



# THE IMPACT OF AIRBUS ON THE UK ECONOMY

JUNE 2017

**AIRBUS**





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# EXECUTIVE SUMMARY

## £7.8 bn

GDP contribution in 2015

*Larger than the economy of  
Newcastle upon Tyne.*

## 117,400 jobs

Employment contribution  
in 2015.

*Equivalent to around  
eight percent of aerospace  
sector employment.*

## £1.7 bn

Fiscal contribution in 2015.

*Equivalent to 60 percent  
of spending on  
fire-protection services.*

**Airbus is one of the world's leading manufacturers of aircraft, helicopters, and defence and space equipment.** Its facilities across the UK employ nearly 15,000 people and represent a sizable and crucial part of its operations. Airbus factories in Broughton and Filton are responsible for assembling the wings and landing gear for its commercial aircraft, its centre in Stevenage pioneers space technology, and numerous other locations throughout the country feed into the Company's broad scope of operations.

**Airbus' impact is not limited to its cutting-edge manufacturing: it also makes a substantial and important contribution to the UK's economy.** This impact stems not only from the Company's activities at its UK facilities, but also the presence of UK firms in its global supply chains and the spending of its UK-based workforce in the wider consumer economy.

**Oxford Economics' bespoke Global Economic Impact Model has been used to map Airbus' complex, interwoven, global supply chains.** This enabled us to explore how the Company's purchases from its operations in France, for example, then trigger activity in the UK, further up the supply chain. Consequently, this unique model makes it possible to develop a comprehensive picture of the Company's impact on the UK economy.

**In 2015, Airbus' global operations supported a £7.8 billion contribution to the UK economy.** Much of this impact was generated in Airbus' UK supply chain, which includes companies such as Rolls-Royce, GKN and BAE Systems. To put this footprint into context, in 2015, the contribution to GDP supported by Airbus was larger than Newcastle's economy and nearly a third bigger than the economy of Oxford.

**The activity supported by Airbus sustained 117,400 jobs throughout the UK in 2015.** This means that more than 100,000 people who did not work for Airbus had jobs linked to the Company in some way. For some 64,000 people, their jobs were located in Airbus' UK-based supply chain. The total number of jobs supported by Airbus' operations in 2015 was equivalent to all of the jobs in Swansea.

**The activity and employment supported by Airbus' operations in 2015 generated significant tax revenues for the Exchequer.** We estimate Airbus' operations raised more than £1.7 billion in tax revenues in 2015. This means £1 in every £400 collected by the UK government can be attributed to Airbus' activity. Put another way, the taxes generated by Airbus alone in 2015 were equal to 60 percent of projected public spending on fire-protection services in 2015/16.

**Airbus' impact reaches all parts of the UK.** It operates facilities in nine of the UK's nations and regions, and makes purchases from a wide range of businesses throughout the country. However, the Company's impact is not evenly distributed across the country. The extent of Airbus' impact in each region reflects the size of its operations there and the value of its procurement from firms in the region.

**Wales is home to key parts of Airbus' worldwide operations and the Company is one of the nation's largest employers.** The 6,400 people employed at its Welsh sites meant 0.4 percent of all jobs in Wales were at one of Airbus' facilities in 2015. In total, the Company supported a £845 million contribution to Welsh GDP in 2015, equivalent to 1.6 percent of the nation's economy. In total, including those employed directly, as well as in its supply chain and through consumer spending effects, Airbus supported some 11,600 jobs in Wales in 2015, equivalent to 5.8 percent of all employment in Cardiff.

**Airbus also contributed over £1 billion to the South West economy.** This contribution stemmed from its major site at Filton and its South West supply chain, which includes major suppliers GKN, Cobham and Meggitt. This impact—equivalent to a third of the city of Gloucester's economy—supported 17,500 jobs in the region, equivalent to a sixth of all employment in Bath and North East Somerset.

**Airbus is a major employer in the East of England.** Nearly five percent of all jobs in Stevenage are at either at the Airbus or MBDA sites in the town. When the Company's total impact in the region is considered, the number of jobs it supported increases to 10,400. This employment was associated with a £734 million contribution to the region's economy—equal to one third of Stevenage's own economy.

**The Company has a sizable presence in the South East.** Airbus operates many sites within the South East, including its Defence and Space centre in Portsmouth, Airbus Helicopters and AirTanker in Oxfordshire, Vector Aerospace in Hampshire, and Surrey Satellite Technology Ltd in Surrey. In total, Airbus generated a £1.3 billion contribution to the South East economy in 2015 and supported some 15,200 jobs in the region.

**However, Airbus' impact is not restricted to these four regions.** Indeed, Airbus contributed over £3.9 billion to regional economies in the rest of the UK, with £1.2 billion located in the East Midlands, where its third largest global supplier Rolls-Royce is located. This activity supported some 62,700 jobs throughout these regions.

**1.6%**

Airbus' contribution to the Welsh economy in 2015.

*Equivalent to 28 percent of the economy of Newport.*

**17,500 jobs**

Supported by Airbus in the South West.

*Or one in six jobs in Bath and North Somerset.*

**5%**

Of jobs in Stevenage are at Airbus

*This equates to 42 percent of the town's manufacturing jobs.*

## EXECUTIVE SUMMARY (cont)

**£1.3 bn**

Contribution to the  
South East economy

*Equivalent to half of the  
economy of Woking.*

**While Airbus' operations support thousands of jobs and billions of pounds' worth of GDP, its influence on the UK economy and society extends far beyond this.** Airbus supports and expands the UK's stock of technical expertise, engages and inspires future generations of scientists and technicians, and runs highly successful university and apprenticeship schemes.

**The Company's innovations also contribute to the UK's R&D stock, spilling over into the wider economy and raising the UK's productivity.** Finally, the products it manufactures play a crucial role in society: from aircraft facilitating trade and tourism to helicopters supporting the emergency services. In all these ways and through the sizable contribution it makes to the UK economy, the thousands of jobs its support and the significant amount in tax revenue that it generates for the Exchequer, Airbus has an undeniably important role in UK life.





# 1. INTRODUCTION

Airbus<sup>1</sup> is one of the world's leading manufacturers of aircraft, helicopters, and defence and space equipment. It has a reach that extends from providing employment at the local, individual level, to maintaining the vital linkages that support global society. Indeed, an Airbus aircraft lands every 1.5 seconds around the world, and its helicopters provide crucial support for the UK's police and air ambulance services. Airbus is also helping to further scientific knowledge, building the Rosetta spacecraft that orbited a comet 719 million kilometres from Earth.

Although headquartered in the Netherlands, the Company maintains a considerable presence across a number of EU countries. Its facilities in the UK represent a sizable and important part of its operations. Airbus' factories in Broughton and Filton are responsible for assembling the wings and landing gear for its commercial aircraft, its centre in Stevenage pioneers space technology, and numerous other locations throughout the country feed into the Company's broad scope of operations.

This report seeks to provide a comprehensive assessment of Airbus' contribution to the UK. However, doing so requires moving beyond the limitations of a standard economic impact assessment. Typical impact assessments only focus on a company's activity in one country, and

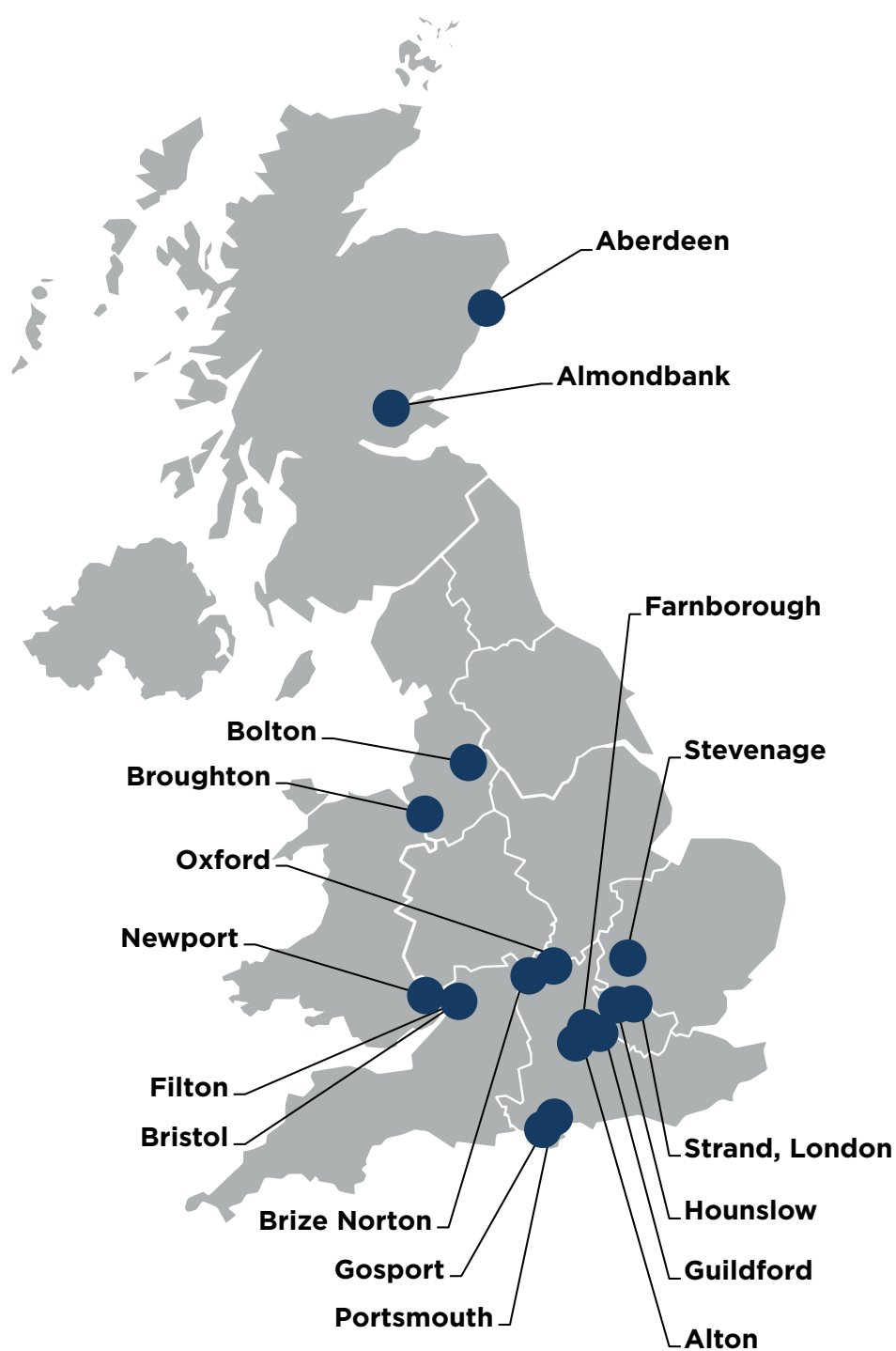
ignore any of its activity and procurement occurring elsewhere in the world. Such an approach would fall far short of comprehensively measuring the impact of Airbus—a truly global company—on the UK. Therefore, this report uses Oxford Economics' bespoke Global Impact Model. The unique global model captures how Airbus' activity and procurement in other countries affects the UK.

The story of Airbus' impact on the UK is not just a national level one. The Company has a sizable presence in communities throughout the country, and its impact reaches all regions and nations in the UK. To explore how Airbus' impact extends across the length and breadth of the UK we also employ our UK regional impact model.

The remainder of this report explores how Airbus contributes to the UK. First, we discuss the impact that the Company's operations had on the UK economy in 2015. Then, it investigates how this impact was distributed among the UK's nations and regions, drawing special attention to the location of its primary UK facilities. Finally, we address the softer impact of Airbus' presence on UK economy and society. Although less tangible and difficult to quantify, these wider, catalytic contributions are notable nonetheless.



**Fig. 1. Airbus' UK locations in 2015**



Source: Airbus

# INTRODUCTION TO ECONOMIC IMPACT ANALYSIS

This report analyses Airbus' economic impact across three core channels that all standard impact studies would assess (Fig. 2). These are the:

*\*This includes non-UK based Airbus entities*

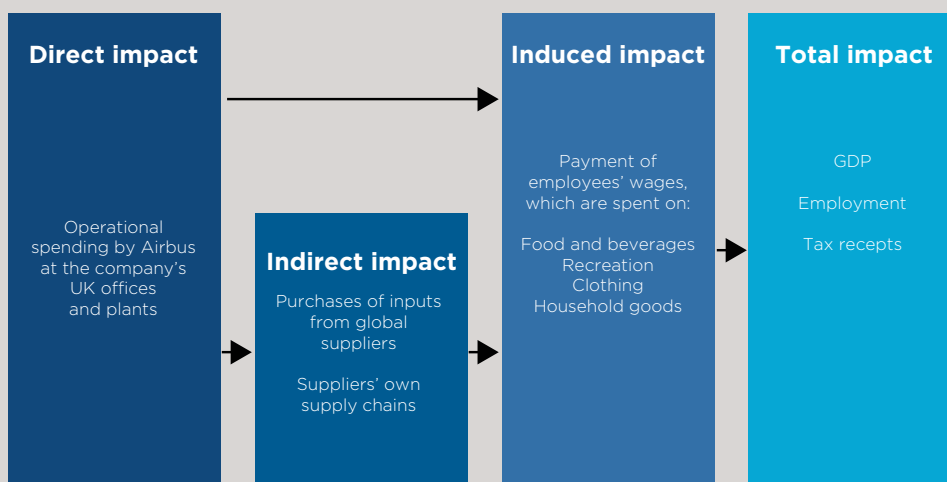
- **Direct impact**, which is the economic activity that Airbus generates at its UK offices and plants because of its operational spending; and
- **Indirect impact**, or supply chain impact, that occurs because Airbus buys inputs of goods and services from UK businesses, and Airbus' international suppliers (or businesses in their supply chain\*) buy inputs of goods and services from UK businesses; and
- **Induced impact**, or wage-expenditure impact, which is the economic activity stimulated from Airbus', and Airbus' suppliers', wage payments to employees.

We analyse these channels of impact using three core metrics:

- **Employment**, measured on a headcount basis so that it is possible to make comparisons to national statistics;
- **Gross value added** contribution to UK GDP; and,
- **Tax receipts** generated by the UK activity and employment supported by Airbus.

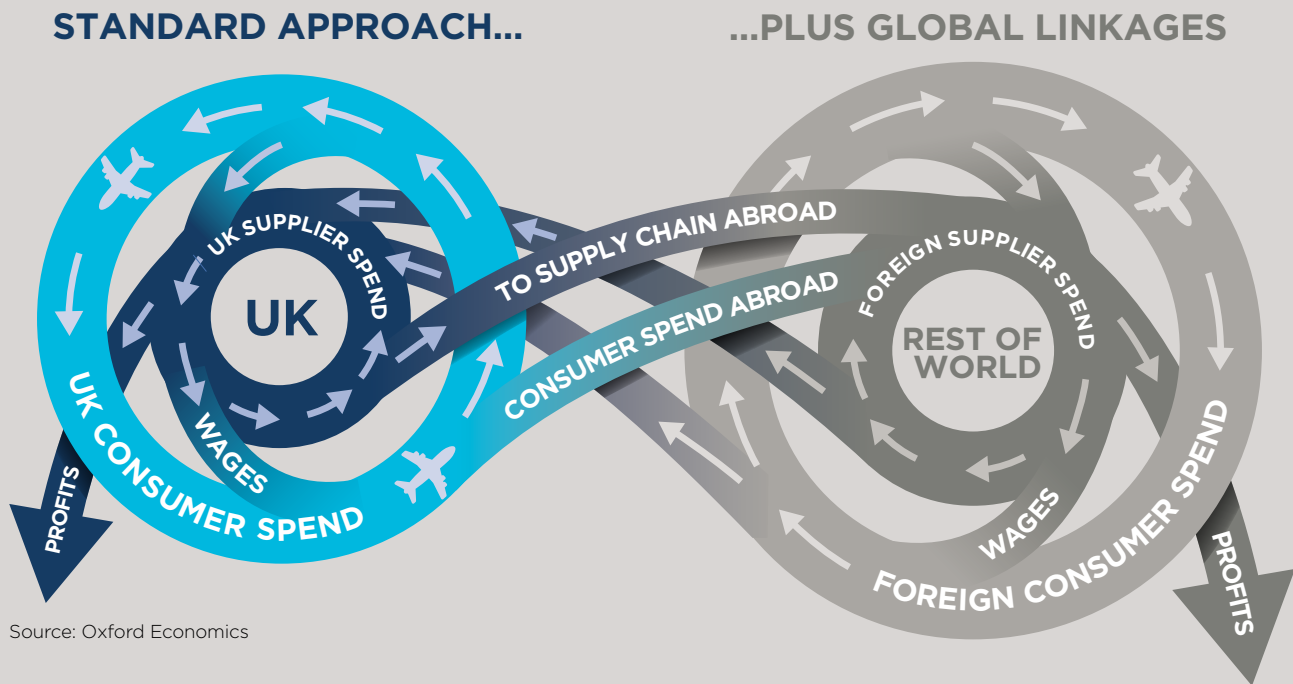
While most economic impact studies assess these effects based only on spending that occurs within the country of interest, this report goes further, to assess the impact of Airbus' global activities (Fig. 3). This is a more comprehensive approach that is suited to companies with a global footprint, like Airbus. A detailed methodology discussion is in the appendix to this report.

**Fig. 2. Core economic impact channels**



Source: Oxford Economics

**Fig. 3. Our global model captures Airbus' UK and international activities**



## GLOSSARY

**£:** all currency values are in 2015 prices and exchange rates.

**Direct impact:** the impact of Airbus at its operational sites in the UK.

**Employment:** the number of employees and self-employed.

**GDP:** the most commonly used metric to assess the health of the UK economy. It is used to determine the economy's rate of growth or whether it has entered a recession. It is equal to the gross value added of all firms in the UK economy, after minor adjustments for taxes and subsidies.

**Gross value added:** measures the contribution to the economy of an individual company. It is most easily thought of as a company's revenue minus the cost of bought in goods and services used up in the production of that revenue. The sum of gross value added across all companies in an economy is equal to GDP after minor adjustments for taxes and subsidies.

**Indirect impact:** Economic activity stimulated by Airbus' purchases of inputs of goods and services from the Company's supply chain.

**Induced impact:** Economic activity stimulated by Airbus' wage payments to employees.

**Input-output table:** An input-output table is a one-year snapshot of supply-chain purchases of goods and services by every industry from every other industry, as well as household purchases from every industry. This study draws on the input-output tables for the UK published by the ONS in 2014 and rest of the world published by the OECD in 2015.

**Office for National Statistics (ONS):** The official UK government statistics agency.





## 2. AIRBUS' IMPACT ON THE UK

Airbus has a considerable economic footprint in the UK. Thousands of people work at its facilities to design, manufacture and deliver its products to consumers around the world. The purchases Airbus makes from its suppliers support further activity throughout the UK, sustaining thousands more jobs across the country. Finally, the wages paid to its own employees, and those employed in its supply chain, fund consumer spending and deliver additional economic benefit to the UK.

We quantify Airbus' economic footprint in terms of its contribution to GDP, the employment it supports and the tax revenues it generates for the UK government. In this chapter, we explore each channel of Airbus' impact on the UK, starting with the direct contribution of its own operations.

### 2.1 DIRECT IMPACT

The UK is a core part of Airbus' worldwide operations. Its facility in Broughton manufactures wings for its commercial aircraft, landing gear are designed and assembled at Filton, and its Stevenage location plays a leading role in the Company's extensive space activities, including designing and building the Rover for the upcoming ExoMars mission searching for life on Mars.

We first measure Airbus' direct impact in the UK in terms of the people it employs, before

exploring the value added contribution it makes to the economy, and the tax revenues it raises for the UK Exchequer.

#### 2.1.1 Airbus' UK workforce

In 2015, Airbus employed nearly 15,000 people across the UK. Four locations dominate the Company's UK operations. Nearly 6,000 people work at the Company's site in Broughton (Fig. 4). Airbus' site in Filton, near Bristol, employs a further 3,000 people. Over 1,200 people work at the Airbus Defence and Space facility in Stevenage, and another 1,000 people are located at the Company's Portsmouth site, which designs and builds payloads for mobile and military communications and earth observation satellites.

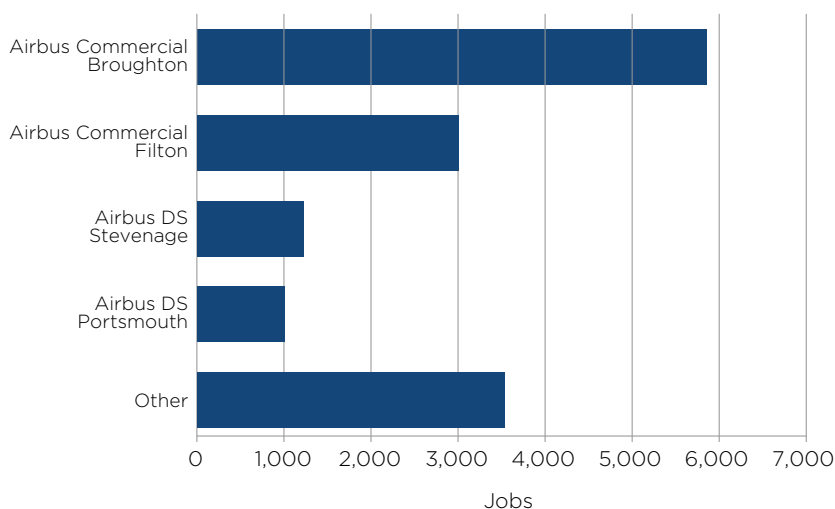
Airbus is a prominent employer in the manufacturing industry

in the UK. Its workforce represents around 16 percent of all employment in UK air and spacecraft manufacturing in 2015.<sup>2</sup> Looking at Airbus' employment in a slightly different way, its workforce is equivalent to 10 percent of employment in the UK motor vehicles and trailer manufacturing industry.<sup>3</sup> One in every 170 UK manufacturing jobs was an Airbus job.<sup>4</sup>

#### 2.1.2 Airbus' direct contribution to UK GDP

Airbus generated nearly £5.9 billion in UK revenue in 2015, by manufacturing airplane, helicopter, satellite, and defence equipment, as well as providing support services to airlines, helicopter operators, and the military. However, this revenue does not represent its full contribution to the UK economy.

**Fig. 4. Employment at Airbus' UK locations in 2015**



Source: Airbus

<sup>2</sup> Industry defined as the manufacture of air and spacecraft and related machinery (SIC 30.3).

<sup>3</sup> Industry defined as the manufacture of motor vehicles, trailers and semi-trailers (SIC 29).

<sup>4</sup> ONS, "UK non-financial business economy (Annual Business Survey): Sections A-S", 10 November 2016.

Airbus' direct impact on the UK economy is measured by the value added it creates, and is equal to its UK profits and wage payments to UK-based staff. Airbus recorded earnings of around £720 million from its UK operations in 2015. At the same time, it paid its UK employees £825 million in wages and salaries. **Therefore, the Company generated a value added contribution to UK GDP of over £1.5 billion in 2015.**

To put this contribution in context, Airbus' direct value added equated to 23 percent of the £6.7 billion GDP contribution made by the UK's air and spacecraft manufacturers in 2015. Comparing to other parts of the UK economy, Airbus' direct GDP impact was equivalent to eight percent of the £19.5 billion value added contribution made by the UK's motor vehicle and trailer industry.

A further means of placing Airbus' impact into perspective is to explore the productivity of its workforce. Airbus' employees are highly productive because they are skilled and their work is capital intensive. On average, each Airbus employee created a £105,300 gross value added contribution to UK GDP in 2015. That is nearly twice the average across all UK employees, which was £53,300.<sup>5</sup> It is also nearly two-thirds higher than average productivity across the UK manufacturing sector (£65,900 per worker).

## 2.2 INDIRECT IMPACT

To deliver its products Airbus relies on a broad and diverse UK supply chain. UK businesses provide crucial inputs to Airbus' operations in the UK and elsewhere. Rolls-Royce, for instance, is a prime supplier of aircraft engines to Airbus' French operations.

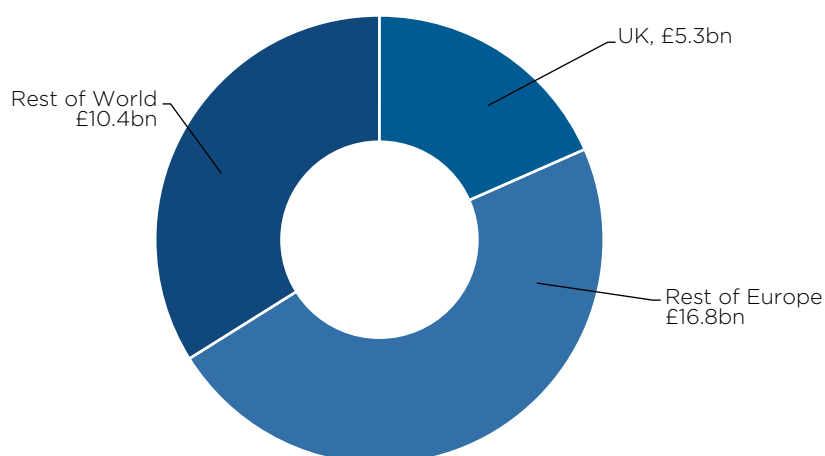
Airbus' purchases of goods and services from UK businesses stimulate economic activity throughout the rest of the economy. The bespoke model we have constructed for this study enables us to map these linkages and quantify Airbus' supply chain impact in the UK. Furthermore, the purchases Airbus makes from suppliers outside of the UK also contribute to the UK's economy, as these international suppliers are likely to import some goods and services from the UK. For example, Safran in France may purchase metal components from a UK company in order

to deliver its engines to Airbus. Again, our model enables us to map these complex international supply chains and comprehensively quantify the scale of Airbus' UK supply chain.

In total in 2015, Airbus spent more than £5 billion on inputs of goods and services from UK suppliers. This represented 16 percent of the £32.5 billion the Company spent on procurement worldwide (Fig. 5).

Our analysis of Airbus' procurement indicates that manufacturing firms dominate its UK suppliers. Indeed, over £4 billion of its total spending in the UK was with manufacturing firms. Included among this number are other major aerospace companies such as Rolls-Royce, GKN and Magellan Aerospace. Companies providing services were also major suppliers to Airbus in 2015, accounting for £1 billion of its procurement.

**Fig. 5. Airbus' worldwide procurement in 2015**



Source: Airbus, Oxford Economics



# WORKING WITH SUPPLIERS: AIRBUS HELICOPTERS AND TLC HELILIFT

Airbus' relationship with its suppliers is not defined simply by the procurement of goods and services. The Company also works with its suppliers to enhance not only the products it purchases, but also its suppliers' ability to access new markets. The relationship between Airbus Helicopters and TLC Helilift is a prominent example of this.

Although highly manoeuvrable in the air, helicopters can be difficult to move once on the ground. Weighing up to four tonnes and often equipped with skids rather than wheels, up to five people could be required to push even a small helicopter into a hanger for repair or storage. This presents a real risk of injury to the individuals and damage to the helicopter. Wheel attachments are available for helicopter skids to enhance manoeuvrability, but these are bespoke to each type of aircraft.

Working independently, one engineer developed a solution: the TLC Helilift. The Helilift is an adjustable electronic hydraulic lift that enables one person to easily lift and manoeuvre any small helicopter.

TLC approached Airbus Helicopters with its solution, requesting facilities for testing the Helilift. Impressed with the concept, Airbus allowed



TLC to test at its site, took one Helilift on trial and eventually bought two more.

However, this was only the start of Airbus and TLC's relationship. As Airbus began selling helicopters to emergency services in the mid-1990s, it promoted the accompanying purchase of a Helilift. This promotion, together with Airbus Helicopters' global client base, has enabled TLC to grow from a two-person operation into a company with customers in the emergency services (and other companies) in countries ranging from Germany and the US, to Japan and Saudi Arabia.

Through its relationship with TLC, Airbus has not only enabled a supplier to reach new markets, it has also provided value to its customers, reducing the risk of injury to staff and damage to helicopters.

Airbus' spending with suppliers represents the first stage of its supply chain. By sourcing inputs from its suppliers, Airbus stimulates further activity in these companies own supply chains. The model we have constructed for this study enables us to trace these supply chains as they reach different industries and span the global economy. Using this model, we can translate this activity into a GDP contribution and employment.

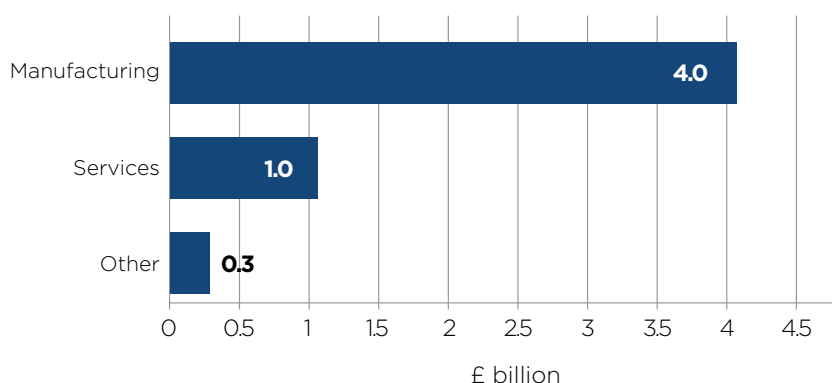
We estimate Airbus' domestic and international procurement supported a value added contribution to UK GDP of over £3.8 billion. This economic activity is estimated to have supported 64,000 jobs.

The activity supported in Airbus' supply chain also contributed tax revenue to the UK government. Businesses in its supply chain pay corporation tax and other taxes on production and products. Equally, the people employed in these businesses pay income tax and National Insurance Contributions. Considering all of these taxes, we estimate the Company's UK supply chain activities raised almost £680 million for the Exchequer in 2015.

Further analysis of this impact clearly shows the breadth of Airbus' UK supply chain. It is particularly apparent how the supply chain features companies from a much wider

spectrum of sectors than those which Airbus sourced inputs from directly. Although over three-quarters of the Company's UK spending was with manufacturing firms, these firms made only 43 percent of the indirect contribution to GDP (Fig. 7). Conversely, business service and wholesale firms accounted for 17 and 10 percent of the contribution, respectively—an indication of other firms' reliance on these businesses.

**Fig. 6. Airbus' UK procurement by supplier type in 2015**



Source: Airbus, Oxford Economics







## 2.3 INDUCED IMPACT

The wage-financed spending of people working for Airbus, or in its supply chain, forms the final channel through which it influences the UK economy. Employees make purchases at retail and leisure outlets throughout the UK. These purchases stimulate further activity in these sectors' supply chains, adding value, sustaining employment and raising tax revenues.

We estimate that the wage-financed spending of the people employed directly and indirectly by Airbus across the UK in 2015 supported a value added contribution to UK GDP of over £2.4 billion. This activity is estimated to have sustained a further 38,700 jobs in the UK, and generated nearly £610 million for the Exchequer.

## 2.4 TOTAL IMPACT

This chapter has shown Airbus' impact on the UK extends far beyond the operations at its own facilities. Indeed, Airbus' total economic footprint in the UK is the sum of its direct, indirect and induced impacts. By combining the three channels of impact, we estimate Airbus supported a £7.8 billion contribution to UK GDP in 2015.

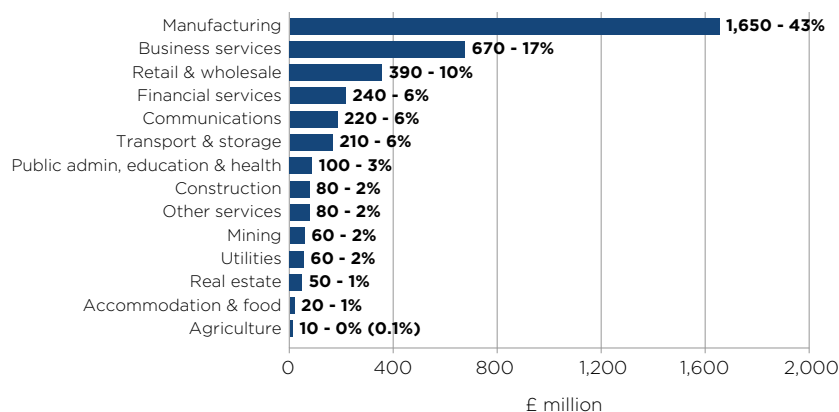
This footprint is nearly a third larger than Oxford's economy, slightly larger than the Newcastle economy and equivalent to more than 90

percent of Cardiff's economy. Airbus directly generated a fifth of this activity at its UK facilities. Because Airbus' supply chain, including global suppliers, is so extensive, the indirect channel accounted for nearly half of the total impact (Fig. 8).

We estimate Airbus' worldwide activities sustained 117,400 jobs in the UK in 2015. This is equivalent to the number of people employed in the city of Swansea, 90 percent of all employment in Sunderland and 10,000 more jobs than found in Reading.

Airbus itself employed nearly 15,000 people at its UK operational sites (12 percent of the total). As was the case with its contribution to GDP, Airbus supported the greatest number of people through its procurement: an estimated 64,000 jobs (or 54 percent of the total) in 2015 (Fig. 9). In addition, Airbus' wage payments supported 38,700 jobs (33 percent of the total) throughout the UK economy that year.

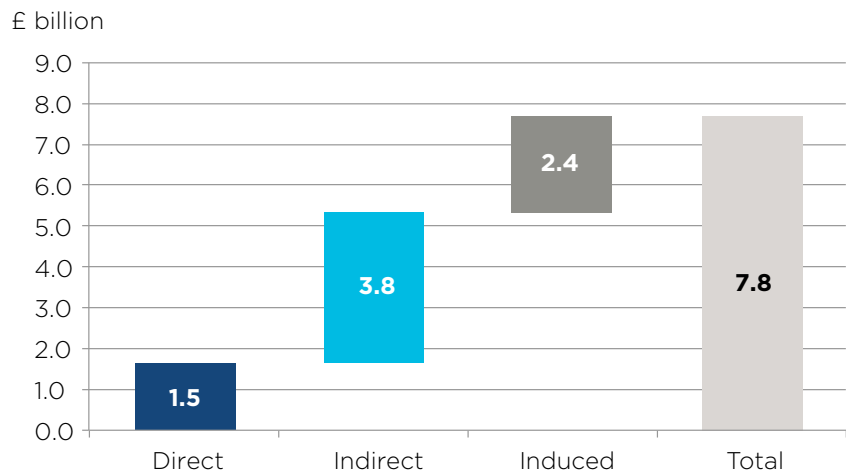
**Fig. 7. Airbus' indirect contribution to GDP by sector in 2015**



Source: Oxford Economics

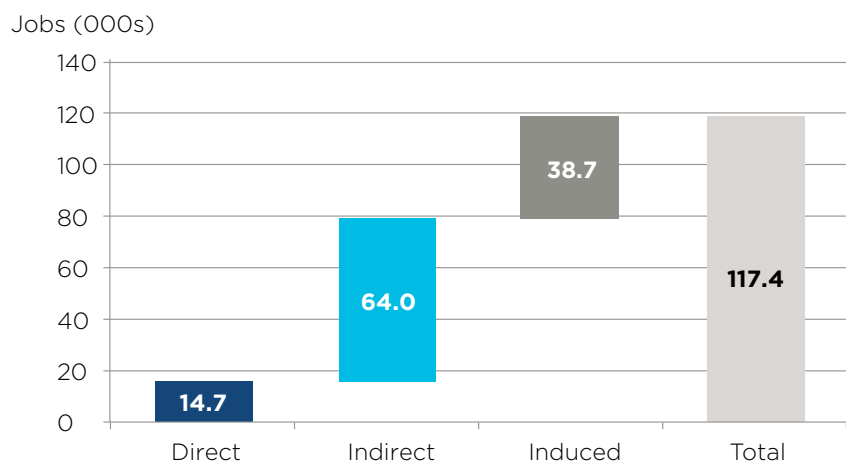
The activity and employment supported by Airbus' operations in 2015 generated notable tax revenues for the Exchequer. We estimate Airbus' operations raised more than £1.7 billion in tax revenues in 2015. This means £1 in every £400 collected by the UK government can be attributed to Airbus' activity. Put another way, the taxes generated by Airbus in 2015 equal 60 percent of projected public spending on fire-protection services in 2015/16.<sup>6</sup>

**Fig. 8. Airbus' contribution to the UK economy in 2015**



Source: Airbus, Oxford Economics. Note totals may not sum due to rounding.

**Fig. 9. Airbus' employment impact on the UK in 2015**



Source: Airbus, Oxford Economics

<sup>6</sup> HM Treasury, Public Expenditure Statistical Analyses 2016 (London: HM Treasury, 2016).





## 3. AIRBUS' REGIONAL IMPACT

Airbus' impact reaches all parts of the UK. It operates facilities in nine of the UK's nations and regions, and, as the previous chapter shows, makes purchases from a wide range of businesses throughout the country.<sup>7</sup> Airbus' £7.8 billion contribution to the UK economy, and the 117,400 jobs it supports, are not distributed evenly. The extent of Airbus' impact in each region reflects the size of its operations there and the value of its procurement from firms in a given region. The strength of a region's economy, and how frequently its businesses appear in the supply chains of firms located in other parts of the UK, also plays a significant role.

In this chapter, we explore Airbus' contribution to the four nations and regions that are home to Airbus' largest facilities. We start by focusing on its impact in Wales, before discussing the contribution it makes to the South West, South East and East of England. Finally, we investigate Airbus' impact in the remaining UK nations and regions.

### 3.1 AIRBUS' IMPACT ON WALES

Wales is home to key parts of Airbus' worldwide operations. The Company's site in Broughton houses the assembly lines for wings for all Airbus aircraft, as well as procurement and management functions. In addition, its facility in Newport is a Defence and Space centre

specialising in cutting-edge cyber security and virtual reality techniques.

#### 3.1.1 Direct impact

Airbus is one of the largest employers in Wales. In total, the Company employed nearly 6,500 people at its Welsh sites in 2015. This meant that Airbus was Wales' second largest private sector employer.

The Company also makes a substantial direct contribution to Welsh GDP. In 2015, the wages it paid to its employees in Wales, and the profits it made on its operations in the nation, led it to make a direct value added contribution to Wales' GDP of £563 million. That is equivalent to over five percent of the economic output produced in Cardiff in 2015.<sup>8</sup>

<sup>7</sup> The UK is divided into 12 Government Office Regions (GOR) reflecting the nations and regions of Great Britain and Northern Ireland. The 12 GORs are South West, South East, London, Wales, West Midlands, East Midlands, East of England, North West, Yorkshire and the Humber, North East, Scotland and Northern Ireland.

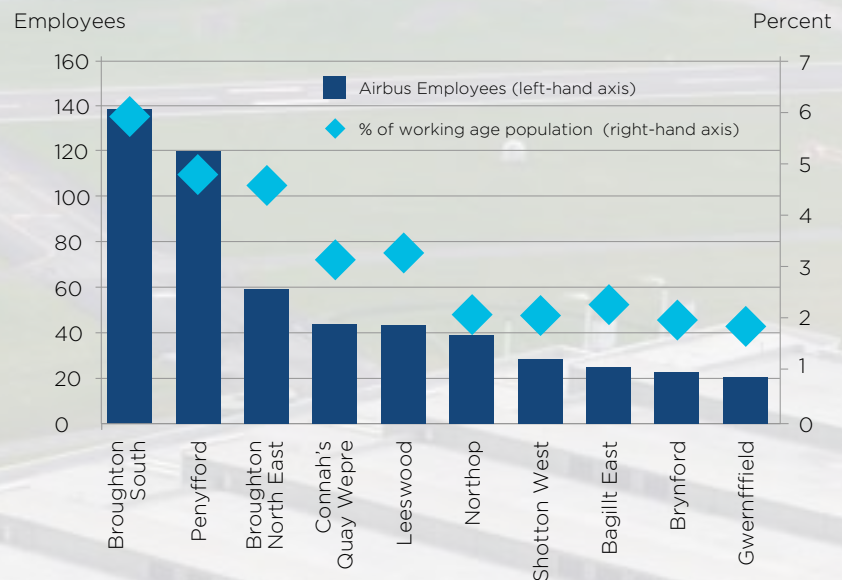
<sup>8</sup> The comparison is to GDP in Cardiff in 2014, so the comparison is indicative rather than like-for-like. Office for National Statistics, "Regional Gross Value Added (Income Approach), 1997 to 2014," 2015.

# AIRBUS' RURAL EMPLOYMENT IN WALES

Airbus' operations in Wales provide significant employment opportunities and make the company the major employer in some parts of rural Wales, particularly around its Broughton site. The Company therefore plays a key role in sustaining these communities. Of the 6,500 people Airbus employed at its Welsh sites in 2015, slightly more than half, or 3,300 people, live in Wales. Airbus employs people in 188 of Wales' 881 wards. In the areas where Airbus employees live, the company employs an average of 1 in every 110 working age people (those aged 16 to 64).

Notably, Airbus employs about 950 people who live in rural areas in Wales, or nearly one percent of working age people living there. Wards with a particularly high concentration of employment that is reliant on Airbus include Broughton South (where Airbus employs 138 of the residents, or 5.8 percent of the working age population), Penyffordd (120 people, or 4.9 percent), Broughton North East (67 people, or 4.6 percent), and Leeswood (44 people, or 3.2 percent), as shown in Fig. 10.

**Fig. 10. Airbus' employment in ten rural wards in 2014**



Source: Airbus, ONS

### 3.1.2 Indirect impact

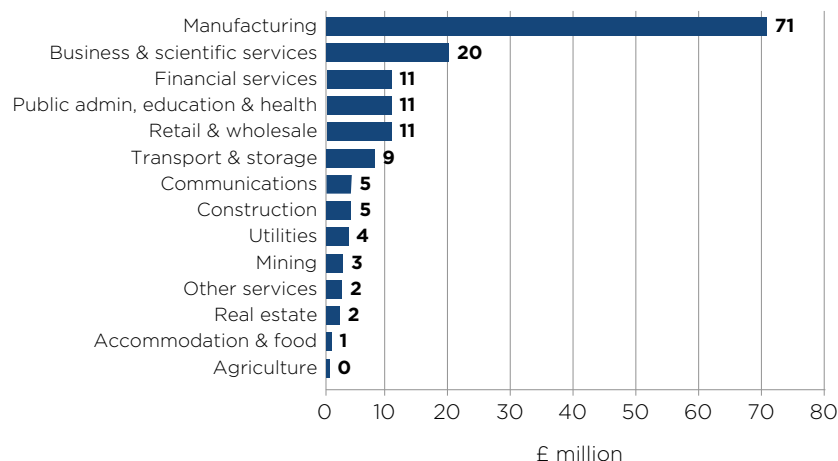
Airbus' purchases of goods and services stimulate further economic activity throughout Wales. In total, Airbus spent £199 million on inputs of goods and services from Welsh suppliers in 2015.

But this spending is only the first stage of the indirect impact. Airbus' procurement supported further contributions to the economy in Wales, among firms providing inputs to Airbus' suppliers, and so on down their supply chain. Moreover, additional indirect activity is also supported within Wales as a result of Airbus' procurement spending elsewhere.

We estimate that Airbus' Welsh supply chain contributed a further £153 million to GDP. This economic activity also supported an estimated 2,750 jobs in the nation.

Analysis of Airbus' indirect GDP contribution to Wales demonstrates the wide range of companies involved in its supply chain. Manufacturing contributed the highest proportion (46 percent), but other sectors accounted for significant shares (Fig. 11): business and scientific services and financial services were responsible for 13 percent and seven percent of GDP contributions, respectively.

**Fig. 11. Airbus' indirect contribution to GDP in Wales by sector in 2015**



Source: Oxford Economics

### 3.1.3 Induced impact

In order to quantify the impact of Airbus' wage-financed consumer spending in Wales, it is necessary to consider the wages paid to their employees, and those paid to people employed in its supply chain. Our regional analyses assume that employees of Airbus spend most of their wages in their region of residence.<sup>9</sup>

We estimate the wage spend of Airbus workers living in Wales—and that of workers in the Company's Welsh supply chain—supported a £137 million value added contribution to GDP. This activity is estimated to have sustained a further 2,500 jobs in the country.

### 3.1.4 Total impact

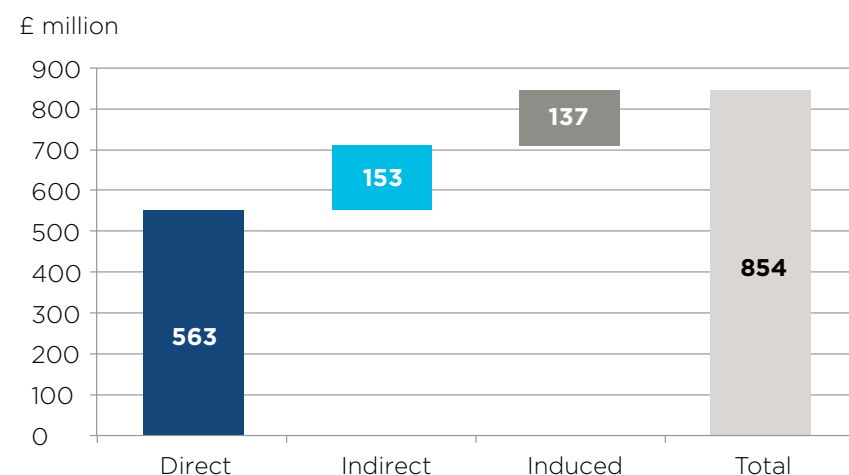
Airbus' total economic impact in Wales is the sum of its direct, indirect and induced impact. By combining the three channels of impact, we estimate Airbus supported a £854 million contribution to GDP through its expenditure in Wales.

Airbus supported 11,700 jobs throughout Wales in 2015. This is equivalent to 5.8 percent of all employment in Cardiff.<sup>10</sup> More than half (55 percent) of these workers were employed directly at Airbus' two key Welsh sites (Fig. 13). A further quarter (24 percent) of the jobs were in Airbus' supply chain. Wage-financed consumer spending by employees of Airbus and its Welsh supply chain supported the final fifth (21 percent) of this jobs contribution.

<sup>9</sup> This means that, for example, some of Airbus' salaries paid to workers at its Broughton site are assumed to support induced economic activity in the North West, as many workers there live in Chester or Liverpool. This likely underestimates the impacts in Wales of wage payments at the Broughton site, since workers there are likely to visit the region's food, retail and leisure outlets during or after work. But it is difficult to estimate the extent of this, and so for simplicity and consistency, we assign salaries to the locations of workers' residence.

<sup>10</sup> Office for National Statistics, "Local Authority district - Business Register and Employment Survey (BRES): Table 6," 2016.

**Fig. 12. Airbus' contribution to Welsh GDP in 2015**



Source: Oxford Economics

contributed a further £504 million in gross value added, whilst supporting around 9,200 jobs in the region.

Our analysis of Airbus' supply chain indicates that manufacturing firms predominate in its indirect impact in the South West. The manufacturing sector accounted for well over half (58 percent) of the Company's entire indirect GDP contribution in the South West (Fig. 13). Business services and public administration were responsible for 10 percent and 8 percent of GDP contributions, respectively.

### 3.2 AIRBUS' IMPACT ON THE SOUTH WEST

The South West is home to important Airbus operations. Its Filton production site plays a vital role in the design and production of Airbus' advanced aircraft, with hundreds of engineers also involved in research and development for future aircraft projects. The region is also home to additional support functions, such as human resources, finance and procurement.

#### 3.2.1 Direct impact

In 2015, Airbus employed 3,000 people in the South West of England. The site in Filton is an important element of South Gloucestershire's economy. The facility houses just over two percent of all jobs in the area. The

importance of the site to South Gloucestershire's manufacturing sector is particularly marked: almost one in five manufacturing jobs in the area are located at Airbus' production site.

#### 3.2.2 Indirect impact

The South West is an important region for Airbus' procurement. In total, Airbus spent nearly £800 million on inputs of goods and services from businesses in the South West in 2015. Three significant suppliers were based in the region: GKN, Cobham and Meggitt.

Airbus' purchases of goods and services from businesses in the local area and elsewhere support further economic activity in the South West. We estimate that Airbus' South West-based supply chain

#### 3.2.3 Induced impact

We estimate the spending of wages by Airbus' employees living in the South West—and that of workers in the Company's South West-based supply chains—supported a £290 million value added contribution to GDP. This activity is estimated to have sustained a further 5,400 jobs in the region.

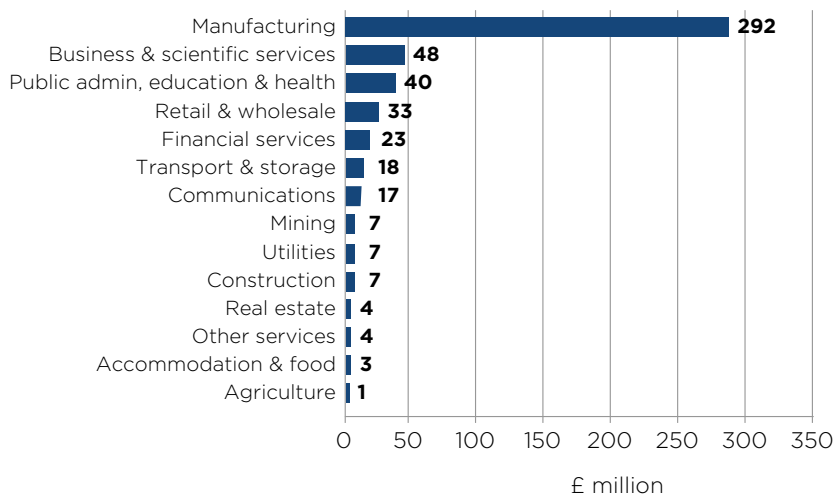
#### 3.2.4 Total impact

Overall, our modelling suggests that Airbus contributed £1 billion to the South West economy in 2015. This is equivalent to one-third of Gloucester's economy in 2015. The indirect impact of spending by Airbus and its suppliers accounted for almost half (48 percent) of this value added contribution (Fig. 14). At the same time, Airbus



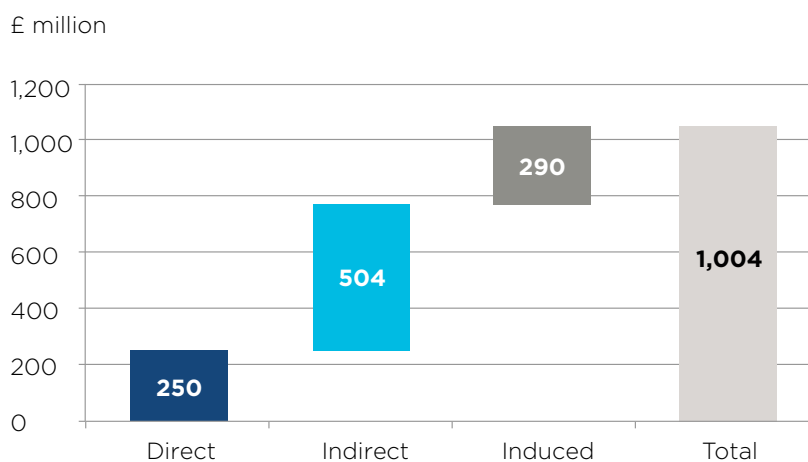
supported 17,500 jobs in the region. To put this into context, this is equal to a sixth of all employment in Bath and North East Somerset.

**Fig. 13. Airbus' indirect contribution to GDP in the South West by sector in 2015**



Source: Oxford Economics

**Fig. 14. Airbus' contribution to the South West economy in 2015**



Source: Oxford Economics

### 3.3 AIRBUS' IMPACT ON THE EAST OF ENGLAND

Airbus has substantial operations in the East of England. Airbus Defence and Space, and MBDA, which is 37.5 percent owned by Airbus, are both located in Stevenage. Airbus Defence and Space is a world leader in the space industry, and Europe's top defence and space company. MBDA is the only integrated defence company to provide missiles and missile systems for each branch of the UK's armed forces.

#### 3.3.1 Direct impact

In 2015, Airbus employed 2,300 people in the East of England. This means one in every 1,200 jobs in the region were at one of the two Stevenage sites. The company plays an important role in the Stevenage economy, directly accounting for 5.3 percent of jobs in the town. When comparing to the town's manufacturing activities, Airbus' importance to the local economy is even more pronounced: its sites housed over 42 percent of Stevenage's manufacturing jobs in 2015.

The Company also made a significant contribution to the East of England's economy. In 2015, the wages it paid to its employees in the East of England, and the profits it made on its operations in the region, led it to make a direct value added contribution of £257 million to the regional economy.

### 3.3.2 Indirect impact

The East of England is a key location for Airbus' supply chain, with three of the Company's biggest UK suppliers located in the region including BAE Systems, One Facility and Serco. Counting all of its UK and global sites, Airbus procured over £370 million worth of goods and services from businesses in the region during 2015.

Airbus' purchases of inputs of goods and services from local companies—as well as companies elsewhere—stimulate further economic activity throughout the East of England. We estimate Airbus' supply chain in the region contributed a further £267 million value added to the regional economy. This economic activity supported an estimated 4,900 jobs in the region.

Airbus' East of England supply chain supported economic activity in a wide range of industries. Manufacturing accounted for 30 percent of its indirect GDP contribution in the region in 2015 (Fig. 15). Public administration, and business and scientific services were also important to Airbus' supply chain, accounting for 14 percent and 13 of its indirect value added contribution, respectively.

### 3.3.3 Induced impact

We estimate the wage spend of Airbus' employees in the region—and that of workers

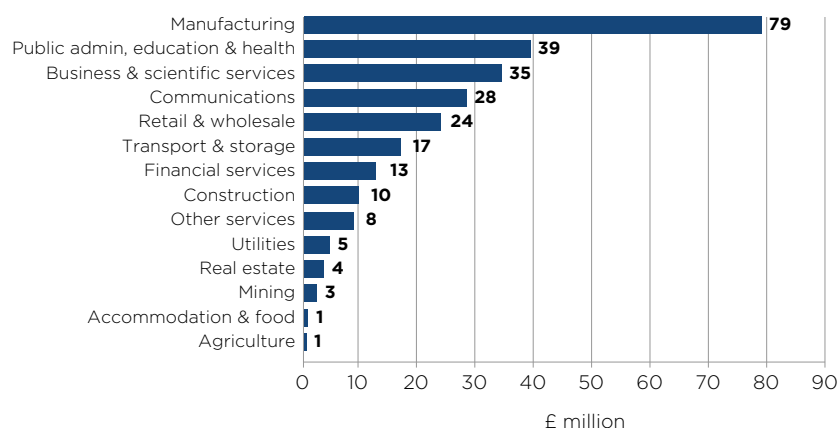
in its East of England supply chain—supported a £210 million value added contribution to GDP in 2015. This activity sustained about 3,300 jobs in the region.

### 3.3.4 Total impact

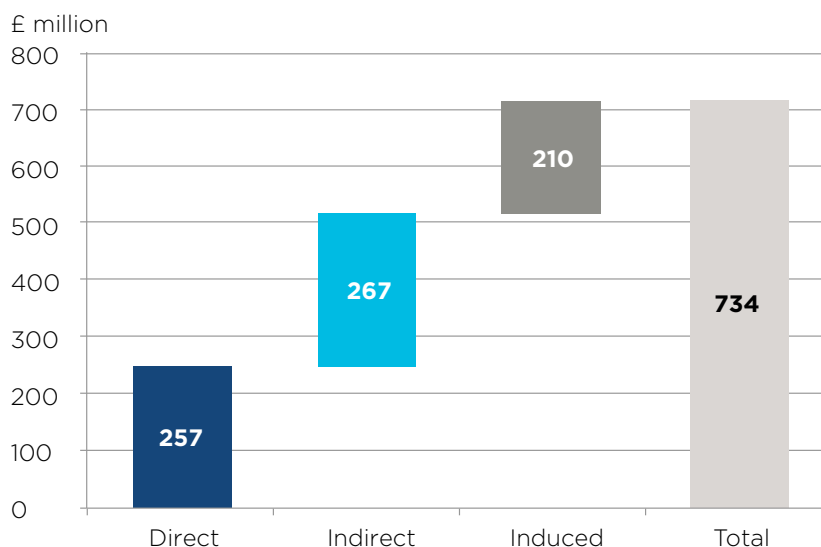
By combining the direct, indirect and induced channels of impact, we estimate Airbus supported a £734 million gross value added contribution to the East of England (Fig. 16). This is equivalent to approximately a third (32 percent) of the total economic output produced in Stevenage in 2015.

Airbus supported 10,400 jobs throughout the East of England in 2015. A fifth (22 percent) of these workers were employed directly at Airbus or MBDA's sites in Stevenage. Spending by Airbus and its East of England supply chain and their workers contributed the rest of this jobs impact.

**Fig. 15. Airbus' indirect contribution to the East of England economy by sector in 2015**



Source: Oxford Economics

**Fig. 16. Airbus' contribution to East of England's GDP in 2015**

Source: Oxford Economics

### 3.4 AIRBUS' IMPACT ON THE SOUTH EAST

The South East is also home to a variety of Airbus operations. Airbus Defence and Space's site in Portsmouth specialises in the design and manufacture of advanced satellites and systems for telecommunications, observation and navigation. Airbus Helicopters, the world's largest helicopter manufacturer, has its civil helicopter hub at Oxford airport.

Three of Airbus' subsidiaries also have operations in the South East. Vector, a worldwide leader in helicopter and engine repair and maintenance, operates out

of Hampshire. AirTanker, with operations including maintenance, operational control and training, has its base in Oxfordshire. And Surrey Satellite Technology Limited, a Company subsidiary, is based in Guildford with additional facilities in Hampshire.

#### 3.4.1 Direct impact

Airbus employed over 2,700 people in the South East in 2015, amounting to 0.1 percent of all jobs in the region. Airbus Defence and Space itself directly supports one in every 60 jobs in Portsmouth. When focusing on the city's manufacturing sector, the impact is proportionally more important: the site accounted

for 1 in 8 of Portsmouth's manufacturing jobs.

The Company also made a significant contribution in the South East's economy. In 2015, the sum of its gross salaries and gross profits amounted to a direct value added contribution of £458 million. This was equivalent to approximately a quarter (26 percent) of Dover's total economy.

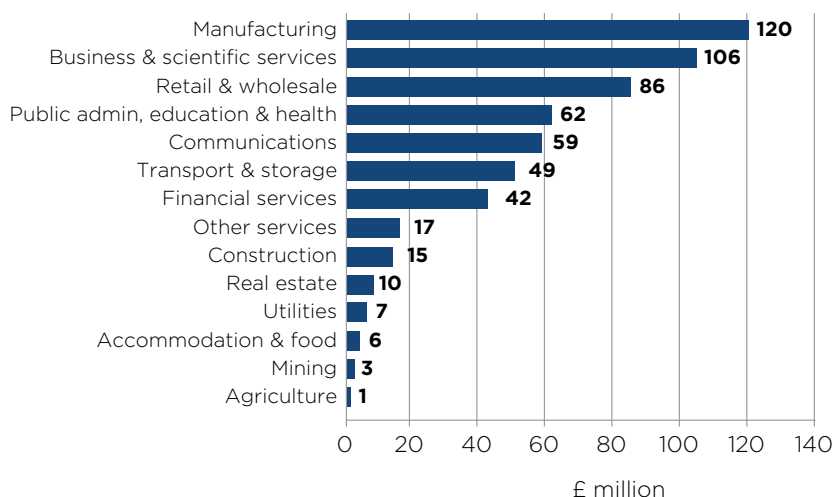
#### 3.4.2 Indirect impact

The Company's purchases of goods and services in the South East, as well as elsewhere, support further supply chain activity in the region. In total, Airbus spent nearly £750 million on inputs of goods and services from businesses in the South East in 2015.

We estimate that Airbus' South East-based supply chain made an additional £583 million gross value added contribution to GDP in the region. This economic activity supported an estimated 8,300 jobs in the same year.

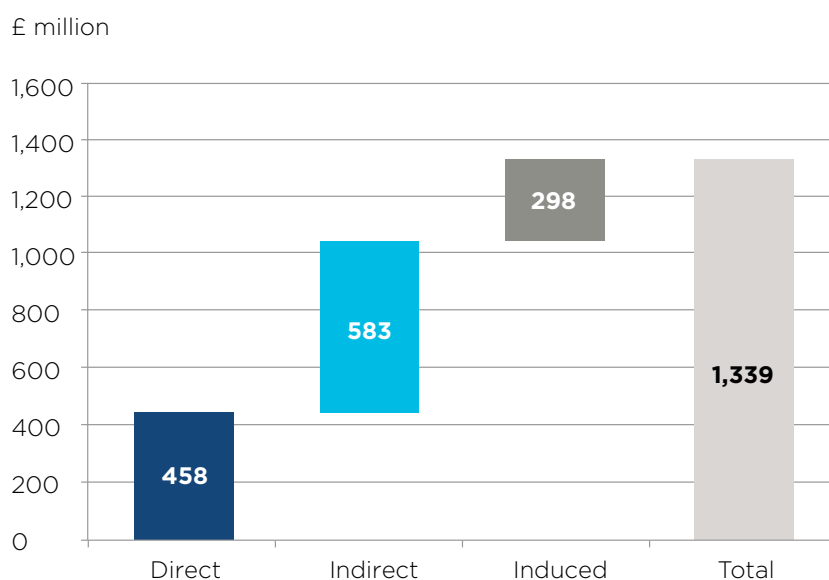
This indirect impact supported economic activity across a variety of industries. Manufacturing suppliers accounted for just over 20 percent of Airbus' indirect contributions to the region's economy in 2015 (Fig. 17). Business and scientific services and retail and wholesale businesses were also important to the supply chain, responsible for 18 percent and 15 percent of contributions, respectively.

**Fig. 17. Airbus' indirect contribution to GDP in the South East by sector in 2015**



Source: Oxford Economics

**Fig. 18. Airbus' contribution to the South East economy in 2015**



Source: Oxford Economics

### 3.4.3 Induced impact

Airbus' South East-residing employees spent a proportion of their wages in the region, and our modelling suggests that this consumption spending, and that of workers in the Company's South East supply chain, generated another £298 million in GDP, while sustaining a further 4,200 jobs in the region.

### 3.4.4 Total impact

The sum of these three impacts reveals Airbus' operations supported a £1.3 billion contribution to South East economy in 2015 (Fig. 18). This is equivalent to half of the gross value added generated in Woking in 2015. The largest component of this impact was the indirect channel (44 percent), highlighting the importance of Airbus' supply chain in the region.

Airbus supported 15,200 jobs throughout the South East in 2015. Over half (55 percent) of these jobs were sustained through the indirect channel, again emphasising the crucial role of Airbus' supply chain in the region to its overall economic activity.



### 3.5 AIRBUS' IMPACT ON REST OF THE UK

Airbus' impact on the UK extends beyond the four key regions in which it conducts most of its operations. Airbus has facilities in London, the North East of England, the East Midlands, Scotland and Northern Ireland. Additionally, Airbus procures inputs of goods and services from all over the UK. This supply chain supports GDP contributions and employment throughout the country. Workers at Airbus and its national supply chain live in every region, sustaining further economic activity and employment by spending their wages.

#### 3.5.1 Direct impact

Airbus employed over 130 people outside of its four key regions in 2015. This includes almost 50 Defence and Space employees in the North East and nearly 40 in London. The remaining staff were employed at Airbus sites in the North East, East Midlands, Scotland and Northern Ireland.

The Company's operations in these regions generated a £15 million gross value added contribution to UK GDP in 2015. The largest contribution was made in the North East: £7 million. Significant contributions were also made in the East Midlands and London: £5 million and £3 million, respectively.

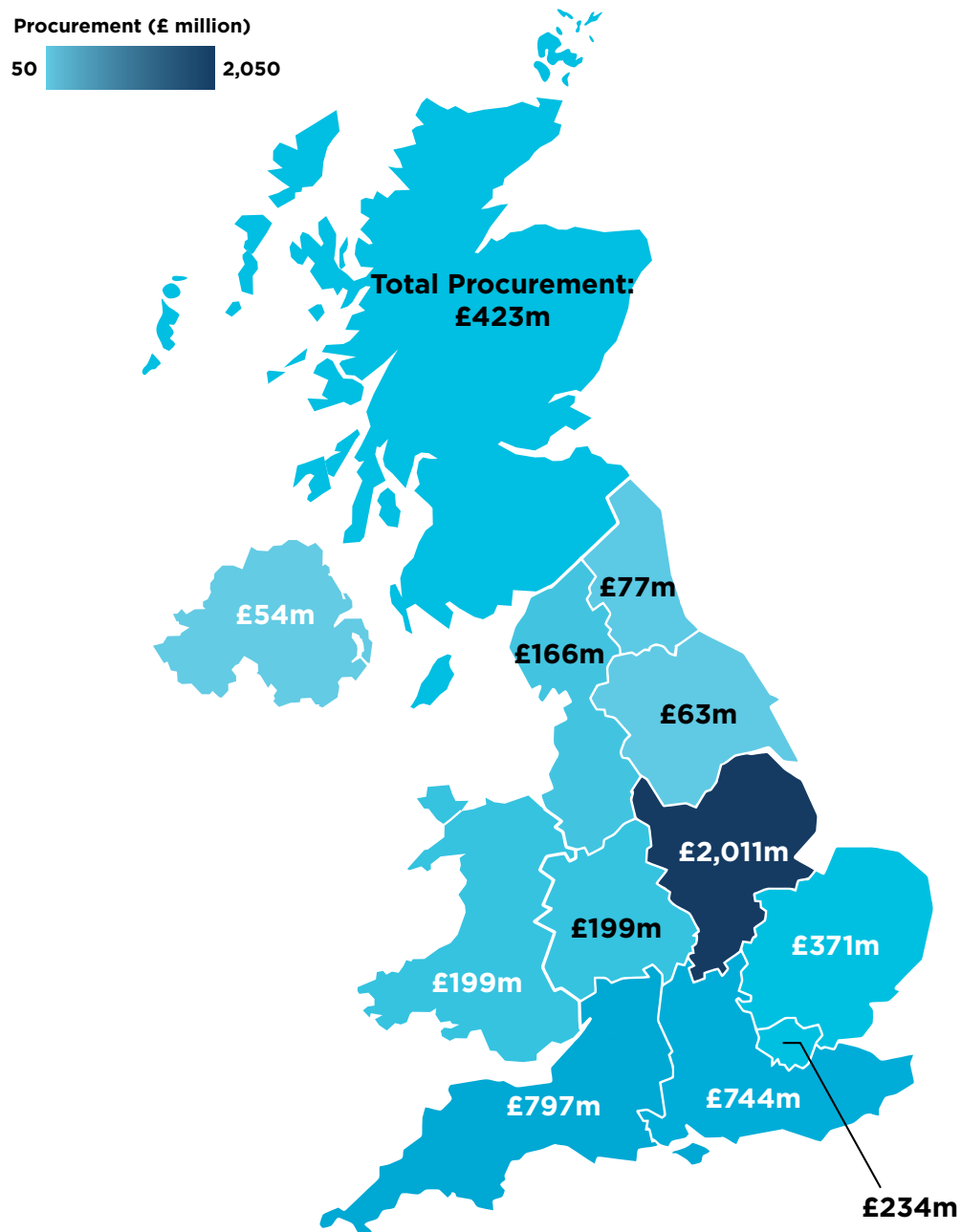
#### 3.5.2 Indirect impact

Airbus' supply chain extends across the UK, with procurement of inputs of goods and services made in every region. In particular, Airbus' third biggest global supplier by value, Rolls-Royce, is located in the East Midlands. In total, Airbus spent over £3 billion with businesses across the UK regions and nations in addition to the spending in the four key regions already analysed.

Airbus' purchases of goods and services throughout the UK supported further economic activity in every region. We estimate that Airbus' supply chain contributed £2.3 billion in gross value added to GDP in 2015, excluding the contribution of the four key regions. The largest GDP contribution, £907 million, was made in the East Midlands (Fig. 20). Airbus' Scottish supply chain also supported considerable economic activity, making a gross value added contribution of £342 million in 2015.

This economic activity also supported 39,000 jobs in the other regions. In particular, Airbus' spending sustained 16,000 jobs in the East Midlands. This is equivalent to one in every 145 jobs in that region.

**Fig. 19. Distribution of Airbus' procurement from UK suppliers in 2015**



### 3.5.3 Induced impact

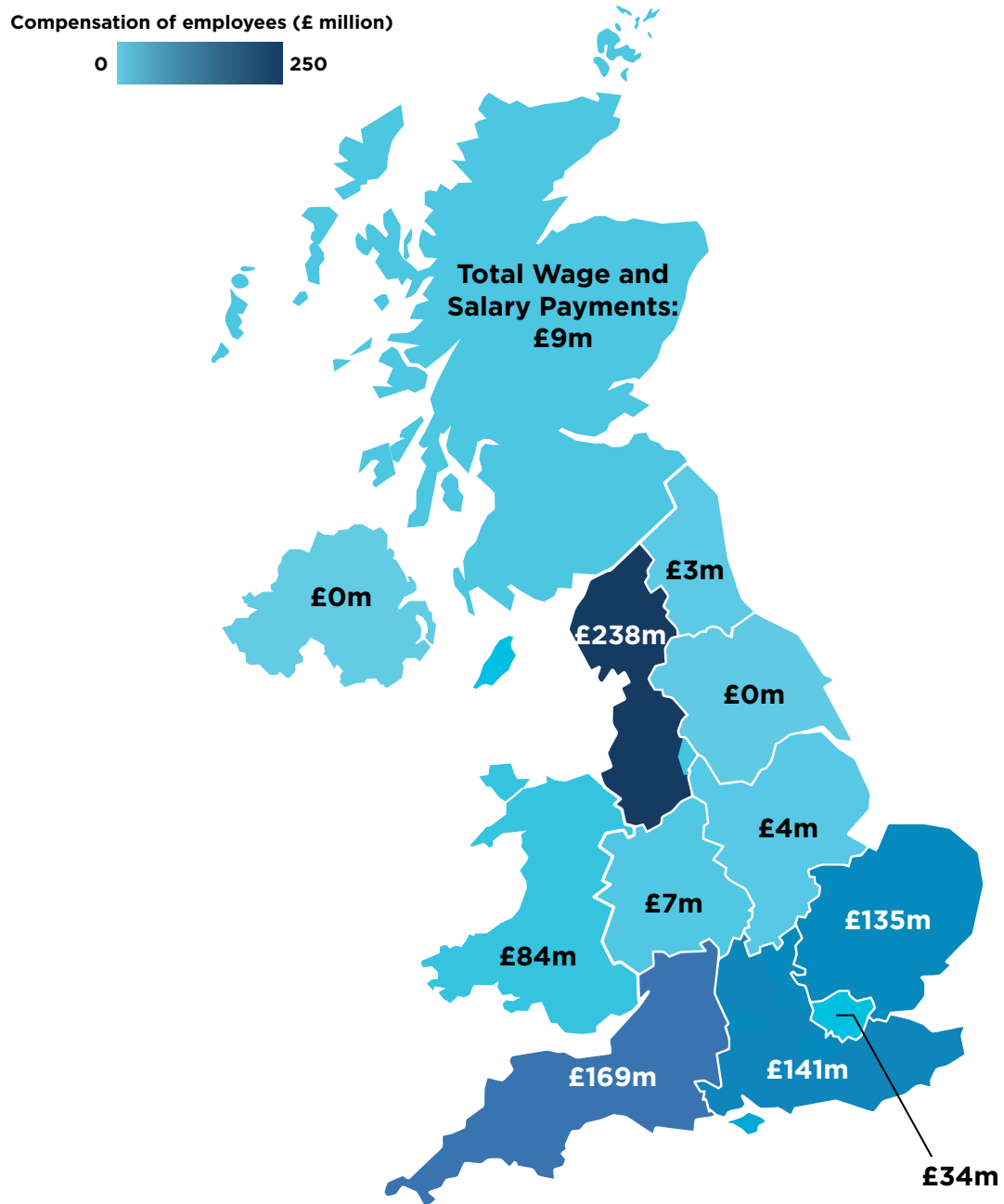
Airbus pays wages to employees living throughout the UK. Using the ONS' mapping software, employees' postcodes have been allocated to each nation and region to estimate the induced impact. This accounts for the fact that some employees live in different regions to where they work. For example, some employees at the Broughton site in Wales commute in from their homes in the North West.

Employees of Airbus spend a proportion of their wages in their region of residence, supporting further economic activity. This wage spend—and that of workers in the Company's supply chains—supported a £1.5 billion gross value added contribution to GDP in 2015, excluding Airbus' four key regions. This impact was more evenly distributed throughout the regions than the direct and indirect impact. The most significant contributions were made in the East Midlands and the North West of England: £320 million and £259 million, respectively.

The wage-financed consumer spending of Airbus employees—and workers in its supply chain—is estimated to have stimulated a further 23,000 jobs in 2015. Just over 26 percent of this employment was in the East Midlands and just over 18 percent in the North West of England.

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**Fig. 20. Distribution of Airbus' wage and salary payments in 2015**





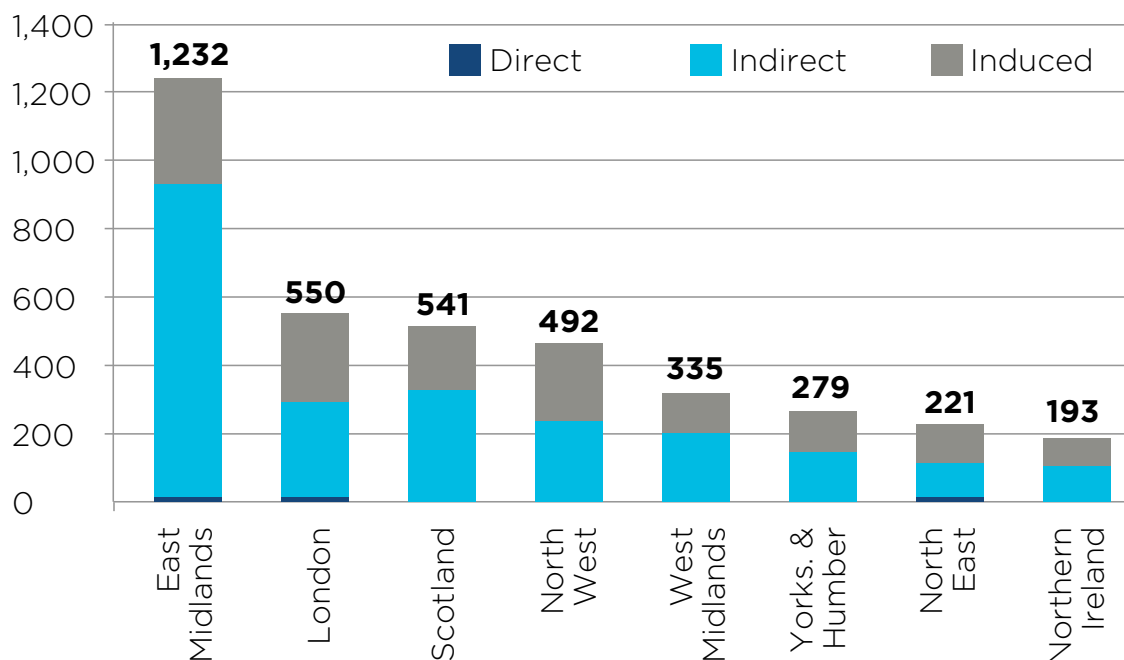
### 3.5.4 Total impact

Overall, our modelling suggests that Airbus contributed £3.8 billion to UK GDP through its operations in regions outside of the Company's four key regions in 2015. This activity supported 62,500 jobs across the eight regions.

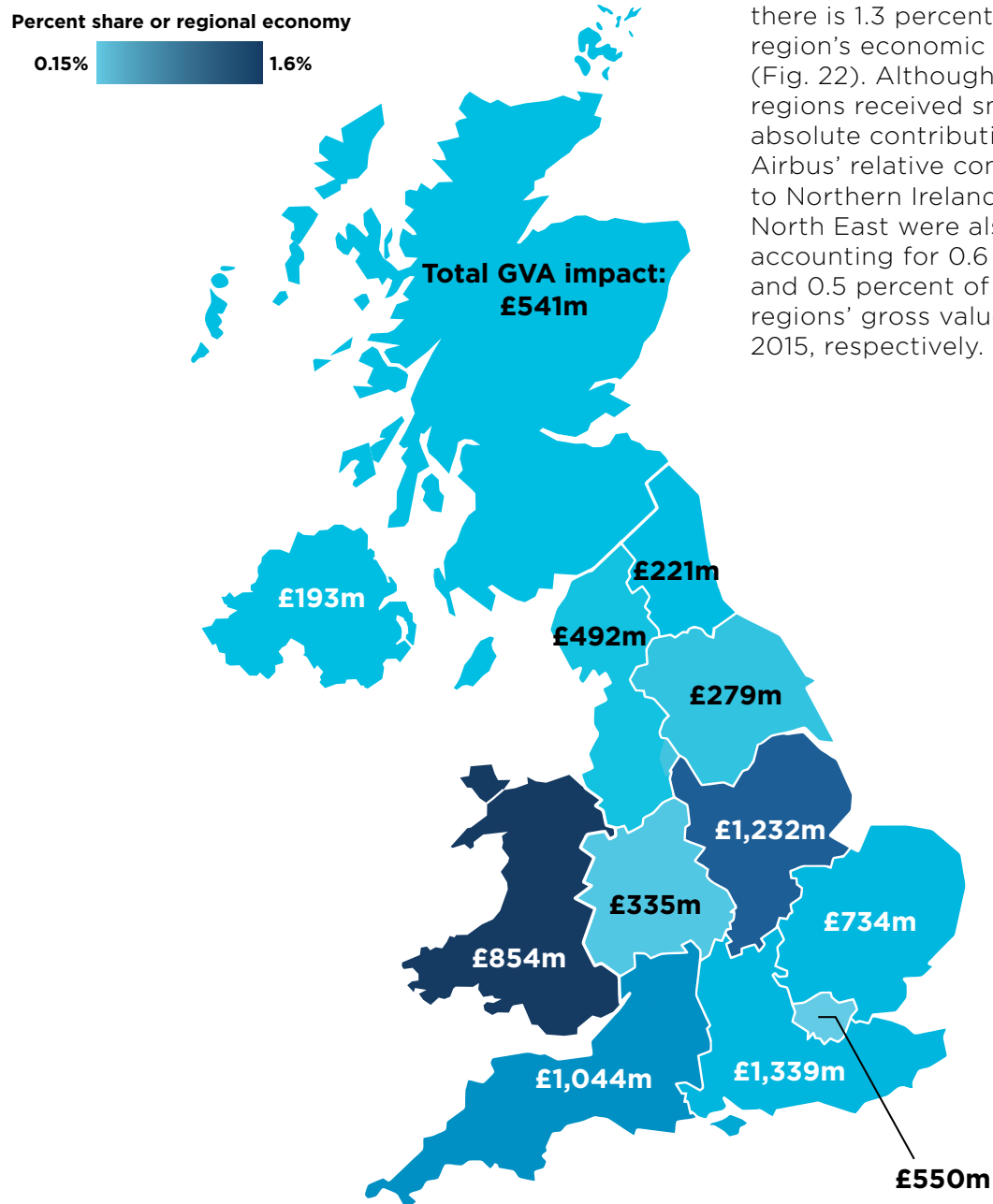
This analysis shows that Airbus' gross value added contribution to GDP were not isolated to the regions that house its main sites. The Company made significant contributions across the UK, especially when considering the relative sizes of the regions (Fig. 21).

**Fig. 21. Airbus' contribution to the rest of the UK's GDP in 2015**

£ million



**Fig. 22. Distribution of Airbus' GDP contribution across the UK's nations and regions in 2015**

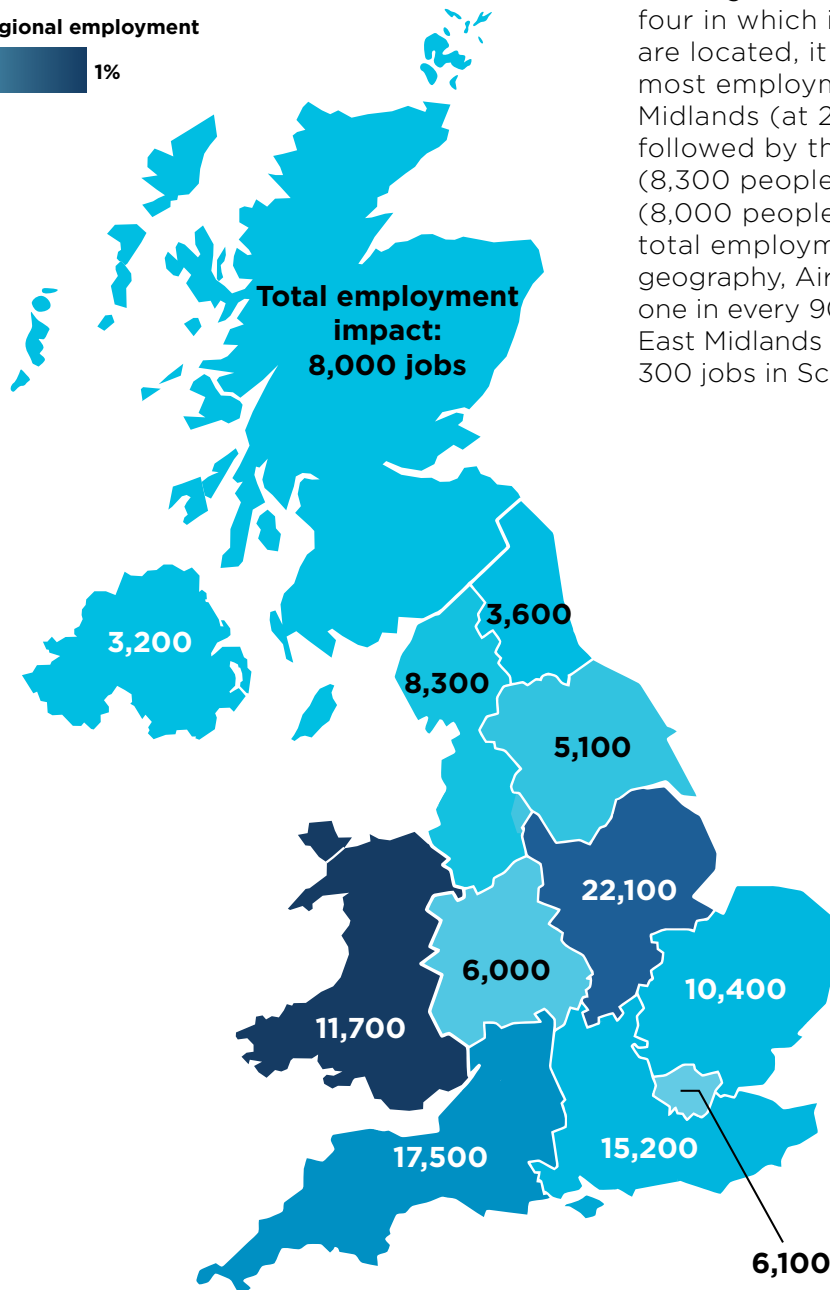


Outside of the four key regions, Airbus supported the largest contribution to GDP in the East Midlands. The £1.2 billion it supports there is 1.3 percent of the region's economic output (Fig. 22). Although the other regions received smaller absolute contributions, Airbus' relative contributions to Northern Ireland and the North East were also notable, accounting for 0.6 percent and 0.5 percent of the regions' gross value added in 2015, respectively.

**Fig. 23. Distribution of Airbus' contribution to employment across the UK's nations and regions in 2015**

Percent share or regional employment

0.1% 1%



Airbus has an impact on the labour market across the UK. It supports at least 3,200 jobs in each of the nations and regions. Outside of the four in which its major sites are located, it supports the most employment in the East Midlands (at 22,100 people), followed by the North West (8,300 people) and Scotland (8,000 people). Relative to total employment in each geography, Airbus supports one in every 90 jobs in the East Midlands and 1 in every 300 jobs in Scotland (Fig. 23).





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## 4. AIRBUS' CATALYTIC IMPACT

Previous chapters have examined the 'core' channels through which Airbus makes an impact on the economy of the UK. Thousands of jobs and billions of pounds' worth of GDP are supported by Airbus' own activities, and its indirect and induced effects as expenditure ripples through the wider economy.

However, there are also other channels through which Airbus influences the economy.

While the nature of these effects means their size is not always straightforward to quantify in terms of jobs or GDP, they undoubtedly amount to meaningful economic contributions. This so-called 'catalytic' impact constitutes the wider benefits that governments, consumers, society and other industries derive from Airbus' production, investment and training.

In this chapter, we explore three additional ways in which Airbus benefits the UK. These include its role in UK innovation and in assisting the UK's emergency services. First, however, we discuss its promotion of science and engineering skills in the UK workforce.

### 4.1 SCIENCE AND ENGINEERING SKILLS

The UK government has acknowledged the need to address skills shortages in science, technology, engineering and maths (STEM) in order to maintain the UK's capacity for growth.<sup>11</sup> As a

high-tech manufacturer, Airbus relies on these skills in its operations. Consequently, it has a stake in the UK's ability to produce skilled workers. As the rest of this section shows, the Company is extremely active in promoting STEM careers, engaging schoolchildren, collaborating with universities, and providing a number of early career schemes to encourage people into STEM vocations.

#### 4.1.1 The Airbus STEM Experience

Airbus employs thousands of scientists and engineers, and engages in vast amounts of innovation and research. In this way, it supports and expands the UK's stock of technical expertise, whilst devising practical applications for its cutting-edge technologies. While the Company's activities at the frontier of technological innovation are important, it also endeavours to engage young people in scientific and engineering disciplines.

One example of this is the Airbus STEM Experience, a £2.5 million facility currently being built in Stevenage. This centre, developed in conjunction with North Hertfordshire College and Hertfordshire LEP, is based around Airbus' ExoMars Rover test facility. It will provide unprecedented public access to the engineering behind the ExoMars project: including a viewing gallery for the Mars Yard, where the capabilities of the Rover are tested across a

simulated Martian environment. Moreover, the centre will feature interactive STEM exhibits, science careers advice and guidance, and class and workshop space.

By hosting up to 5,000 student visitors per year—including sponsored visits for inner city schools and other disadvantaged groups—the STEM Experience is intended to engage and inspire future generations of technicians and engineers. This engagement is an important way of supporting future scientific capability and helping to generate an 'inflow' of future technical abilities for the UK workforce.

#### 4.1.2 The Airbus University Partnership Programme

Airbus teams up with universities through a formal Universities Partnership Programme (UPP), which during 2015 encompassed 21 universities in 11 countries. The UPP is a scheme to develop links with leading universities and engineering schools, providing practical knowledge and insight into workplace challenges for students. This collaboration is a channel through which Airbus helps to ensure future generations of aerospace workers and engineers have the full range of desirable skills. It also gives Airbus the opportunity to promote its field to a diverse body of students—for example, to help raise the participation of women in aerospace and engineering.

<sup>11</sup> HM Government, Building our industrial strategy, Green Paper, January 2017.

Partnerships between industry and academia are also an effective way to ensure the development of the varied skills demanded by the knowledge economy in the 21st century. Arrangements such as the UPP therefore have important implications for future competitiveness, prosperity and economic growth.

One example in the UK is Airbus' partnership with Bristol University. This involves research collaborations between Airbus' experts and faculty staff, lectures delivered by Company employees, targeted outreach and scholarship programmes (including specific outreach to encourage women to explore engineering careers), and opportunities for students to visit Airbus' site at Filton.

#### 4.1.3 Early careers schemes

Airbus runs several other initiatives to help ensure that appropriate supplies of expertise and human capital are brought into the Company, and the wider aerospace sector. At present more than 550 people are on one of the Company's early careers schemes, including internships, apprenticeships and graduate programmes.

Over the last five years, Airbus' apprenticeships programme has trained 800 people, of which 300 were internal apprentices.<sup>12</sup> At present, there are 25 internal placements on Level 3 Apprenticeships, a

qualification that is equivalent to two A-levels. These apprenticeships are offered across Airbus' operations, from engineering departments to finance and management.

The Company also offers more advanced programmes, leading to degree-equivalent certifications, as well as professional accreditation from bodies such as CIMA, ILM or CIPS. In particular, the Undergraduate Apprenticeship provides school leavers with the opportunity to gain an undergraduate degree, in engineering, management or finance, while working at Airbus. This offers an alternative to university that allows apprentices to earn while they learn, with their university course funded by Airbus. The Company has been growing this programme recently: almost 100 new undergraduate apprentices started at Airbus last year.

The cost to Airbus of these investments ranges from £75,000 to £110,000 per apprentice, depending on the programme. This underlines the Company's commitment to investing in its staff and maximising their potential, whether this involves progression to more senior roles at Airbus, or new challenges elsewhere in the labour market. The majority of apprentices do stay on with Airbus on the completion of training. Indeed, around 70 percent of Airbus' UK senior managers, and 75 percent of

the UK plant management team, began their careers with an Airbus apprenticeship.

There are also various **graduate training programmes** offered by Airbus, across diverse disciplines such as engineering, finance, procurement and HR. Over 200 graduates have joined the Company through these schemes since 2010, with the majority staying on at Airbus after they have completed the two years of training provided on the graduate programme.

The past five years also have seen more than 500 **internship** placements, of students from various academic backgrounds. These positions, which are paid and typically last for a full year, are available across a range of business areas such as engineering, supply chain management, finance, ICT and HR. In addition, Airbus also offers around 200 similarly varied **work experience** placements, designed for students aged 14-19.

Many of Airbus' graduates, interns and apprentices are recruited from the local area, with a large number coming from within 100 miles of one of the Company's sites. The Company also attracts talent from across the UK, and globally: many of these new joiners move to the local area in order to work for Airbus.





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## 4.2 R&D AND INNOVATION ACTIVITY

In 2015, Airbus was the second-most prolific filer of European patents in the transport field, equivalent to 25th overall across all technological disciplines.<sup>13</sup>

While this level of R&D activity undoubtedly provides commercial benefits to Airbus, the process of developing new and innovative technologies (and their applications) also gives rise to wider, societal benefits. This occurs as the advances and developments emerging from innovation are disseminated throughout other businesses, academia, government, and wider society.

The channels through which this takes place are varied. Licensing agreements for patented products and approaches are one method through which new developments can be spread throughout the wider economy. The technical aspects of a novel system can also be shared across a firm's supply chain, with the innovator requiring new and improved inputs to their product. In addition, employee turnover can spread novel ideas into other companies or new start-ups. Overall, these represent some of the ways that R&D investment can produce social benefits, also termed 'spillovers'.

These spillover benefits can be quantified using econometric analysis. For Airbus we have estimated these using previous Oxford Economics research that

assessed the social spillover benefits to R&D investment.<sup>14</sup> That analysis examined the relationship between R&D spending within the aerospace sector, and underlying productivity in the economy overall, after controlling for the other well-understood determinants of productivity such as labour and capital inputs.

The benefits that Airbus' innovation activity has on productivity growth is particularly important, since productivity improvements are the fundamental driver of long-term prosperity.

## 4.3 ASSISTING THE UK'S EMERGENCY SERVICES

Airbus also plays a vital role in helping the UK's emergency services to protect and care for UK residents.

The UK emergency services have a growing fleet of helicopters able to respond to life-threatening situations and to provide other key services such as surveillance and searches. Airbus Helicopters provides helicopters and support services to the UK emergency services. Airbus has contracts with the National Police Air Service, a number of Air Ambulance services and is a partner of the Joint Emergency Services Interoperability Programme (JESIP).

Airbus Helicopters has been supplying helicopters and maintenance and support

services to the UK's police forces since the 1980s. The company's H135 and H145 now make up three-quarters of the fleet of the National Police Air Service (NPAS). These helicopters provide essential services for the police, including searching for missing and vulnerable people or suspects, surveillance, carrying out photographic tasks for operational planning or evidential purposes, and emergency casualty evacuation.

The NPAS have unique helicopter needs that require the best equipment, including thermal scanners and searchlights. Airbus Helicopters works closely with the NPAS to develop these add-ons. The company undertakes significant research and development work, guided by engagement with the police and other emergency services.

The Air Ambulance services in the UK provide rapid responses to life-threatening situations. Helicopters play a crucial role in the UK's emergency services provision, being able to treat people quickly even in remote areas. The service is provided by a number of individual charities, nearly two-thirds of whom buy their helicopters from Airbus Helicopters.

Airbus Helicopters not only supplies helicopters to various Air Ambulance services, it also designs and installs the kit necessary to equip the helicopters for their life-saving



missions. Air Ambulance services are able to provide emergency treatment at the scene, as well as to transport patients to hospitals. Air Ambulance services have reported success in providing emergency care; doctors transported by helicopter have even performed open-heart surgery at the roadside.

In addition to providing helicopters to the branches of the emergency services, Airbus Helicopters is the trusted working partner of the Joint Emergency Services Interoperability Programme (JESIP). This government-sponsored programme has a focus on improving the way the Police, Fire and Ambulance services work together in response to major incidents.

As the designer of the world-class helicopters used by the UK emergency services, Airbus Helicopters is well placed to provide repair and maintenance services. The Company's premium service, with professional back-up team and spare parts ready to go, ensures that these irreplaceable helicopters are in the air for the maximum time.

Leveraging its relationship with the UK's emergency services, Airbus Helicopters now supplies helicopters to emergency service providers worldwide. Globally, the Company supplies almost two-thirds of the emergency medical services market.

Worldwide, they manufacture and support helicopters for law enforcement, firefighting and search and rescue.





## 5. CONCLUSION

**Airbus is a key component of the UK's high-tech manufacturing sector.** Its UK activities place the company at the forefront of innovation in aerospace, defence and space technology.

**This study has explored how Airbus' operations, and the complex, international supply chains on which it depends, affect the UK economy.** We estimate Airbus supported a £7.8 billion gross value added contribution to UK GDP in 2015. Meaning its footprint was larger than Newcastle's economy and nearly a third bigger than the economy of Oxford. The Company's operations and supply chain supported 117,400 jobs in the UK, more than 100,000 of which were outside of Airbus itself. This is equivalent to all of the jobs in Swansea and 90 percent of those in Sunderland. Finally, we estimate Airbus' operations raised more than £1.7 billion in tax revenues in 2015.

**All of the UK's nations and regions benefit from Airbus' impact.** Most of Airbus' facilities are located in four nations and regions—Wales, the South West, East of England and the South East. And these areas benefit greatly from the direct and wider activity and employment the Company brings to them. But Airbus' contribution to the UK extends beyond these areas, dictated particularly by the location of its supply chain. For instance, Rolls-

Royce, located in the East Midlands, is the third largest global supplier to Airbus and the purchase of aircraft engines by the Company generates considerable value for the region's economy. Our modelling indicates all regions benefitted from a gross value added contribution of at least £190 million and 3,200 jobs as a result of Airbus' operations in 2015.

**While Airbus' operations support thousands of jobs and billions of pounds' worth of GDP, its influence on the UK economy and society extends far beyond this.** Airbus supports and expands the UK's stock of technical expertise, engages and inspires future generations of scientists and technicians, and runs highly successful university and apprenticeship schemes. The Company's innovations also contribute to the UK's R&D stock, spilling over into the wider economy and raising the UK's productive potential. Finally, the products it manufactures play a crucial role in society: from aircraft facilitating trade and tourism to helicopters supporting the emergency services.

**This report shows that Airbus plays an integral role in UK life.** It makes a sizable contribution to the UK economy, supports thousands of jobs and raises a significant amount in tax revenue for the Exchequer. And while the regions hosting Airbus facilities retain a

notable portion of this impact, Airbus' economic footprint reaches all parts of the UK through its strong links with UK businesses in its supply chain. Airbus' contribution to the UK is not just limited to GDP, jobs and tax revenues. It plays a crucial role in maintaining and extending the UK's scientific base through its innovation and support for STEM education. Moreover, its products enable the timely delivery of vital and often life-saving services for citizens all across the UK.

## 6. METHODOLOGY

This section outlines the key methodological techniques used in this report: input-output modelling at the UK and regional levels.

### 6.1 Input-output modelling

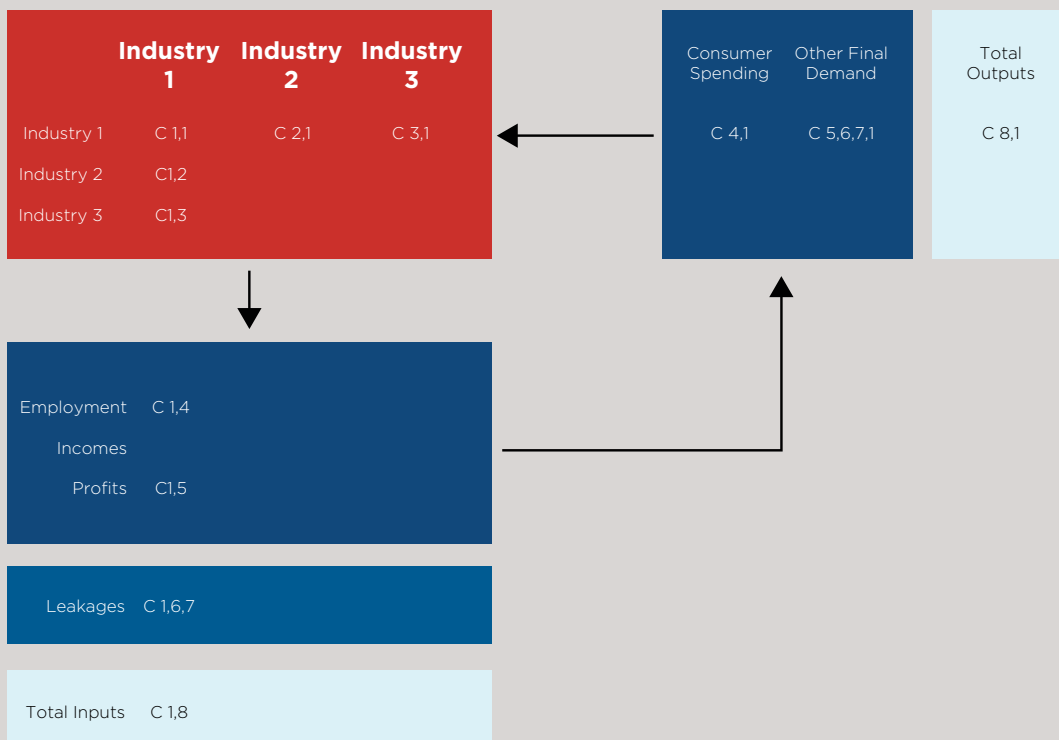
To quantify Airbus' indirect (supply chain) and induced (wage expenditure) impacts on the UK economy, Oxford Economics used a technique called input-output modelling, first developed by the academic Wassily Leontief, who won a Nobel prize for his work.<sup>15</sup> The technique uses national accounts data that specify how much each industry buys from each other industry and from other countries in a given

year.<sup>16</sup> Through a series of matrix algebra techniques, it is possible to estimate the additional economic activity that is stimulated from a given amount of final demand, where in this case final demand is the purchases Airbus makes from its suppliers or Airbus' employees make from consumer goods and services outlets.

### 6.2 UK impact using a global model

A crucial weakness of using an input-output model for a single country is that any imports are treated as leakage and lost from the model. This can lead to understating the economic impact of an entity.

**Fig. 24. A simple input-output model**





The first way of understating impact occurs as a single-country input-output model ignores that supply chains reach across many countries, and may often enter a country multiple times. For example, Airbus in the UK may use a supplier located in Germany. In turn, the German company may purchase computer programs written in the UK. In a single-country input-output model, in this example, the economic impact of the expenditure on the import from Germany is reported as a leakage. And the subsequent supply chain will not be considered for the model, even though part of the expenditure re-enters the UK at a later stage. Consequently, the impact assessment fails to attribute the activity in the UK computer programming industry to Airbus' initial spend.

To avoid understating Airbus' impact in the UK, this study employs a global input-output model that enables supply chains to be traced across countries. The model uses the global input-output tables developed by the OECD as its foundation.<sup>17</sup> The OECD provides time series of world input-output tables for 61 countries worldwide and a model for the rest-of-the-world, covering the period from 1995 to 2011.<sup>18</sup>

### 6. 3 Regional impact

Oxford Economics maintains a custom model of the UK economy that allows for estimates of employment and gross value added impacts across the country's 12 government office regions. The model is created using techniques developed in academia, a combination of spending location and 'location quotients' to determine regional impacts.<sup>19</sup> Location quotients express the intensity of a particular industry's economic activity in a particular region relative to the nation as a whole.

This procedure allows for better estimates of the location of gross value added supported in the indirect and induced channels. Geographies with higher concentrations of industries receiving procurement or household expenditure will tend to have greater impacts. In addition, by dividing gross value added by regional productivity estimates (where productivity is gross value added per employee per year), total employment estimates are made more accurate.

<sup>17</sup> OECD, "OECD Inter-Country Input-Output (ICIO) Tables, edition 2015: Access to data", in OECD

<sup>18</sup> The countries included are the 34 members of the OECD, the seven EU member states that are not OECD members, and Argentina, Brazil, Brunei Darussalam, Cambodia, China, Colombia, Costa Rica, Hong Kong, Indonesia, India, Malaysia, Philippines, Russia, Saudi Arabia, Singapore, Thailand, Tunisia, Chinese Taipei, Vietnam and South Africa.

<sup>19</sup> Flegg and Webber, "Regional Size, Regional Specialization, and the FLQ Formula," 34.6 (2000), 563-9

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