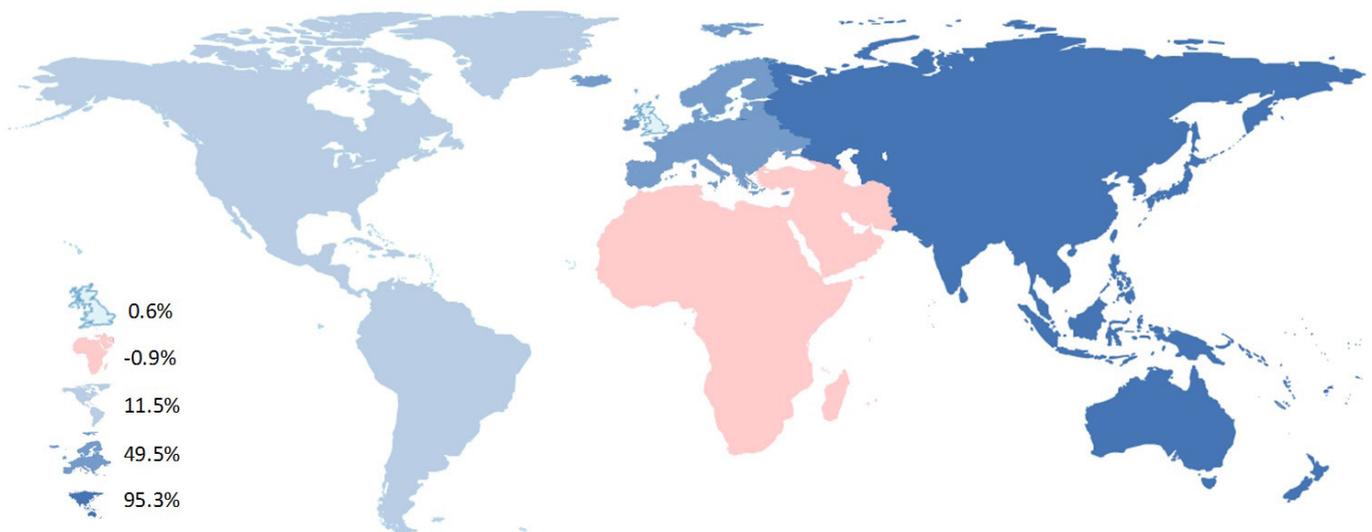
While the UK space industry’s revenue experienced average real growth of 8.4%<sup>5</sup> between 1999/2000 and 2012/13, growth over the past two years has slowed to 7.3%. In comparison, to achieve the interim objective set by the Space Growth Action Plan for 2020, industry turnover will need to grow by an average of 8.7% per year, to increase from £10.6 billion in 2012/13 (in 2010/11 prices) to the targeted £19 billion in 2019/20. In light of lower historical growth trends particularly since 2010/11, the timeframe set for the interim objective thus appears a challenging target, and would necessitate a significant acceleration in revenue growth over the next six years.

In contrast, the UK space industry looks more likely to achieve its long-term target of £40 billion of total revenue by 2030. To realise this objective, UK space sector turnover would have to increase at an average of 8.1% per year, i.e. 0.3 percentage points lower than actual growth observed between 1999/2000 and 2012/13. Hence, though short-run average growth between 2010/11 and 2012/13 implies that the interim target for 2019 will be relatively difficult to achieve, the long-term growth trend exhibited by the UK space industry appears sufficiently strong for the industry to reach 10% of the global space sector by 2029/30.

However, the target is unlikely to be achieved by the current space industry members alone as broadcasting is unlikely to be able to deliver the growth needed. Some of the current applications, on the other hand, space transportation and satellite navigation, could deliver growth over and above the required rate to 2030. In all likelihood, however, the space industry needs to expand into new markets in terms of applications to realise the targets. Some of the High Growth Markets identified in the Space Growth Action Plan are already being exploited, with many firms already active in the market for ubiquitous M2M<sup>6</sup> and smart cities. The optimistic growth expectations of smaller companies also suggest that they could be an important engine for long-term growth.

New geographical markets could represent another channel towards success for the space industry, with the current survey returning considerable growth in export intensity. As Figure 0.21 shows, the space industry’s sales to foreign customers have grown in most regions and sustained growth rates that will help to reach the target.

**Figure 0.21: Real growth rate of turnover by customer location**



Source: London Economics analysis

<sup>5</sup> Compound average growth rate per year.

<sup>6</sup> Machine-to-Machine, and the associated Internet of Things.







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An executive agency of the Department for Business, Innovation and Skills

## Vale of White Horse Local Plan Examination

### Informal Response Note to East Hendred Parish Council

This informal note responds to queries raised by Roger Turnbull of East Hendred Parish Council during Stage 1 of the Examination through an email dated 28<sup>th</sup> September 2015. It seeks to provide information where it is readily available in the interests of being transparent. GL Hearn and Justin Gardner Consulting have prepared the demographic projections in the Oxfordshire SHMA (HOU.01).

#### 1. Adjustments to the CLG Population Projection

ONS publishes official population projections (rather than CLG). At the time at which the Oxfordshire SHMA was prepared, the 2012-based Sub-National Population Projections (SNPP) were not published and the latest official population projections were thus the 2011-based Interim SNPP which ran to 2021. Their interim status means that they were not official statistics, not least as they were based on pre-Census estimates of components of population change. They projected population only to 2021.

#### *Migration*

The table below shows the average migration assumptions over the 2011-31 period from:

- The ONS 2011 and 2010-based SNPP;
- The SHMA demographic-led projections; and
- ONS 2012-based SNPP, taking account of figures from actual MYE data for 2012-14.

All figures are average migration in the 2011-31 period. All three projections are based on demographic trends, albeit that take account of trends over different time periods and pre/post Census data.

	2011/10 SNPP	SHMA As adjusted	2012-based SNPP
<b>Internal in-</b>	7,705	7,449	7,440
<b>Internal out-</b>	7,676	7,317	7,222
<b>Internal net</b>	29	131	218
<b>International in-</b>	1,048	934	738
<b>International out-</b>	708	633	553
<b>International net-</b>	340	301	185
<b>TOTAL net</b>	368	432	403

#### *Unattributable Population Change*

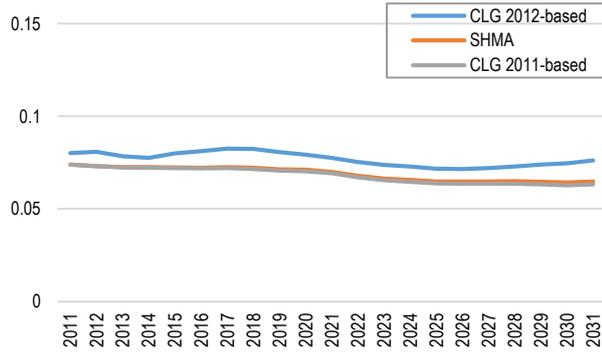
The table outlines the 2010/11 CLG Population Projection and 2012 CLG Population Projections. The projections for migration (international and domestic) in each set of projections is as shown in the table. The projections for migration in the 'SHMA as adjusted' column have taken account of UPC. This is used in the methodology employed to quantify the starting point estimate of migration for the projections – rather specific quantified adjustments made to year-on-year changes.

#### *Household Formation Rates*

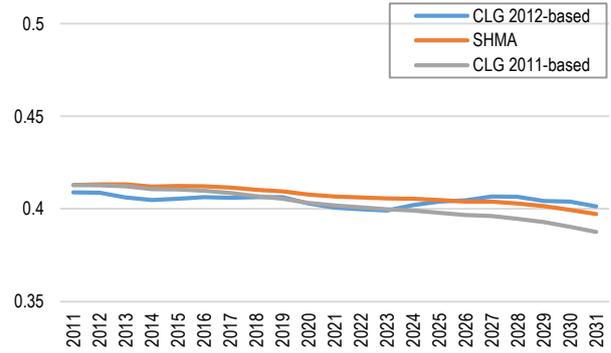
The figure below shows the household formation rates in the SHMA and the 2012-based CLG household projections for the 2011-31 period. It should be noted that to allow for consistency both sets of figures are calculated as the number of households divided by the total population and figures do therefore include the institutional population.

## Projected household formation rates by age of head of household – VoWH

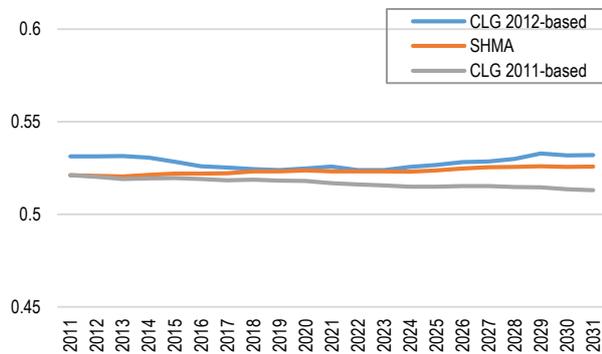
**15-24**



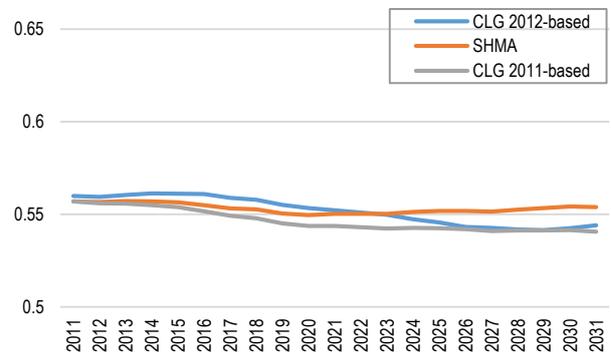
**25-34**



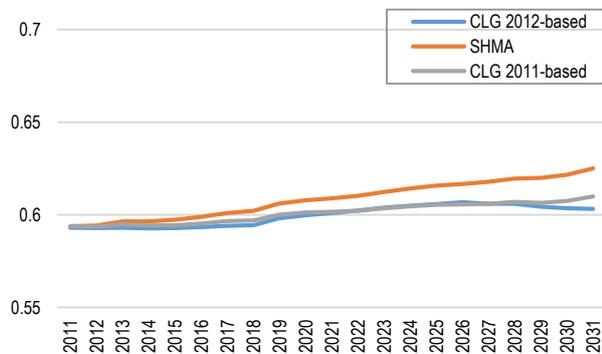
**35-44**



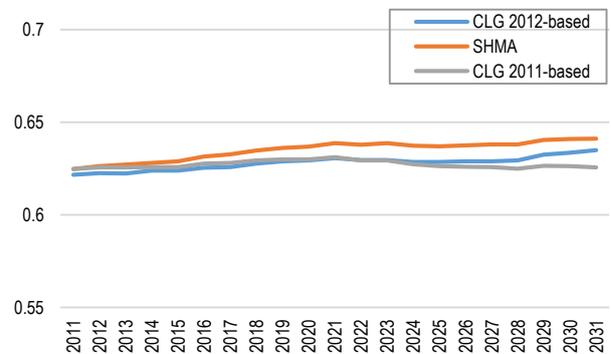
**45-54**



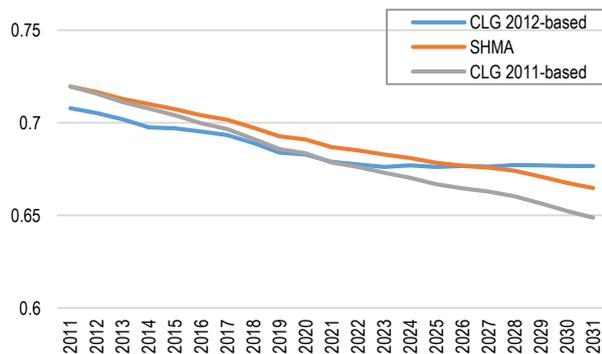
**55-64**



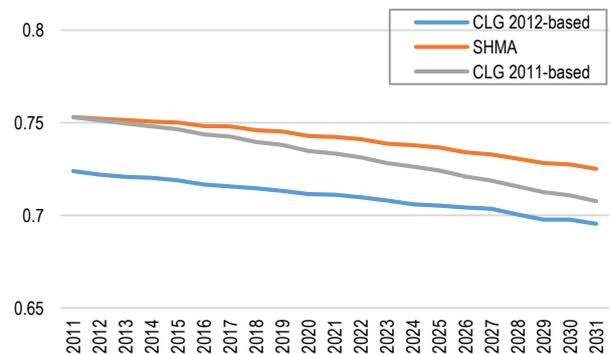
**65-74**



**75-84**



**85 and over**



Source: Derived from CLG data

## 2. Effect of a 2014 Start Date for Economic Growth Adjustments

The latest economic forecasts prepared are those by Cambridge Econometrics/SQW as set out in ECO02. The Implications of 2012-based Household Projections on Housing Need in the Vale of White Horse District Council Document (HOU10) has updated the modelling to take account of the latest information (2014 Mid-Year Population Estimates; the 2012-based SNPP; and the CLG 2012-based Household Projections). The data suggests an estimated growth in residents in employment of 978 persons between 2011-14.

The modelling in HOU10 then, in effect, adjusts migration over the 2014-31 period to support growth in the resident workforce of 23,328 persons over the plan period (2011-31). This is based on the expected economic growth and calculated as follows:

### Calculating Expected Growth of Residents in Employment

Factor		Source	
<b>A</b>	Change in Employment, 2011-31	22,982	CE Economic Forecasts
<b>B</b>	% With More than One Job	4.2%	Annual Population Survey
<b>C</b>	Ratio Job Change to People	95.8%	Calculated from Annual Population Survey
<b>D</b>	Change in People in Employment in VOWH, 2011-31	22,012	A*C
<b>E</b>	Total working in VOWH	62,746	Census 2011
<b>F</b>	Total living in VOWH (and working)	63,646	Census 2011
<b>G</b>	Commuting ratio	1.01	Calculated from Census 2011
<b>H</b>	Expected Growth in VOWH Residents in Employment, 2011-31	22,328	D*G

Taking account of the 978 growth in residents in employment between 2011-14, the modelling assumed growth in the resident workforce of 21,350 between 2014-31.

This results in a housing need for 1,001 homes per annum (over the 2011-31 period as a whole) based on headship rates in the 2012-based Household Projection.