



The Size and Health of the UK Space Industry

A Report for the UK Space Agency

Executive Summary
November 2010



UK SPACE
AGENCY



Artist's impression of HYLAS
Credit: Avanti

Contents

Executive Summary	2
Introduction.....	2
Size of the Industry.....	3
Economic Impact of the UK Space Industry – Value Added.....	3
Economic Impact of the UK Space Industry – Employment	4
Economic Impact of the UK Space Industry – Multiplier Impact	6
Business Categories	6
Customers	9
Applications	10
Research and Development.....	10
Estimates for 2009/10	11

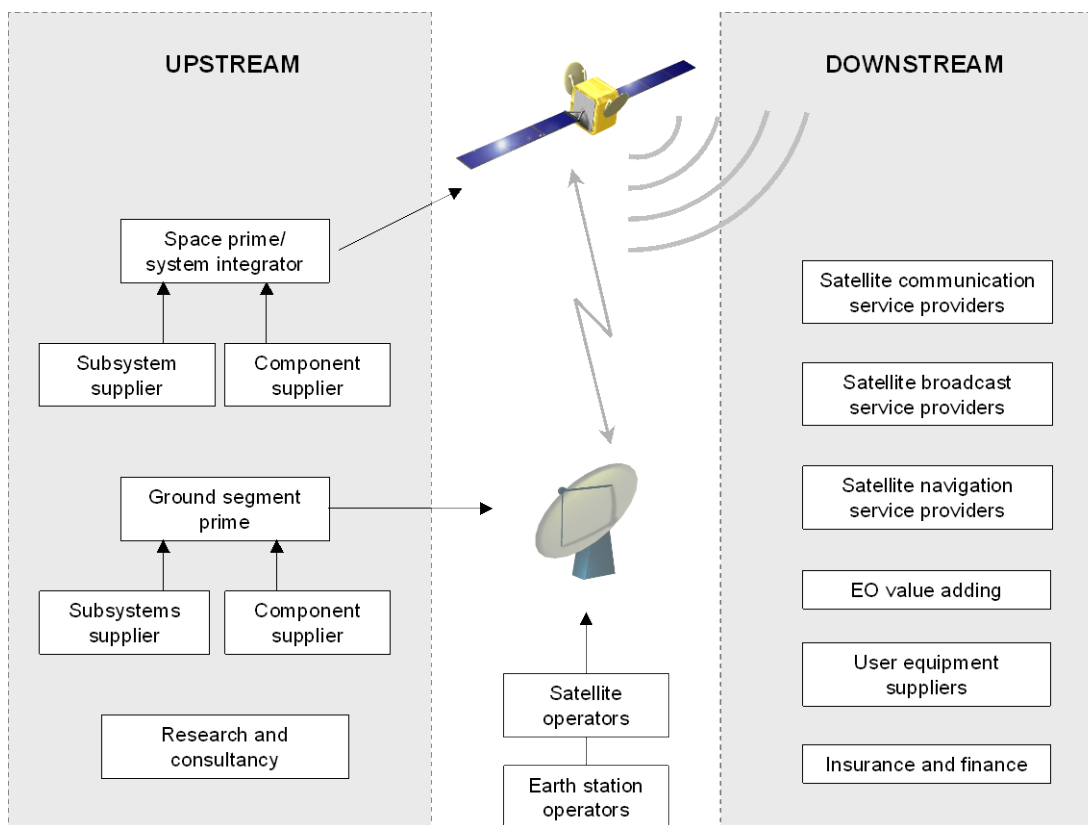
Executive Summary

Introduction

The biennial Size and Health survey is a key barometer of the performance of the UK's space sector. The UK Space Agency contracted Oxford Economics, a leading economics consultancy, to conduct the 2010 Update of the Size and Health survey; this document presents an executive summary of the findings derived from the survey responses covering the years 2007/08 and 2008/09.

This edition of the survey invited over 260 companies to participate, selected through their involvement in previous surveys and their inclusion in the recently-released *2010/11 UK Space Directory*. The range of business activities captured within the survey encompassed both the upstream (providers of space technology) and downstream (users of space technology) space sectors, with respondents ranging from sole-traders to large multinationals with multi-million pound turnovers.

Figure 1 Definition of the UK space sector



The 2010 edition of the survey is especially important given the recent economic challenges faced by the UK and the global economy. The findings of the survey provide a crucial insight into how the sector fared, including identifying which areas experienced consolidation or contraction during the recession, as well as highlighting those areas which bucked the overall trend to record growth over the survey period. Encouragingly 29 respondents were not included in previous editions of the survey, suggesting that these companies were newcomers into the sector.

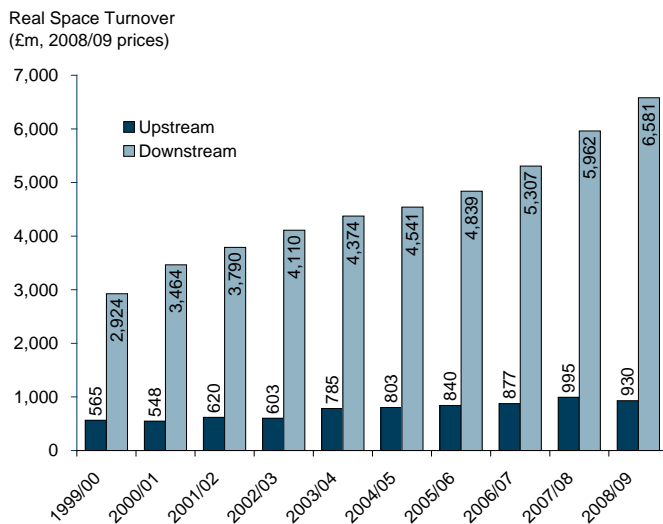
The list of questions included in the survey was extended in 2010 to capture detailed information on the purchases made by those companies involved in the UK space industry. By gathering data on the spending by space companies on non-space inputs, sourced both domestically and from abroad, the study was able to compute an accurate valuation of the space industry's contribution to GDP and the total economic impact of the space industry on the UK.

Size of the Industry

Together the 260 companies actively involved in the UK space industry recorded a total space-related turnover of over £7.5 billion in 2008/09, of which the upstream sector accounted for £930 million and the downstream for £6.6 billion. This represented a real growth of 8% between 2007/08 and 2008/09, and by 21% since 2006/07 (the year covered by the previous survey) – an average annual growth rate¹ of 10.2%. Together these growth rates suggest that the UK space industry has performed extremely well in difficult economic circumstances. In fact, the industry’s performance over the two years considered in this edition of the survey recorded a higher average annual growth rate than that for the decade since 1999 (10.2% against 8.9% for the last decade). However, as Chart 1 shows, this story is not consistent across the whole space industry in the UK, with 2007/08 being a particularly successful year for the upstream sector.

Chart 1 UK downstream and upstream space industry turnover 1999/2000-2008/09

The strong growth experienced by the industry since 2006/07 has been driven by growth in the downstream



sector, which reported real growth of 24%, an average annual growth of 11.4%, between 2006/07 and 2008/09. By comparison the upstream sector faced a more difficult sales climate and experienced a real decline in turnover in 2008/09 against exceptionally high turnover figures in 2007/08. However, over the period 2006/07 to 2008/09 the upstream sector recorded an average annual growth of 3% compared to economy wide GDP which grew by 0.3% over the same period².

Economic Impact of the UK Space Industry – Value-added

While turnover provides a good indication of the size of an industry, the value-added (defined as turnover less all input costs) an industry creates provides an indication of the impact of the space industry on the UK economy. A detailed value-added analysis is a new addition for the 2010 survey.

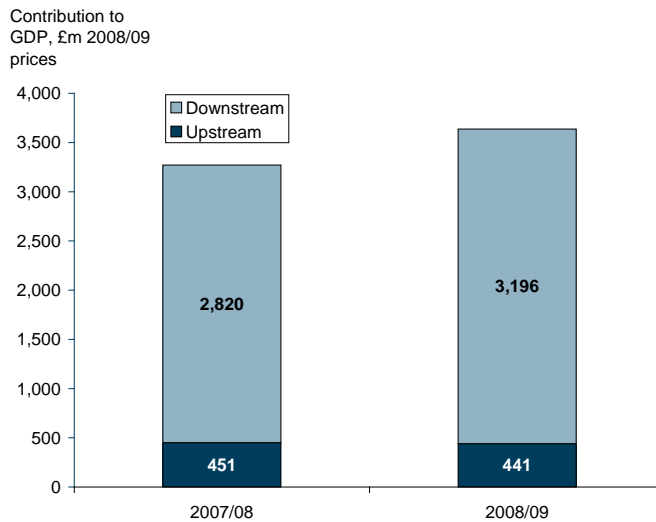
From a turnover of £7.5 billion in 2008/09, the UK space industry made a value-added contribution to UK GDP of £3.6 billion. This represents a growth of 15% in nominal terms and real (adjusted for inflation) growth of 11% from 2007/08.

¹ Computed as the compound average growth rate.

² Source: Office for National Statistics.

As Chart 2 shows, the majority (88%) of space value-added was generated by the downstream sector which has grown rapidly (real growth of 13.3% from 2007/08 to 2008/09). The upstream sector saw a small real decline in value-added of 2.3% from the high turnover and value-added levels in 2007/08.

Chart 2 UK space industry gross value-added, 2007/08-2008/09



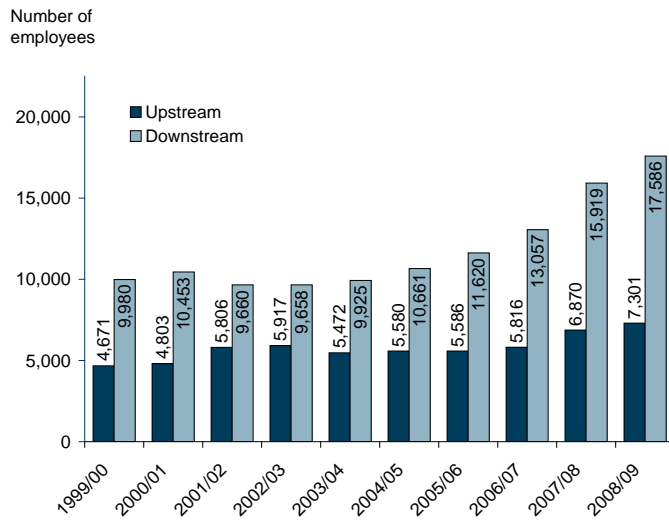
Economic Impact of the UK Space Industry – Employment

Employment in the space industry has grown rapidly since the previous survey, with an average annual growth rate of almost 15% between 2006/07 and 2008/09, to reach 24,900 in 2008/09. This compares extremely favourably against the average annual growth rate of 6% recorded since 1999/2000 (Chart 3).

As expected the downstream sector dominates employment, accounting for 17,600 jobs in 2008/09. However, employment growth has been strong in both the upstream and downstream sectors. The larger downstream saw employment grow at an average annual rate of 16% between 2006/07 and 2008/09, while upstream employment grew at an average of 12% per year – still an extremely impressive growth rate.

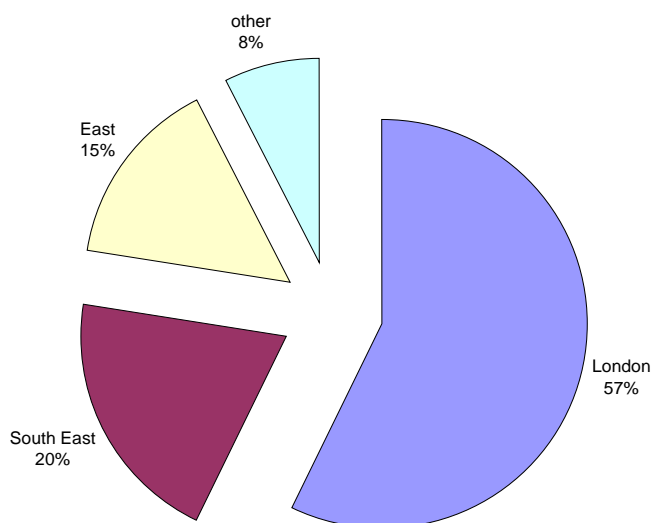
Survey responses indicate that the industry's workforce is highly skilled, with over 70% of employees holding at least a first degree, with a sizable proportion of firms offering at least one form of training for employees. Although, some skills gaps were reported by survey respondents, the UK space industry is truly a highly-skilled industry.

Chart 3 UK downstream and upstream space industry employment 1999/2000-2008/09



The locations of the companies that responded were noted and the companies assigned regionally in the UK to give an indication of where the work is undertaken. This is potentially misleading for companies that have a number of offices and plants across the country, but in practice the main companies in the field tend to be based in the South East of England which dominates the numbers. The distribution of space industry employment is highly concentrated, with the UK's South East corner accounting for 92% of employment in 2008/09. The Greater London region contains 57% of UK space employment, with the South East accounting for a further 20% and the East 15% (Chart 4). Space employment outside of the South East corner is concentrated in the South West and East Midlands, which together hold 6% of total space employment.

Chart 4 Regional distribution of space employment, 2008/09



Economic Impact of the UK Space Industry – Multiplier impact

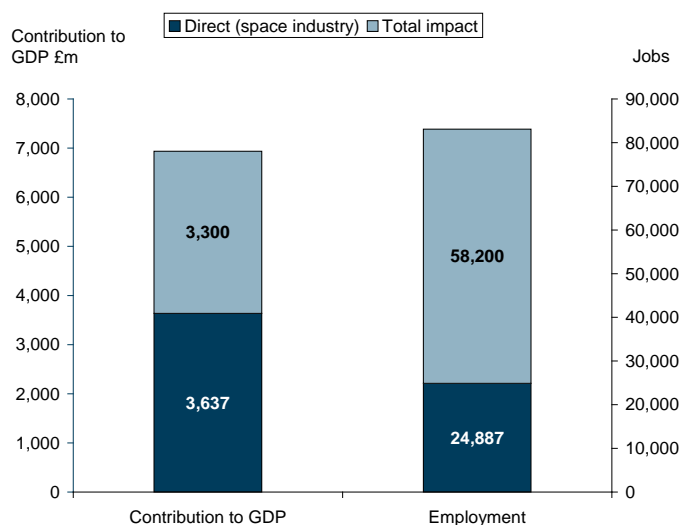
The space industry has a greater impact on the UK economy than simply the activity and jobs in those companies directly part of the industry. Both upstream and downstream companies source goods and services from UK-based companies outside the space industry thereby generating activity in the rest of the economy (known as the “indirect impact”). Further, the individuals employed in the space industry and its suppliers spend their earnings in the UK, stimulating additional economic activity (the “induced impact”). Together these impacts are known as the industry’s multiplier impact.

The 2010 survey was the first to ask detailed questions on company spending on non-space UK inputs, which enabled accurate value-added and employment multipliers to be calculated for the industry.

Using the survey responses, the space industry’s value-added multiplier has been estimated to be 1.91. This means that industry’s direct value-added contribution to GDP of £3.6 billion in 2008/09 results in an additional GDP contribution of £3.3 billion through the multiplier impact. In total, the industry’s value-added contribution to UK GDP in 2008/09 was estimated to be £6.9 billion (Chart 5).

Similarly, the employment multiplier for the UK space industry is estimated at 3.34. This means that the total UK-based employment supported by the UK space industry was estimated to be 83,000 in 2008/09.

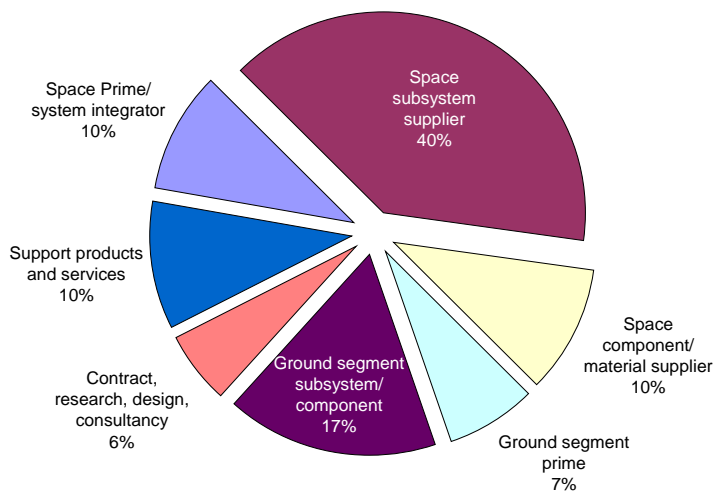
Chart 5 The total economic impact of the UK space industry, 2008/09



Business Categories

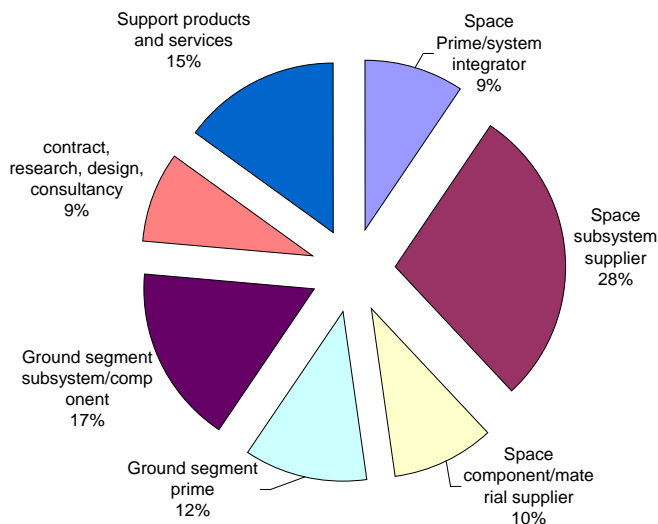
Responses to the 2010 survey have highlighted that there was a significant shift in the composition of the upstream sector since the previous survey. In the 2008 survey, the Space Prime / System Integrator business category was responsible for the largest share of upstream turnover, accounting for 35% of the total. However, as Chart 6 demonstrates the Space Prime category accounted for around 10% of total revenue in 2008/09. Replacing Space Prime as the largest upstream business category is the Space Subsystem Supplier subsector, which has grown to account for 40% of total upstream turnover in 2008/09, up from 22% in 2006/07.

Chart 6 Upstream sector turnover by business category, 2008/09



The movement from Space Prime to Space Subsystems witnessed in the 2010 survey responses was reported in the previous survey, with the indication that the UK upstream sector was increasing its emphasis on the provision of payload subsystems, rather than complete spacecraft. The results of the 2010 survey suggest that the pace in this shift in emphasis has increased over the current survey period.

Chart 7 Upstream sector employment by business category, 2008/09



A similar pattern can be seen for upstream employment by business category. However, the share of employment accounted for by Space Subsystems has not increased by the same scale as seen in turnover terms (increasing from a 20% share in 2006/07 to 28% in 2008/09). Noticeable differences between turnover shares and employment shares are also recorded for Ground Segment Prime – a turnover share of 7% and an employment share of 12% – and Support Products and Services – turnover 10%, employment 15%.

The downstream sector, whose strong growth boosted space industry performance, continues to be dominated by the Satellite Broadcast Provider subsector (Chart 8); once again this was driven by Direct to Home satellite television. The relative shares recorded by all downstream subsectors in the 2010 survey were very close to those reported in the previous survey. The largest increase in share was 2 percentage points, recorded by the User Equipment Supplier subsector; no business areas saw its share fall by more than 1 percentage point.

Chart 8 Downstream sector turnover by business category, 2008/09

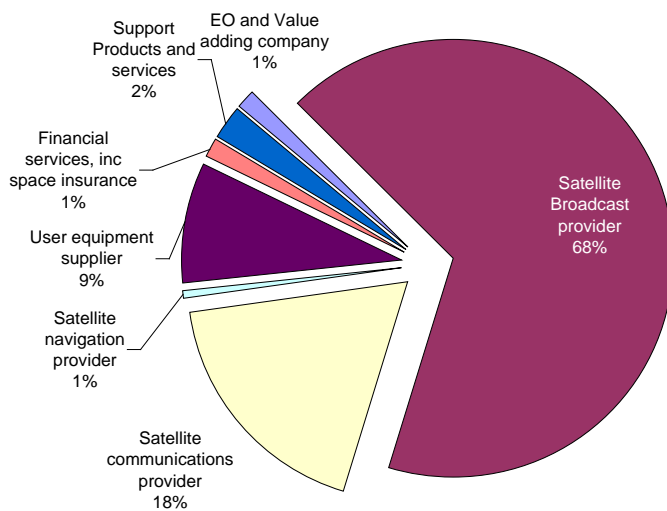
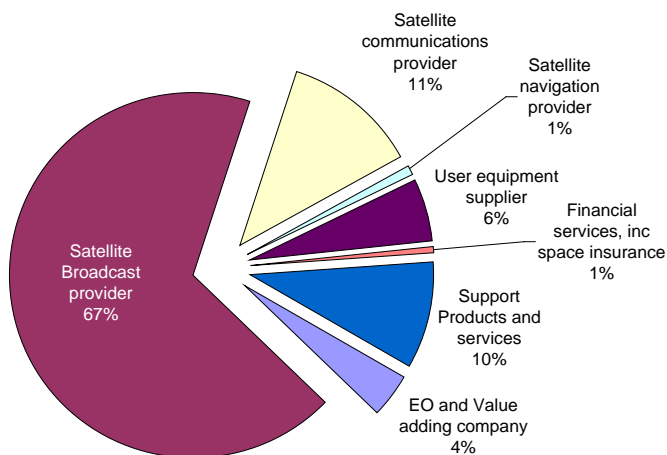


Chart 9 displays the downstream employment shares of business areas. As with turnover, downstream employment is dominated by the Satellite Broadcast Provider business area, although this represents a fall in share from the previous survey (the share from the 2008 survey was 74% for 2006/07).

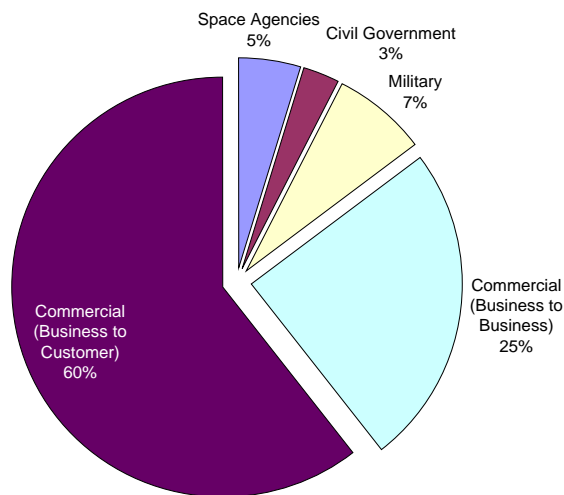
Chart 9 Downstream sector employment by business category, 2008/09



Customers

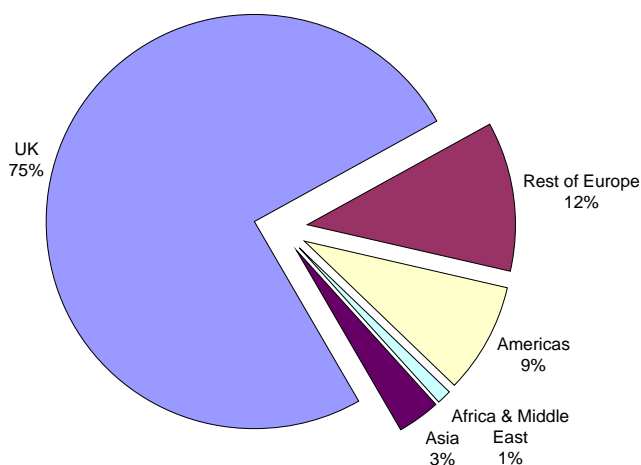
As with previous editions of the survey, the commercial sector remains the largest customer group accounting for 85% of all business in 2008/09 (Chart 10), slightly up from 2006/07. Also increasing slightly from 2006/07 were the levels of activity carried out for space agencies and civil government (both increased by 1 percentage point). Meanwhile, the proportion of business conducted with military customers reduced from 11% to 7% from 2006/07 to 2008/9.

Chart 10 Market share by customer type, 2008/09



Unsurprisingly, given the strong commercial demand, the vast majority of customers are located within the UK (Chart 11). However, the survey provides several indications that the geographical reach of the UK space industry is increasing: the share of business in 2008/09 accounted for by the UK has fallen by 5 percentage points since 2006/07, and the shares attributed to customers in the rest of the EU and the Americas have increased (by 2 percentage points for the EU, and 3 percentage points for the Americas).

Chart 11 Market share by customer location, 2008/09

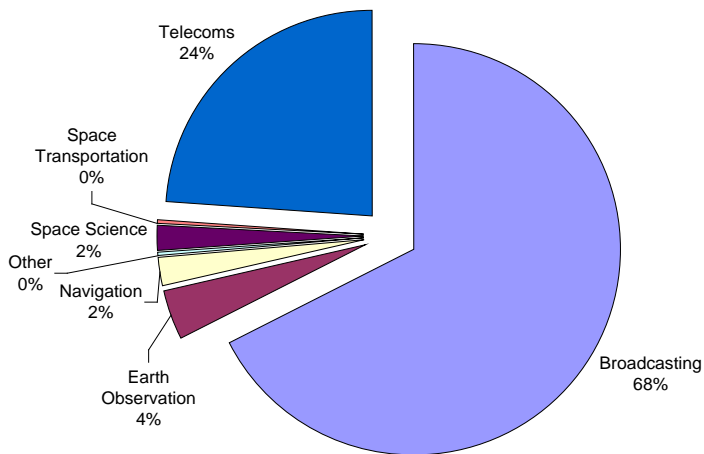


Applications

The method of use of UK space products is dominated by broadcasting, accounting for over 68% of total turnover – a slight increase from 2006/07. Telecommunications sales accounted for 24% of the industry's turnover, with the remainder shared primarily between earth observation, navigation and space science (Chart 12).

Broadcasting sales alone accounted for almost three-quarters of all growth since 2006/07, with Telecoms accounting for a further 20% of all growth. Despite accounting for the majority of the sales growth, Broadcasting and Telecoms grew at a slower rate than Space Transport and Earth Observation, which grew by 31% and 26% respectively, although both from a far smaller base.

Chart 12 UK Space turnover by application, 2008/09

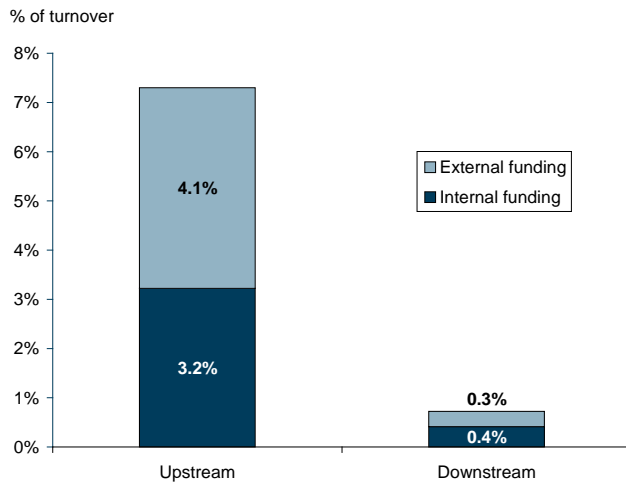


Research and Development

Spending on research and development (R&D) is crucial for the growth of the UK's knowledge economy. Sectors such as the UK space industry that are R&D intensive play a central role in driving the UK's knowledge base. As in the previous two editions of the survey, respondents were asked about the level of R&D investment undertaken, and the source of funding.

The 2008 survey reported that the R&D spending in 2006/07 in the upstream sector as a percentage of turnover had declined from 2004/05 (although the level of internal funding for R&D had increased). Chart 13 displays the results of the 2010 survey, indicating that the decline in upstream R&D expenditure in terms of turnover reported in the previous edition of the survey has continued, although at a much lesser extent (in 2004/05 upstream R&D expenditure was 14.1% of turnover, in 2006/07 this had dropped to 8.3%, the 2008/09 value is 7.3% of turnover). However, the absolute level of upstream R&D investment has fallen since 2006/07. In addition, the share of funding supplied by companies internally for R&D has fallen from almost 60% in 2006/07 to 45% in 2008/09.

Chart 13 Space R&D expenditure by sector and source, 2008/09



R&D expenditure in the downstream remains significantly lower than in the upstream, and has fallen as a share of turnover to 0.7%. There has also been a sizable shift in the source of funding since 2008, when 90% of R&D expenditure was funded internally. The results from the 2010 survey suggest that this has fallen to just 55% in 2008/09.

The contraction of R&D expenditure in both the upstream and downstream sectors is symptomatic of business performance in a recession, as costs are cut and activities concentrated away from 'riskier' options – together the UK's 1,000 largest companies reduced spending on R&D from 1.8% of sales in 2006 to 1.6% in 2008³.

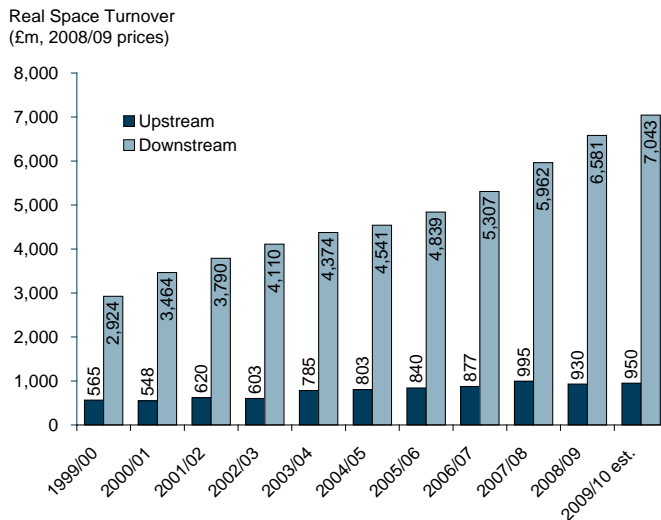
Estimates for 2009/10

The results of the 2010 survey indicate that the space industry has performed well throughout the recession, and is in a strong position to continue to grow as the UK economy emerges from recession. Within the survey questionnaire, participants were asked to provide estimates of turnover, costs (enabling value-added to be calculated) and employment for 2009/10. All of the metrics considered (turnover, employment and value-added) indicate that 2009/10 is estimated to be another year of strong growth for the UK space industry.

Turnover is estimated to have grown by 6.4% on the year, reaching £8 billion in 2008/09 prices (Chart 14). Within this, the downstream sector is expected to have grown by 7% in real terms, to breach the £7 billion turnover barrier. The upstream sector is also expected to have grown in real terms, albeit at a much slower rate of 2%.

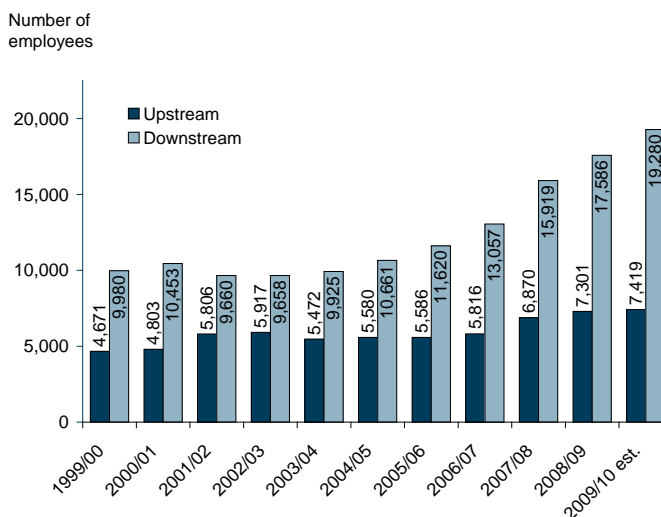
³ Department for Business Innovation and Skills, *R&D Scoreboard 2007 and 2009*.

Chart 14 UK downstream and upstream space industry turnover 1999/2000-2009/10



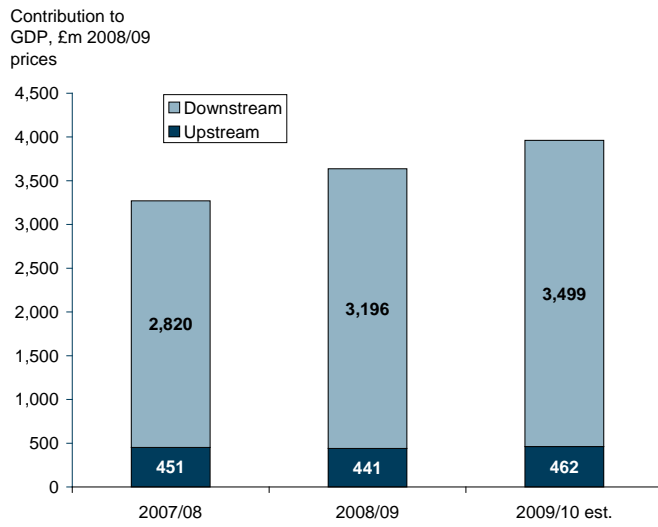
Space industry employment is estimated to have grown to 27,000 in 2009/10, an increase of 7.3%. Employment in the upstream sector is estimated to have increased to over 7,400, growing by approximately 1.3% on the year. Downstream companies estimate that they have recruited an additional 1,700 workers, resulting in a total downstream employment of 19,280. This contrasts with the picture for the rest of the UK where employment is expected to fall by 2.3% in 2009/10.

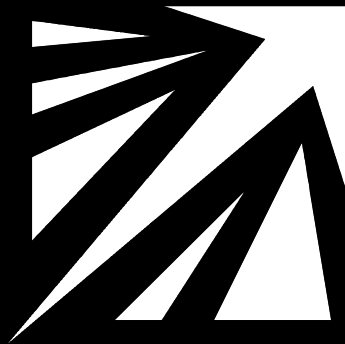
Chart 15 UK downstream and upstream space industry employment 1999-2010



Finally, in terms of value-added contribution to GDP, the industry estimates it has enjoyed another strong year of growth with GDP contribution rising to £4,047 million, a real increase of 8.9% compared to a year earlier. The contribution to GDP of upstream firms is estimated to be up 4.8% on the year to reach £472 million, whilst companies in the downstream sector are estimated to have generated a value-added contribution to GDP of £3,575 million.

Chart 16 UK space industry contribution to UK GDP, 2007/08-2009/10





UK SPACE

AGENCY

UK Space Agency

Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1SZ

Tel: +44 (0)207 215 5000 ukspaceagencyinfo@ukspaceagency.bis.gsi.gov.uk www.ukspaceagency.gov.uk

Printed by RCUK's Internal Service Provider on sustainable forestry paper

November 2010. Crown Copyright. URN 10/1195