



UK SPACE
AGENCY

The Size and Health of the UK Space Industry

October 2012



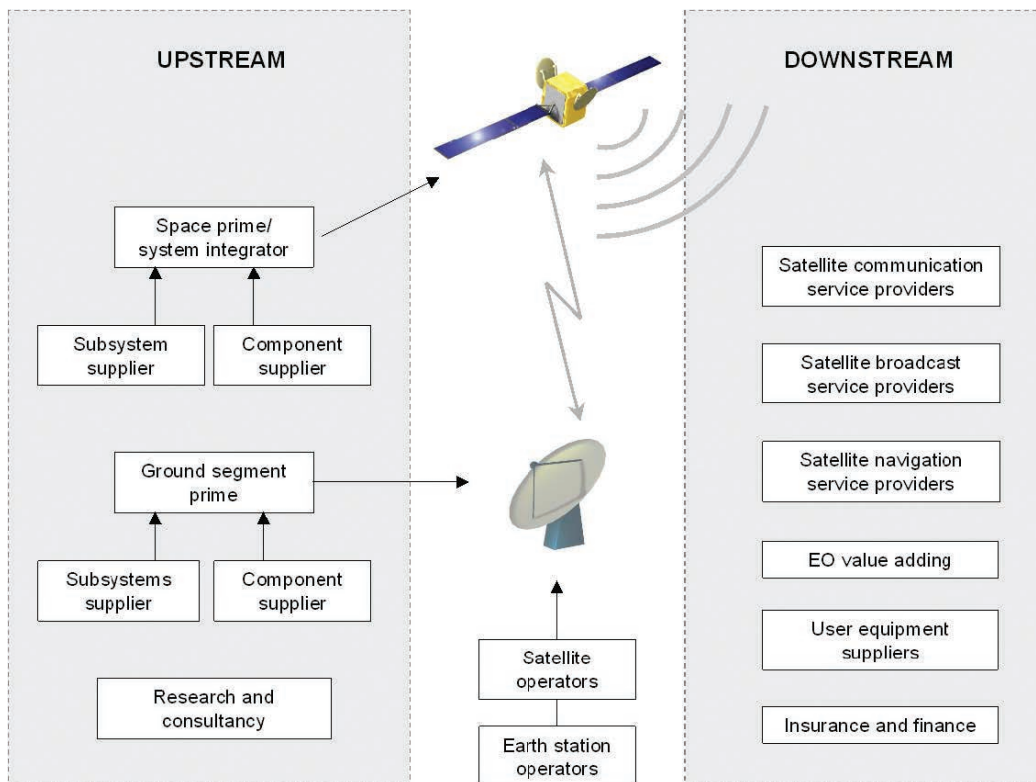
Executive Summary

Introduction

The 2012 Size and Health of the UK Space Industry survey represents the latest incarnation of the key biennial barometer of the UK space industry. The UK Space Agency contracted Oxford Economics to conduct this edition, covering the years 2009/10 and 2010/11; Oxford Economics also conducted the 2010 survey. This document presents an executive summary of the findings.

This edition of the survey invited almost 420 companies and institutions to participate, selected through their involvement in previous surveys and their inclusion in the online UK Space Directory. Of those contacted, 234 were deemed to be actively involved in the UK space industry through their responses to this and previous surveys. The range of business activities captured 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 0.1 Definition of the UK space sector



Given the prolonged period of poor economic performance in the UK and wider instability in Europe, the 2012 survey is possibly the most important ever conducted. Not only will its findings provide a crucial insight into how the sector has fared, they will also provide a guide for government and industry associations as to where companies are experiencing difficulties and barriers to growth. Encouragingly 42 respondents were not included in previous editions of the survey, suggesting that these companies were newcomers into the sector.

To ensure consistency with previous editions of the survey, the significant majority of questions remained unchanged from the 2010 version. However, three questions were added to the end of the 2012 survey in order to capture industry opinion on the factors currently limiting growth, potential strategies that the industry is seeking to employ to generate further growth, and the industry's medium-term growth forecast.

Size of the Industry

Together the 234 companies deemed to be actively involved in the UK space industry recorded a total space-related turnover of over £9.1 billion in 2010/11 (Chart 0.1). As in previous editions of the survey, the industry is dominated by the downstream sector, accounting for almost £8.2 billion (89%) of the total. This represented a real (adjusted for inflation¹) growth of 6.5% between 2009/10 and 2010/11, and by 15.6% since 2008/09 (the year covered by the previous survey) – an average annual growth rate² of 7.5%. This strong performance indicates that the space industry continues to grow despite the uncertainty in the UK economy. Indeed, the average annual real growth rate over the last two years is only slightly below the long-term real growth trend for the industry (8.6% per annum since 1999/2000). However, that is not to say the space industry is immune from prevailing economic conditions; the industry's growth has slowed from that recorded in the 2010 survey (when an average annual real growth of 10.2% was experienced between 2006/07 and 2008/09). Furthermore, industry expectations for growth in 2011/12 are low, with the industry anticipated to grow by just 0.7% in real terms.

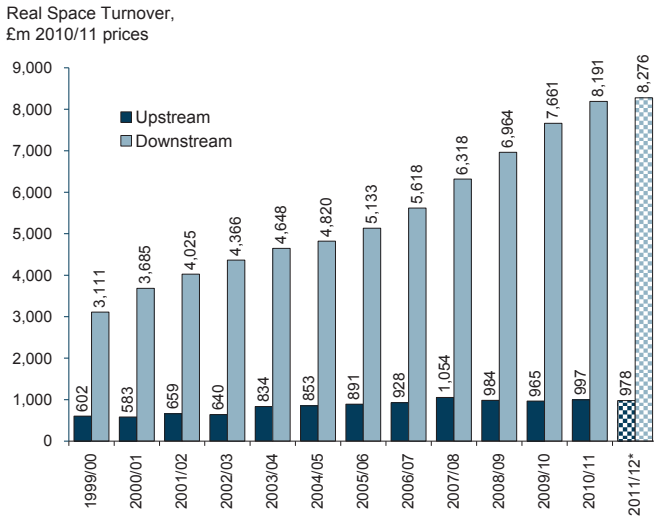
Examining the industry in greater depth shows that the strong growth recorded by the industry since 2008/09 is almost solely down to the robust performance of the downstream sector, which reported a real growth of 17.6% between 2008/09 and 2010/11 (an annual average of 8.5%). Conversely the upstream sector continued to face a more difficult sales environment, with real turnover increasing by only 1.3% between 2008/09 and 2010/11 (an annual average of just 0.6%). However, 2010/11 was a stronger year for the upstream sector, with a real growth of 3.3% (compared with a real decline in turnover of 1.9% in 2009/10). Indeed, over the period 2008/09-2010/11, the upstream sector outperformed the UK economy as a whole, which reported an average annual real decline of 0.1%³. Nonetheless, 2011/12 is expected to be a difficult year for both the upstream and downstream sectors of the space industry; downstream turnover is expected to grow by just 1.0% in real terms, while the upstream sector is anticipating a real decline in turnover of 1.8%. Despite this, the outlook for the UK space industry beyond 2012 is extremely positive, an aspect explored in more detail later in this report.

¹ As measured by the Consumer Price Index.

² Computed as the compound average growth rate.

³ Source: Office for National Statistics.

Chart 0.1 UK downstream and upstream space industry turnover, 1999/2000-2011/12



Source : Oxford Economics

* 2011/12 projected based on survey responses



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.

From a turnover of almost £9.2 billion in 2010/11, the UK space industry made a value-added contribution to UK GDP of £4.2 billion. This represents a real growth of 5.3% from 2009/10, and 7.3% from 2008/09 (an average annual real growth of 3.6%).

As Chart 0.2 shows, the majority (88%) of space value-added was generated by the downstream sector, which saw real growth of 7.8% between 2008/09 and 2010/11 (an annual average real growth of 3.8%). Over the same period, the smaller upstream sector also recorded real growth (3.7%), but this was the result of a strong performance in 2009/10 when value-added increased by 4.8% in real terms; in 2010/11 the upstream sector recorded a real decline in value-added contribution to GDP of 1.0%.

Given the projected slowdown of turnover in 2011/12, the associated weakening of the space industry's value-added contribution to UK GDP displayed in Chart 0.2 is anticipated. The space industry as a whole is expected to increase its contribution to the UK economy by 1% in real terms in 2011/12; however, this is purely driven by the contribution from the downstream sector, which is projected to grow by 1.2% in real terms. Conversely the upstream sector is expected to continue to see its value-added contribution to GDP decline in real terms.

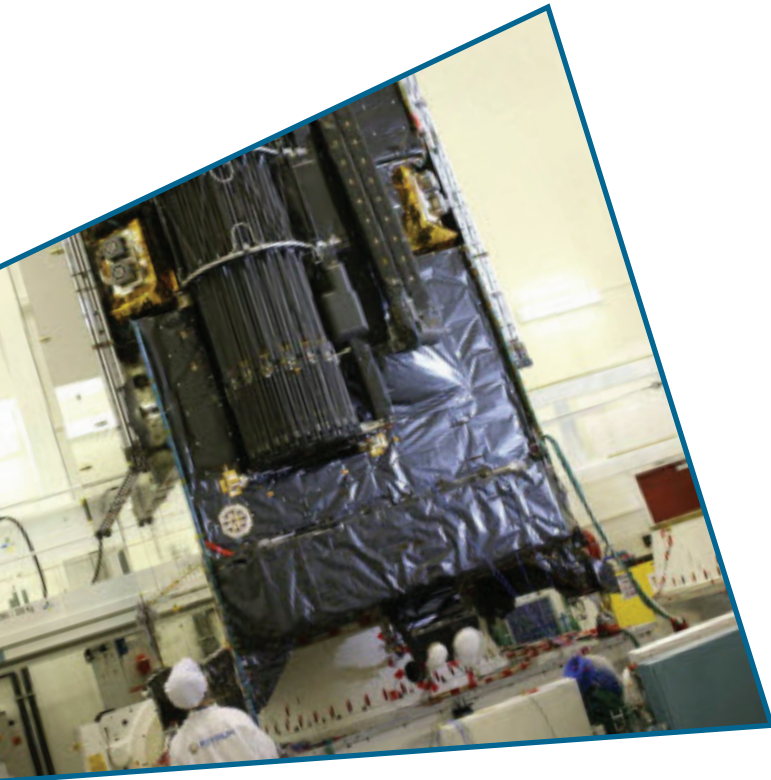
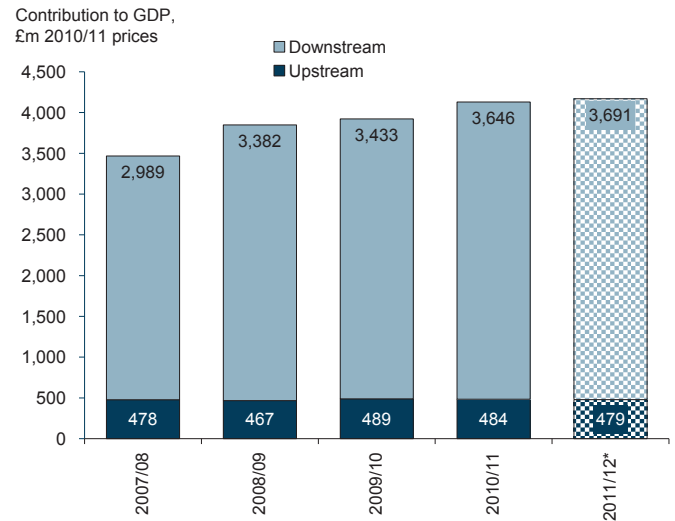


Chart 0.2 UK space industry gross value-added, 2007/08-2011/12



Source : Oxford Economics

* 2011/12 projected based on survey responses

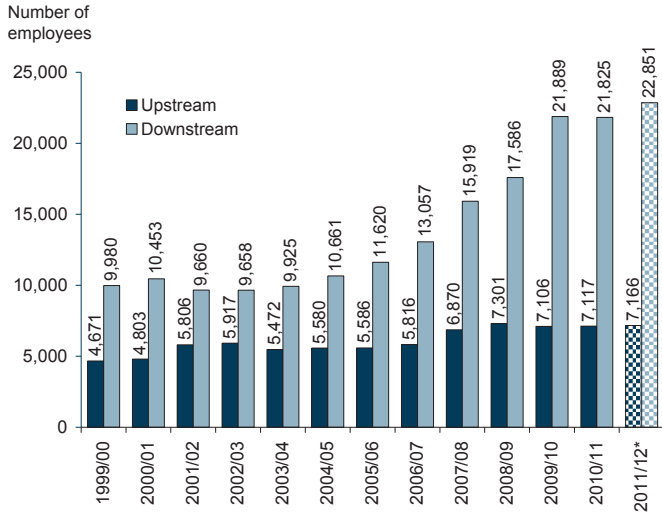
Economic Impact of the UK Space Industry – Employment

Employment in the space industry has continued to grow rapidly since the previous survey to reach 28,943 in 2010/11. Survey responses indicate that these employees are highly skilled, with almost 80% holding at least a first degree. Although the average annual growth recorded between 2008/09 and 2010/11 was just half of that witnessed between 2006/07 and 2008/09 (7.8% compared to 14.8%), this performance is in line with the average annual growth rate of 7.4% recorded since 1999/2000 (Chart 0.3). Industry expectations for 2011/12 are of a 3.7% growth in employment, with over 30,000 industry jobs expected to be supported.

As expected, the downstream sector dominates employment, accounting for over 21,825 jobs in 2010/11 and up 24.1% compared to 2008/09; however, the upstream sector has not shared this employment growth: between 2008/09 and 2010/11 employment declined by 2.5% to just over 7,100 jobs. The number of upstream jobs is expected to grow by 0.7% in 2011/12, while downstream employment is projected to reach 22,850 – a 4.7% growth on 2010/11.

Responding companies' UK locations were noted and categorised regionally to give an indication of where the work is undertaken. This is potentially misleading for organisations 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 91% in 2010/11: the Greater London region contains 55% of UK space employment, with the South East accounting for a further 24% (up from 20% in 2008/09) and the Eastern region 12% (Chart 0.4). Space employment outside of the South East corner is concentrated in the South West and East Midlands, which together hold 8% of total space employment (up from 6% in 2008/09).

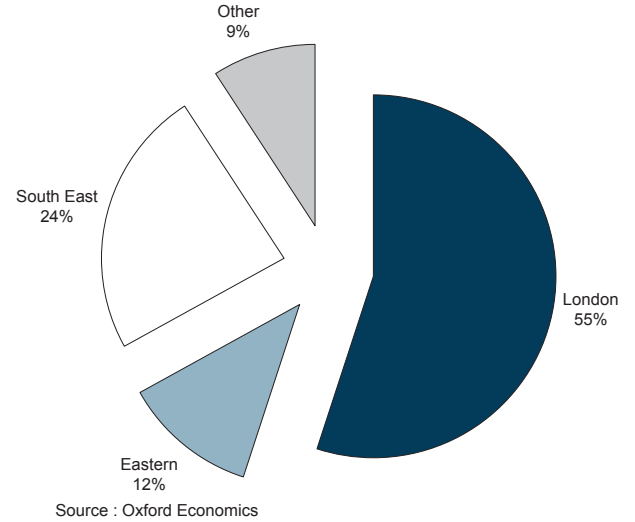
Chart 0.3 UK downstream and upstream space industry employment, 1999/2000-2011/12



Source : Oxford Economics

* 2011/12 projected based on survey responses

Chart 0.4 Regional distribution of space employment, 2010/11



Source : Oxford Economics

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, 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.

Using the survey responses, the space industry’s value-added multiplier has been estimated to be 1.99. This means that the industry’s direct value-added contribution to GDP of £4.1 billion in 2010/11 results in an additional GDP contribution of £4.1 billion through the multiplier impact; therefore the industry’s value-added contribution to UK GDP in 2010/11 was estimated to be a total of £8.2 billion (Chart 0.5).

Similarly the employment multiplier for the UK space industry is estimated at 3.50. This means that the total UK-based employment supported by the UK space industry was estimated to be 101,200 in 2010/11. The employment multiplier is significantly larger than the value-added multiplier reflecting the high productivity nature of the industry. As productivity levels in the space industry are higher than the economy average, relatively few employers in the industry are able to support a large number of jobs through the indirect and induced channels.

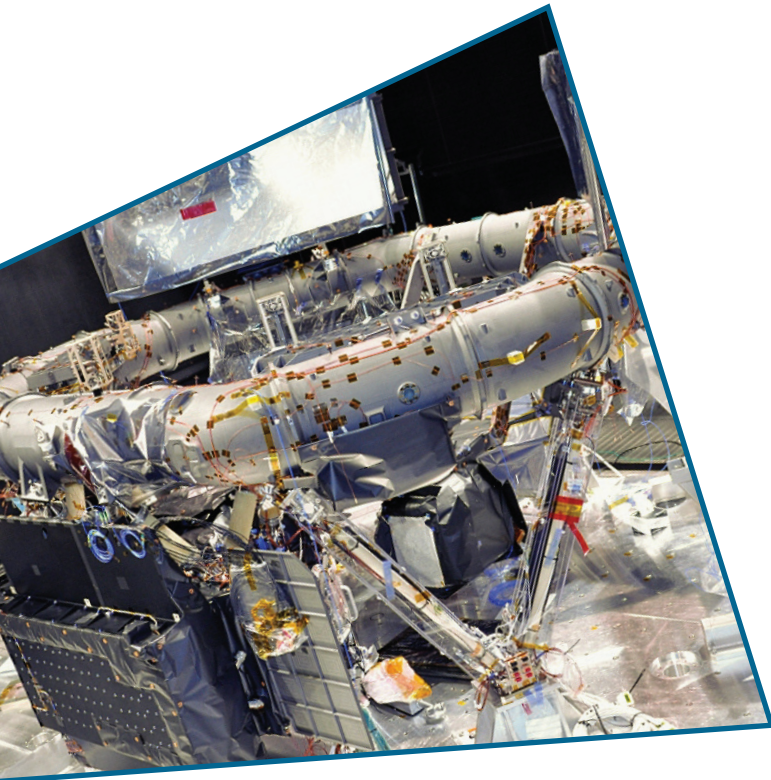
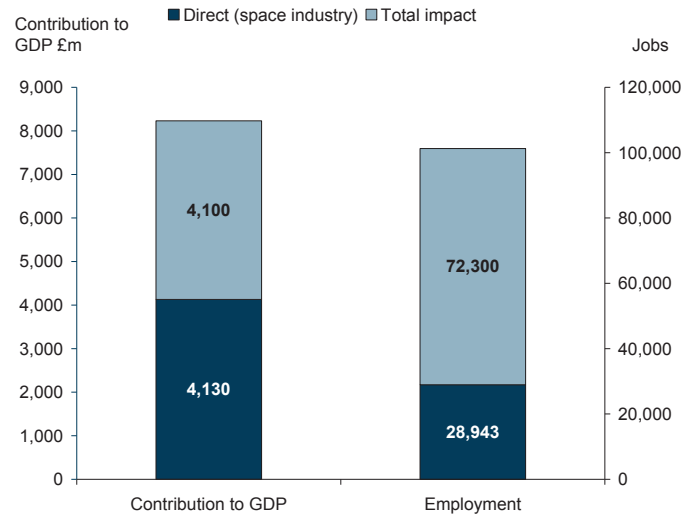


Chart 0.5 The total economic impact of the UK space industry, 2010/11



Both the value-added and employment multipliers for the space industry have increased since the previous survey (value-added from 1.91 to 1.99 and employment from 3.34 to 3.50). These increases are positive news for the UK as they indicate a strengthening of UK-based supply chains for the space industry and mean that more of the value generated by the space industry and its suppliers is retained in the UK economy.

Business Categories

Responses to the 2012 survey have highlighted that there has again been a significant shift in the composition of the upstream sector since the previous survey. In the 2010 survey, the Space Subsystem Supplier business category was responsible for the largest share of upstream turnover, accounting for 40% of the total. However, as Chart 0.6 demonstrates, the upstream sector has become more diverse, with no activity accounting for more than 17% of turnover. Indeed, the previously dominant Space Subsystems Supplier only accounted for 16% in 2010/11. Large increases have been witnessed in the market shares held by businesses operating in Contract, Research, Design and Consultancy, including university research departments (from 6% of turnover in 2008/09 to 10% in 2010/11), and the Space Prime/System Integrator category (from 10% in 2008/09 to 17% in 2010/11).

Whereas the two previous editions of the survey reported a movement from Space Prime to Space Subsystems, 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 2012 survey suggest that the movement has reversed. However, it should be noted that a business changing the definition of activities does not mean that there is a substantive alteration in the actual processes conducted.

Chart 0.6 Upstream sector turnover by business category, 2010/11

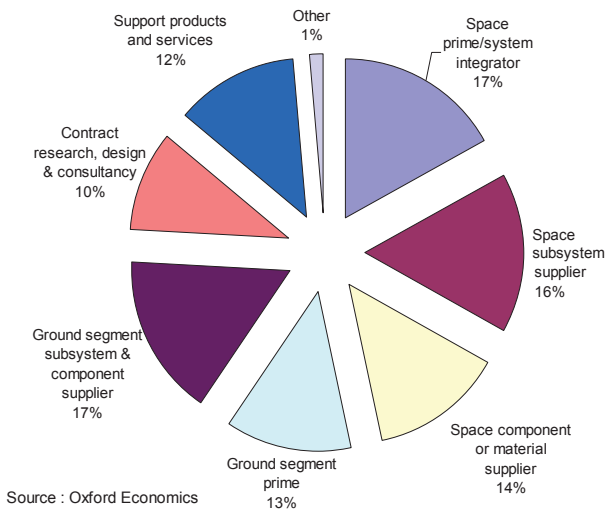
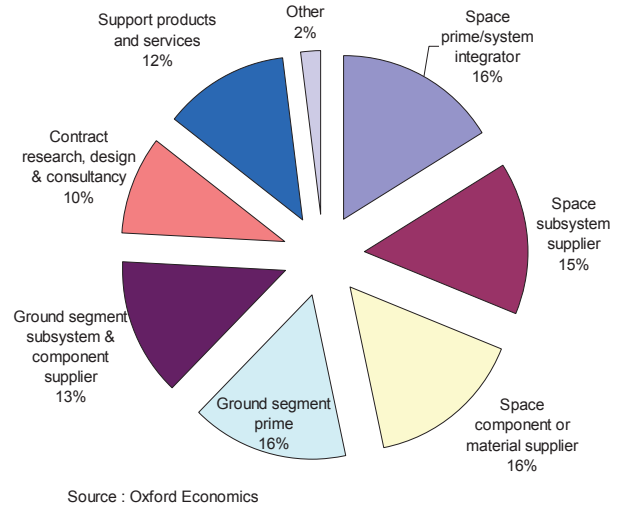


Chart 0.7 Upstream sector employment by business category, 2010/11



The 2010 edition of the survey noted that the division of employment between upstream business categories was not as extreme as that for turnover; the 2012 survey indicates this remains the case, with no category accounting for more than 16% of total upstream employment (Chart 0.7). The largest movement in terms of the proportion of employment was experienced by the Space Subsystem Supplier, which fell from accounting for 28% of employment in 2008/09 to just 15% in 2010/11. Conversely Space Prime/System Integrator and Space Component or Material Supplier business categories both saw significant jumps in their share of employment over the same period, from 9% to 16% and 10% to 16% respectively. A similar pattern can be seen for upstream employment by business category.

As found in previous surveys, the downstream sector continues to be dominated by the Satellite Broadcast Provider subsector (Charts 0.8 and 0.9); once again this was driven by direct-to-home satellite television. Indeed, between 2008/09 and 2010/11, the share of turnover accounted for by the Satellite Broadcast Provider subsector increased slightly to 70%. Elsewhere in the downstream sector, there has been little change in the proportion of turnover and employment held by each subsector. In terms of turnover, subsector contributions have remained static: aside from the Satellite Broadcast Provider subsector, only the Satellite Communications Provider subsector saw a notable change in its share (from 18% in 2008/09 to 14% in 2010/11). The composition of downstream employment has been more flexible. However, even this has been limited to incremental changes in share, the largest of which was the 2 percentage-point fall held by Satellite Broadcast Provider (from 67% to 65%) and a 2 percentage-point increase for Support Products and Service businesses (from 10% in 2008/09 to 12% in 2010/11).

Chart 0.8 Downstream sector turnover by business category, 2010/11

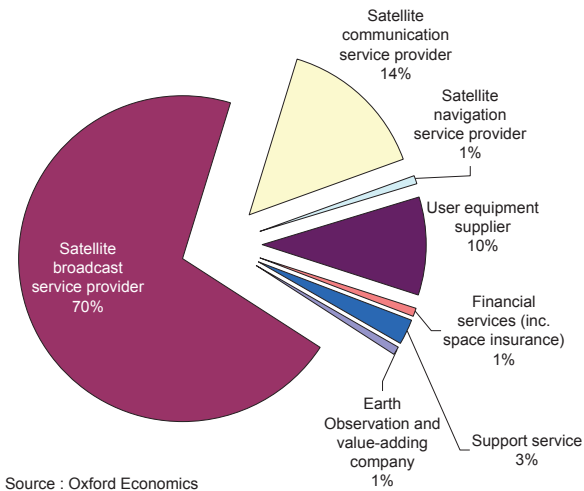
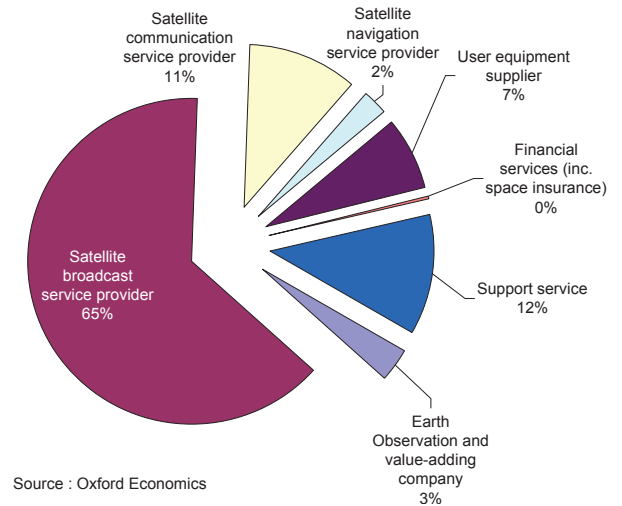


Chart 0.9 Downstream sector employment by business category, 2010/11

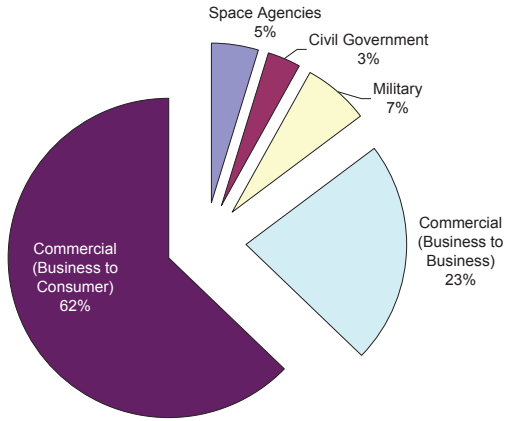


Customers

Previous editions of the survey have noted that the UK space industry's largest customer group was the commercial sector. The 2012 survey indicates that this remains the case, accounting for 85% of total industry turnover (Chart 0.10). The commercial sector also accounted for 85% of turnover in the 2010 survey, albeit with a marginally different breakdown between Business-to-Business and Business-to-Consumer; the 2012 survey indicates that Business-to-Consumer sales have become more important to the industry (up 2 percentage points to 62%) since 2008/09. The breakdown of sales to other types of customer have remained static since 2008/09, with Military sales slightly more important (7%) than those to Space Agencies (5%) and Civil Government (3%).

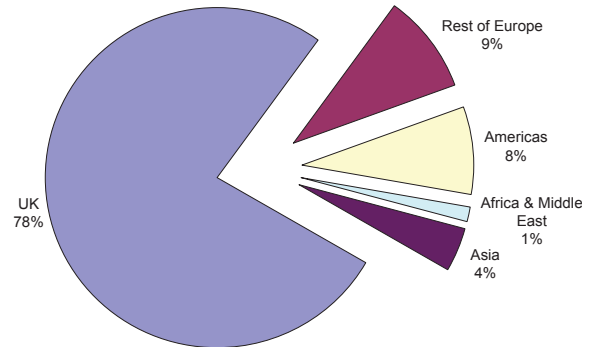
The dominance of Business-to-Consumer sales results in a significant UK focus to space industry activities, and this intensity has increased by 3 percentage points since 2008/09 to 78% in 2010/11 (Chart 0.11). While the UK focus increased, the proportion of sales accounted for by customers in the rest of Europe and the Americas declined, by 3 and 1 percentage points respectively; however, Asia has become a slightly more important market for the UK space industry, accounting for 4% of sales in 2010/11 (compared to 3% in 2008/09). The movement from Europe and the Americas to Asia is not surprising given the relative economic performance of the regions: Europe and the Americas (the US in particular) have been slow to emerge from recession, while the large Asian markets of China and India have continued to grow. As such, the shifting pattern of exports encountered by the space industry is not dissimilar to the experiences of other industries.

Chart 0.10 Market share by customer type, 2010/11



Source : Oxford Economics

Chart 0.11 Market share by customer location, 2010/11



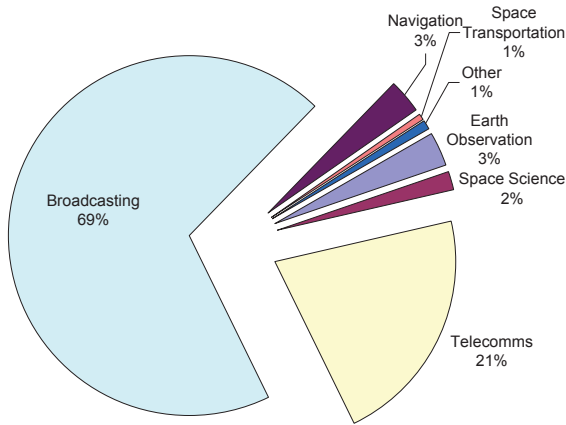
Source : Oxford Economics

Applications

The domination of Broadcasting as the main method of use of UK space products was reported in each of the previous two surveys, and this pattern continues in the 2012 survey (Chart 0.12), with it accounting for 69% of all sales (up 1 percentage point compared to 2008/09). The second largest method of use – Telecommunications – has experienced a slight fall in its importance, accounting for 21% in 2010/11, compared to 24% in 2008/09. This fall has been countered by increased market shares in Space Transportation and Navigation, both up 1 percentage point to 1% and 3% of total sales respectively.

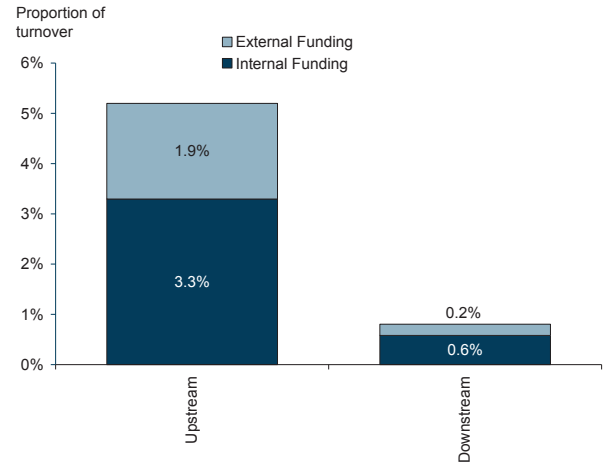
Broadcasting sales increased by 17.6% in real terms between 2008/09 and 2010/11, with this growth alone accounting for 80% of all growth since 2008/09. The use of UK space products for Navigation witnessed an even greater growth rate, increasing by almost 80% in real terms between 2008/09 and 2010/11; this accounted for 10% of the industry's total growth. Growing from a far smaller base, the use of products for Space Transportation accounted for 5% of industry growth since 2008/09.

Chart 0.12 UK space turnover by application, 2010/11



Source : Oxford Economics

Chart 0.13 UK space research and development expenditure, 2010/11



Source : Oxford Economics

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 three editions of the survey, respondents were asked about the level of R&D investment undertaken and the source of funding.

The 2008 and 2010 editions of the survey both reported that R&D spending in the upstream sector as a percentage of turnover had declined from the previous survey. The 2012 survey has found that this trend has continued (Chart 0.13), with total upstream R&D activity equating to 5.2% of turnover (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 was 7.3% of turnover). Having said this, the level of internal funding for R&D activities in the upstream sector has increased, from 3.2% of turnover in 2008/09 to 3.3% of turnover in 2010/11.

R&D expenditure in the downstream sector remains significantly lower than in the upstream, although this has increased as a share of turnover to 0.8%, compared to 0.7% of turnover in 2008/09, as R&D investment in the downstream sector increased by a third in real terms. The breakdown of downstream R&D funding between internal and external sources reported in the 2012 Survey indicates a movement towards greater reliance on internal funding: internal funding accounted for 72% of total in 2010/11 as compared to 55% in 2008/09.

The Department of Business, Innovation and Skills estimates that the 1,000 largest companies (by R&D spending) in the UK invest 1.7% of their turnover into R&D activities⁴. Although the space industry as a whole falls below this marker, the upstream sector is 50% more R&D intensive than the Aerospace and Defence sector (which invests 3.5% of turnover in R&D).

⁴BIS (2010) The 2010 R&D Scoreboard.

Beyond 2012

This edition of the survey presented respondents with a series of new questions examining the challenges their business faces, the strategies the company is planning to implement to stimulate growth, and their expectations of future performance.

The most common barrier faced (33% of respondents) in the year 2009/10 was a lack of sufficient demand for the products or services companies produced. A lack of skilled employees was a close second, with 32% of respondents reporting their company had encountered this barrier. A lack of investment and working capital were less common, but still reported by enough respondents to provide a concern (24% and 16% respectively). Survey responses indicated that the greatest barriers faced by the smallest companies were a lack of access to working and investment capital.

Looking forward, half of responding companies were seeking to expand independently into new geographic and product markets in order to deliver future growth (Chart 0.14); 40% were also considering recruiting extra permanent staff. From a turnover perspective, the most common strategy is independent expansion into new geographic markets – possibly continuing the trend of the increasing importance of sales to Asia. Businesses also appear to be open to the possibility of forming alliances or joint ventures in order to effectively exploit new markets. Furthermore, over 60% of respondents (weighted by turnover) will be seeking to make new capital investments.

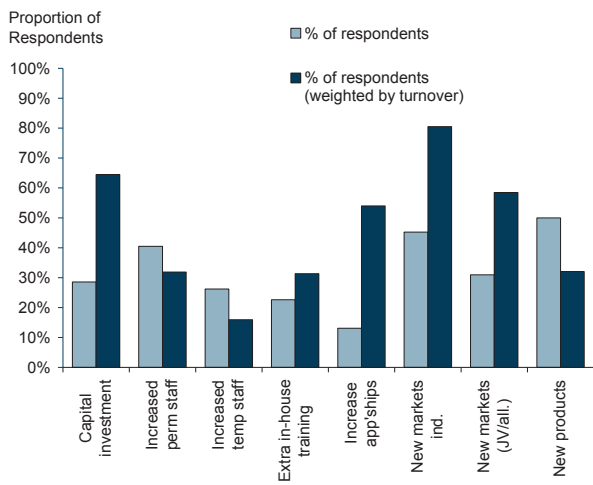
The outlook for the UK space industry is extremely positive. Almost two thirds of companies are expecting to see performance pick up at least slightly, with half of those expecting significantly stronger performance (Chart 0.15). Indeed, companies accounting for 80% of respondents' turnover expected slightly stronger growth, and a further 10% expected significantly stronger growth. This positive outlook is no better illustrated than through the recent achievements of two UK companies, Astrium and Surrey Satellite Technologies Ltd (SSTL).

Astrium has been selected by the European Space Agency (ESA) as the prime contractor for the Solar Orbiter mission that will perform close-up observations of the Sun. The €300 million contract was signed in April 2012. Astrium UK will lead a team of European companies who will supply various parts of the spacecraft. The contract is one of the largest ever signed between the ESA Science Programme and a UK company.



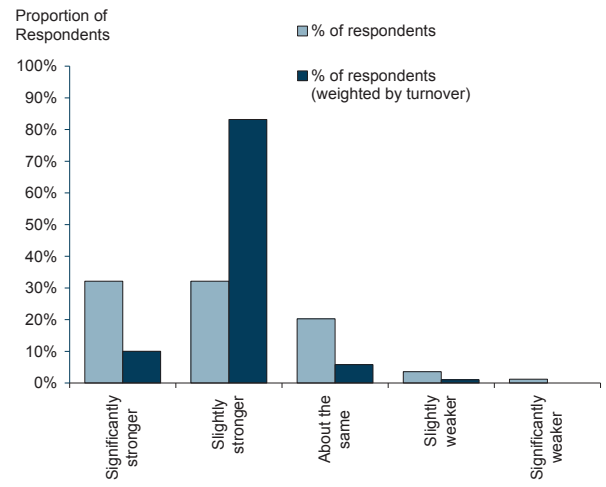
SSTL signed a contract with OHB in July 2012 for the construction of a further eight navigation payloads for the European Galileo programme. Under the contract, worth approximately €80m, SSTL will construct the navigation payloads for the second batch of Full Operational Capability satellites (Work Order No. 2), continuing a successful cooperation between the two companies to build the first 14 satellites (Work Order No. 1) under the supervision of the ESA.

Chart 0.14 Growth-generating strategies employed by the space industry



Source : Oxford Economics

Chart 0.15 Growth prospects, 2012-2015



Source : Oxford Economics



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

BIS | Department for Business
Innovation & Skills

UK SPACE AGENCY

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

Tel +44(0)207 215 5000 Email info@ukspaceagency.bis.gsi.gov.uk Web www.bis.gov.uk/ukspaceagency

© Crown Copyright. URN 12/P163