

Economic impact of IAG in the European Union

Report

May 2023



Foreword

IAG asked PwC to independently assess the impact of their operations on the economies of Spain, Ireland, the European Union as a whole, and the United Kingdom. Specifically, PwC were asked to assess the contribution IAG makes through its supply chain, the domestic and global connectivity enabled by its airlines' operations, and the economic contribution generated by this connectivity.

At PwC our purpose is to build trust in society and solve important problems. To this end, economic impact assessments such as these are important, in that they provide a more holistic view of the value created by firms than financial reporting does alone. Total impact modelling considers not only the value created directly by a firm, but the wider value to the economy generated by its entire supply chain. These metrics therefore help leaders and policymakers make decisions that benefit society as a whole.

We are delighted to present this EU economic impact assessment, focusing on the domestic contribution of IAG's activities to the EU economy. IAG's operations contributed €11.3bn to the EU economy in 2019, and supported 122,000 jobs. The catalytic impact of the tourism and business travel its airlines facilitate additionally contributed €40bn, and a further 295,000 jobs.

Additionally, IAG's cargo operations carried approximately 429,000 metric tonnes of cargo in 2019, reaching 136 countries; typically made up of the transport of high value goods.

Looking to the future, IAG's focus on sustainability and innovation means it is well positioned to continue growing its contribution to the EU economy, whilst taking steps to minimise the environmental impact of its activities. IAG was the first airline group to commit to net zero carbon emissions by 2050, and has also committed to net zero Scope 3 emissions by 2030. Its investment in new technologies such as sustainable aviation fuel and hydrogen-powered flight contribute to its strategy to achieve these objectives.

It has been a pleasure to work with IAG and its operating companies, visiting their sites, meeting their staff, and learning about their logistical operations and innovations. We trust you will enjoy exploring our findings in this report.



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Executive Summary



Figure 1: Key findings on IAG's contribution to the EU economy

IAG's activities contributed

€11.3bn to the EU economy in 2019

€3.9bn

Direct

€5.6bn

Indirect

€1.8bn

Induced

For every 1€ spent by IAG in the EU, €1.3 of gross value added is generated throughout the EU's wider economy

IAG supported approximately

122,000 EU (FTE) jobs in 2019

24,000

Direct employment FTE

76,000

Indirect employment FTE

22,000

Induced employment FTE

The tourist and business activities catalysed by IAG's flights contributed

€40bn to the EU economy in 2019

€16.3bn

Direct

€17.3bn

Indirect

€6.4bn

Induced

These activities additionally supported 295,000 EU jobs (FTE):

c.153,000

Direct employment FTE

c.103,000

Indirect employment FTE

c.39,000

Induced employment FTE



Purpose of this report

IAG has commissioned PwC to conduct this economic impact assessment of IAG's activities in the European Union (EU). In it we analyse the contribution IAG makes to the EU economy, both in terms of traditional economic measures such as its contribution to GVA (Gross Value Added) and jobs, and the catalytic economic benefits resulting from the connectivity enabled by its airlines, supporting trade, business activities, and tourism spending. In addition, we assess how IAG is supporting the decarbonisation of the aviation industry and driving innovation within the sector.

We have also completed companion reports on the impact of IAG's activities in the economies of Spain, Republic of Ireland and the UK which address these same topics in these geographies.

We used data provided by IAG to identify how the business activities of IAG and its airlines provide economic value, and we quantify this impact using recognised techniques. The data used in this report is from 2019 due to the large impact of the Covid-19 pandemic on air travel globally between 2020-2022. Whilst air travel is recovering strongly to the pre-pandemic level (with passenger numbers in the industry as a whole expected in 2023 to reach 86% of the 2019 peak) there is not a full year of data available from IAG at the time of writing. Therefore, we consider 2019 to be the most representative year of data to indicate the economic value which IAG creates.

Key findings

IAG supports approximately 122,000 jobs in the EU and contributes €11.3bn to the EU GVA. IAG supports a significant supply chain across the aviation sector and beyond, consisting of businesses in the EU and abroad, including thousands of small and medium sized companies. The tourism and business travel to the EU facilitated by IAG's airlines drives a further catalytic impact on the economy supporting an additional 295,000 jobs (FTE) and €40bn of GVA in the EU.

As an airline group IAG provides economic and social benefits to the EU by enabling global connectivity in the movement of people and goods. Vueling, founded in 2004, is the most flown IAG airline in the EU, followed by Iberia which has been flying customers and goods from and around the world for over 100 years. Iberia's Madrid-Barajas hub facilitates the movement of goods and people from Spain (and thus, the EU) around the world efficiently, even when direct routes would not be feasible, thereby increasing the connectedness of the EU.

Aer Lingus is the IAG's Irish airline with its hub located in the Dublin airport from where it offers flights to Europe and to other continents, especially North America.



Flying 352 extra-EU routes and directly connecting EU countries to 44 countries, IAG's airlines play a critical role in connecting the EU with the world. This connectivity supports business activities and inbound tourist spending which bring value to the EU economy. IAG's airlines also facilitate trade, particularly of high value added goods by using large bellyhold capacity on long-haul passenger flights. Additionally, IAG has a strong European presence, flying 563 routes within the EU which supports connectivity and economic growth across the nations. IAG airlines in the EU are operating a total of 915 routes.

This report also identifies some of the broader contributions that IAG makes which will support the future of the EU economy. Firstly, the future of aviation will need to be more sustainable. IAG has been an industry leader in the decarbonisation of aviation, committing to net zero emissions by 2050 and investing in new technologies and sustainable aviation fuel as part of its transition to meet these targets.

We hope that you enjoy exploring the findings of this report and learning about the many ways in which IAG benefits the EU economy.

We have found that:

- IAG contributes €11.3bn gross value-added to EU GDP, made up of €3.9bn direct, €5.6bn indirect and €1.8bn induced contribution. This means that for every €1 spent by IAG in the EU economy, 1.3 GVA is supported elsewhere across the economy.
- Through facilitating tourism and business travel, IAG's airlines support an additional €40bn of catalytic GVA and c.295,000 FTE jobs across the EU economy. This catalytic effect is particularly strong in accommodation and food services, cultural activities, education services, and shopping. For each passenger who flies with IAG to the EU, there is a catalytic impact of €976 contributed to EU GVA.
- IAG supports c.122,000 FTE jobs across the EU economy by direct, indirect and induced employment. For every direct IAG employee, a further 4 FTE jobs are supported in the EU economy.
- Additionally, for every 1,000 passengers flying with IAG in the EU, 7.2 FTE jobs are supported through the catalytic spending of IAG passengers.
- IAG plays a major role in the European Union, contributing to both intra-EU and extra-EU connectivity. In 2019 IAG's airlines flew 563 intra-EU routes between 130 cities, transporting 51.2 million EU passengers¹, and connected 26 EU countries.²
- IAG's airlines also flew 757 international routes³, transporting 69 million passengers internationally (both within and outside the EU) and connecting 221 cities and 70 countries (26 of them EU countries).
- Also, IAG provided 352 extra-EU routes between 111 EU cities and 85 extra-EU cities in 44 different countries, transporting 41 million passengers.
- Over 91.6 million of the total 1,035 million passengers⁴ using EU airports in 2019 travelled using an IAG airline, accounting for 8.9% of EU passengers in 2019.
- The 'hub and spoke' model operated by Iberia in Madrid - Barajas is unique in Spain and South of Europe, and plays a major role in connecting Southern European countries to the rest of the world, particularly to Latin America.
- The 'hub and spoke' model operated by Aer Lingus in Dublin is a gateway to the US from the EU and UK, with destinations such as Boston, Chicago, New York, Orlando, and San Francisco.
- Vueling, with its point-to-point operating model, has an extensive network within Spain, particularly to the Balearic Islands and across the EU with passengers departing mainly from the Barcelona - El Prat airport.
- IAG's airlines, including IAG Cargo, transported 428,528 metric tonnes of freight reaching 136 countries in 2019. Air cargo is disproportionately used for high value-added goods contributing to a positive air transport balance of payments.
- IAG is an industry leader in sustainability, setting industry leading targets for decarbonisation, prioritising a sustainability strategy, and investing in the technology needed to fulfil its transition plan and enable it to reach net zero emissions by 2050.

¹ For the purpose of this report EU passengers are passengers starting and ending their journey within the EU.

² IAG had flights to all EU countries in 2019 except for Lithuania

³ International routes refer to those routes that have origin in one country and destination in a different country, regardless if these routes are intra-EU or extra-EU.

⁴ Eurostat, Air transport of passengers by country (yearly data), https://ec.europa.eu/eurostat/databrowser/view/TTR00012/default/table?lang=en&category=avia.avia_pa.avia_pao

Introduction



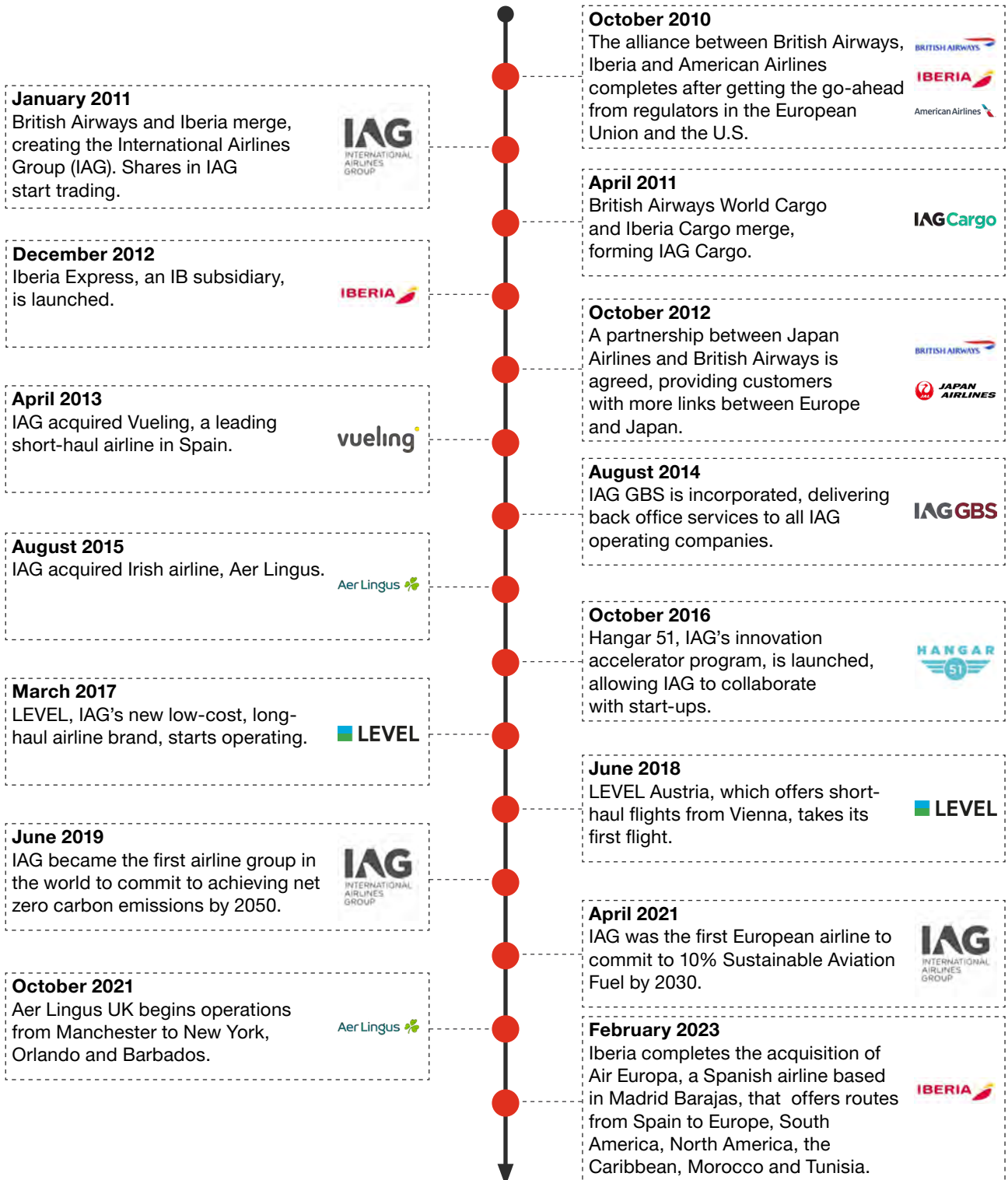
International Airlines Group

Overview

IAG is a global airline group which carried 118.7 million passengers to 279 destinations internationally in 2019. The group includes major airlines in Spain and Republic of Ireland and the UK: Iberia (including Iberia Express), Vueling, Aer Lingus, LEVEL and British Airways (including BA CityFlyer). IAG is the group's parent company and is dual registered on both the Spanish and London Stock Exchanges. Within the group, IAG's airlines maintain their distinctive brands and focus on their customers, the competitive environment and people, while IAG, at the corporate centre, works to drive synergies, and maximise group performance.

History

Launched in 2011, IAG has been increasing its global presence and capabilities over the last 12 years.



Group Structure

IAG, as the corporate entity at the centre of the group, oversees coordination across the group, manages and executes central functions, creates synergies, and fosters collaborative working and the sharing of best practices.

IAG has three overall strategic priorities: strengthening a portfolio of world-class brands; growing global leadership positions; and enhancing IAG's common integrated platform. IAG has five airline brands: two "full service" carriers British Airways and Iberia, two "value" carriers Aer Lingus and Iberia Express and finally two "low cost" carriers, LEVEL and Vueling.

In addition, IAG has central platforms which run cross airline services: IAG Cargo which is the group's cargo division operating a global freight network; IAG Loyalty which manages loyalty products and services including running the Avios loyalty currency; IAG Global Business Services (GBS) which delivers centralised services across procurement, finance and airport operations; and IAG Tech which supports digital and IT across the group. Across IAG businesses there are cross-cutting coordination activities and central functions which are carried out at the group level. The key areas of intra-group coordination are across: fleet, maintenance, repair & overhaul, fuel, network, commercial, customer. The common central functions at the group level: investor relations, finance, people, sustainability, corporate affairs, communications, legal, strategy, and merger & acquisitions.

Figure 2: IAG's group structure



IAG's purpose is "to connect people, businesses and countries", which supports its vision to be the world's leading airline group. IAG is European Union's fourth largest airline group by passenger numbers (after Ryanair group, Lufthansa group, and Air France KLM).⁵ As of 2019 IAG's airlines flew from 150 airports in the EU, operating a total of 915 routes (757 international routes and 158 domestic routes). IAG's airlines connect 26 EU countries to 44 countries extra-EU. In 2019, 8.9% of the total 1,035 million passengers using EU airports travelled using an IAG airline. Additional connectivity is provided because two of IAG airlines (BA and IB) are part of the oneworld alliance which enables further opportunities for its passengers.

Report scope

IAG brands in scope of this report are: Aer Lingus, British Airways, Iberia, Iberia Express, Vueling, LEVEL, and IAG Cargo. For our purposes BA CityFlyer data is included in the British Airways analysis, and Iberia Express and LEVEL data is included within Iberia analysis. The format of data received from IAG is such that disaggregation of economic impacts by airline is possible in some but not all parts of our analysis. IAG Loyalty is not included in the scope of this project which concentrates on IAG's contribution from airline operations and associated impacts.

The modelling in this report is based on 2019 data, as this was the last complete year of representative data prior to the pandemic. 2020 and 2021 were abnormal years for the global travel industry due to the Covid-19 pandemic and associated travel restrictions, and a full year of 2022 data was not available at the time of preparing this report. The International Air Transport Association (IATA), the global airline trade association, expects numbers travelling in 2023 to be 86% of the 2019 peak.⁶

Report structure

In this report we analyse the contribution IAG makes to the EU economy, both in terms of traditional economic measures, and its broader role, such as in enabling connectivity and facilitating innovation. The report structure is as follows:

- Economic impact methodology
- EU Economic Impact
- Connectivity Impact
- Sustainability
- Innovation
- Appendix 1: Technical approach and detailed methodology
- Appendix 2: Additional Data



⁵ Centre for Aviation, <https://centreforaviation.com/analysis/reports/ryanair-heads-europes-top-20-airline-groups-by-pax-2019-510111>

⁶ IATA, Airlines Cut Losses in 2022; Return to Profit in 2023, Press Release No: 56
Date: 6 December 2022, <https://www.iata.org/en/pressroom/2022-releases/2022-12-06-01/>

Calculating economic impact



Economic Impact Modelling

Direct, Indirect, and Induced impacts of IAG’s EU operations

We present IAG’s contribution to the EU economy in terms of two key economic indicators:

- **Gross Value Added (GVA)**
 - GVA is the value added produced by an organisation. This is a standard concept used by national statistical authorities, including the OECD, and is the equivalent of contribution to GDP, but with an adjustment to prices so that they don’t include final taxes - that is, GDP but at ‘basic prices’.
 - GVA encompasses the core, measurable, ways in which organisations such as IAG add value to the economy, including: operating profits; compensation of employees, taxes on production and measurement of depreciation and amortisation (these two account for the capital used by an organisation during the production process).^a
 - This is equivalent to an industry’s output less the value of the intermediate inputs used in the production process.⁷

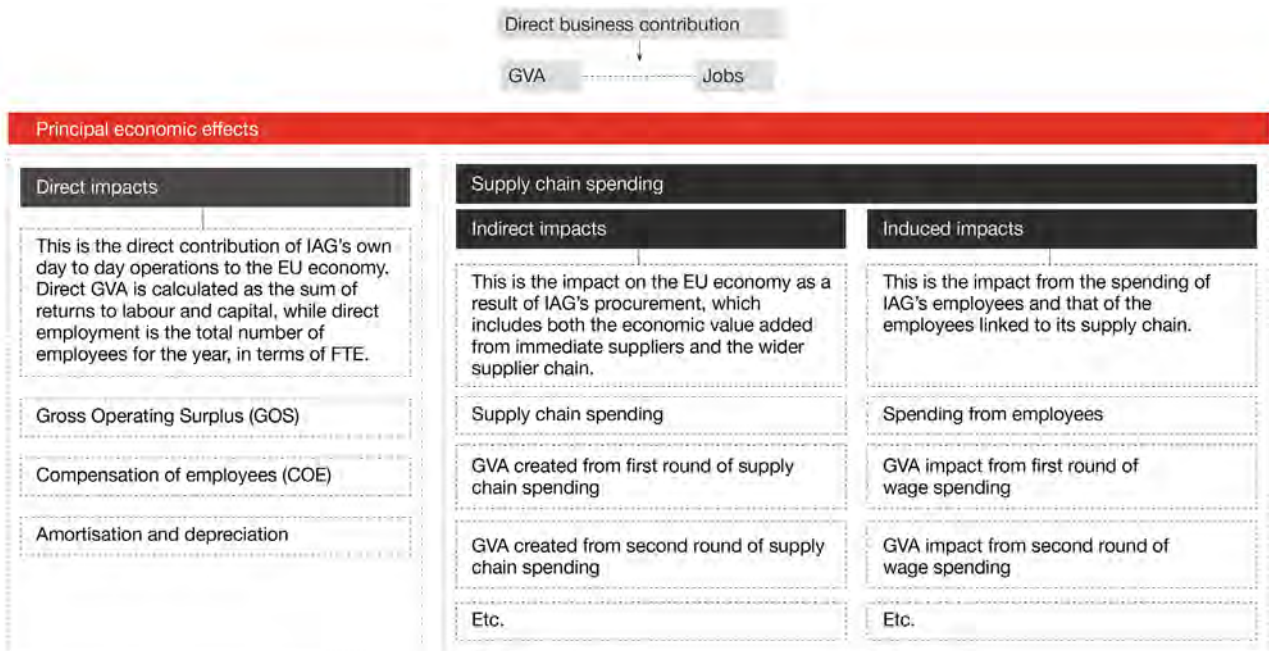
- **Employment** – Annual full-time equivalent (FTE) jobs supported.

We set out IAG’s economic impact across three key components:

- **Direct impact:** This is the contribution of IAG’s own day-to-day operations to the EU economy. Direct GVA is calculated as the sum of returns to labour and capital, while direct employment is the total number of employees for the year, in terms of FTE.
- **Indirect impact:** This is the impact on the EU economy as a result of IAG’s procurement, which includes both the economic value added from immediate suppliers and the wider supplier chain (for instance, the supplier of the supplier).
- **Induced impact:** This is the impact from the spending of IAG’s employees and that of the employees linked to its supply chain.

Figure 3 below explains the breakdown of the direct business contribution made by IAG to the EU economy

Figure 3: Breakdown of the direct business contribution made by IAG to the EU economy



^{a)} GVA includes the consumption of fixed capital, as opposed to net value added (NVA) which excludes the consumption of fixed capital. We have used GVA rather than NVA in this assessment, so that our results can be considered in terms of GDP contribution.

⁷ - GVA quantifies the same set of economic activities as Gross Domestic Product (GDP) but in terms of factor cost.

We refer to the combination of direct, indirect and induced impacts as the “economic contribution” throughout the report.

Modelling approach

We used an input-output model to estimate IAG’s and catalytic expenditure indirect and induced contribution to the economy. Input-output modelling enables us to account for how industries interact and relate to one another, by estimating how activity by one company stimulates economic activity elsewhere in the economy.

Figure 4 illustrates a simplified breakdown of our modelling approach, for IAG operations and catalytic spend. For a more detailed breakdown of our modelling methodology, please see Appendix 1.

Geographies

IAG’s airlines operate globally, but the scope of this report is capturing its economic contribution to the EU economy. We have produced companion reports which capture the economic contribution of IAG to the economies of Spain, Republic of Ireland, and the United Kingdom.

Industries

Our analysis segments the EU economy across 66 industry sectors for each country, chosen to best reflect IAG’s supply chain spending. We used the Full International and Global Accounts for Research in Input-Output analysis (FIGARO) which contemplated 66 different sectors from manufacturing to accommodation and food services.

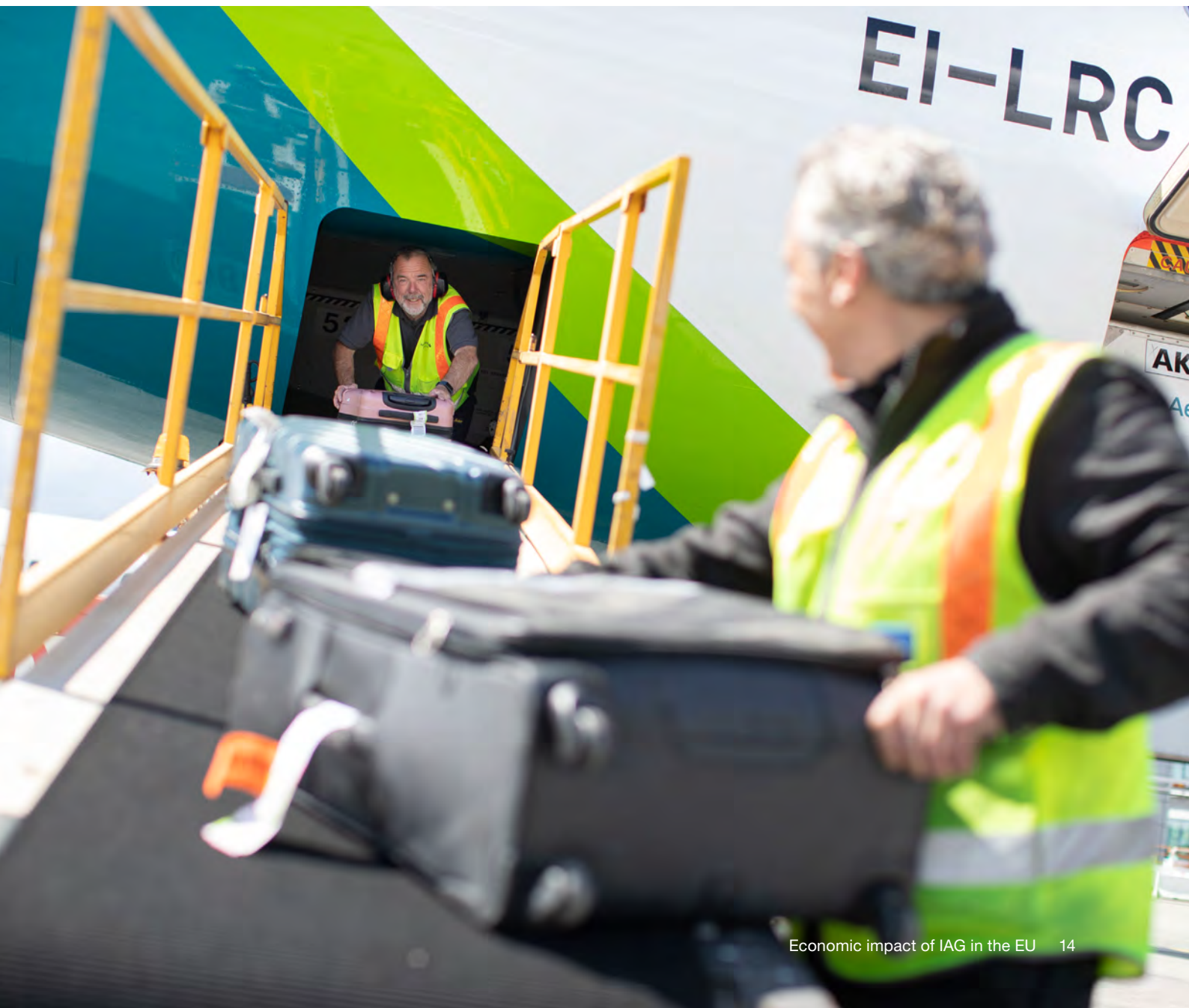
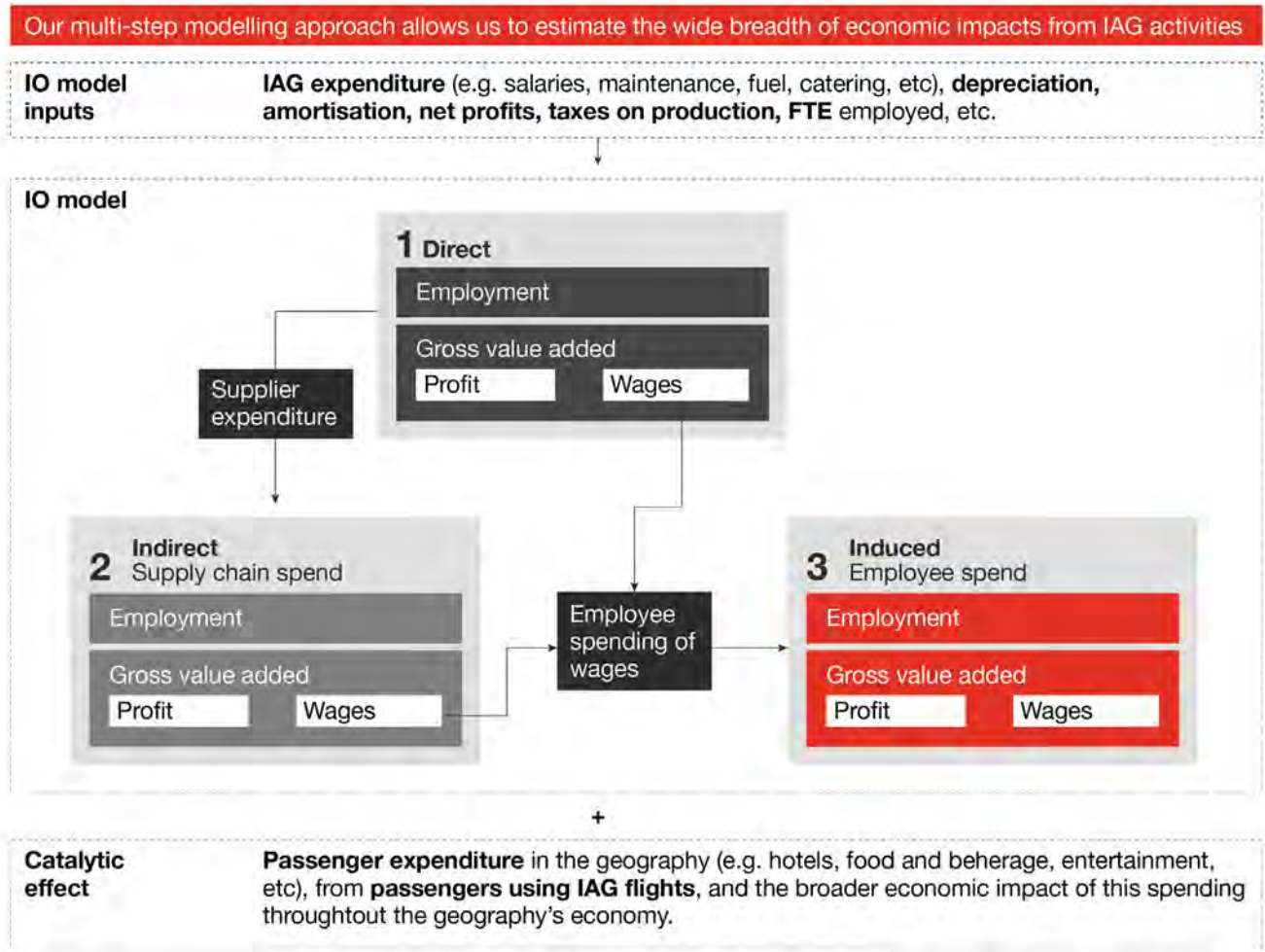


Figure 4: Summary of economic impact methodology



EU economic impact



Direct Business Contribution

GVA Contribution

In 2019 IAG contributed €11.3 bn to EU Gross Value Added (GVA). This contribution is composed of:

- **€3,941m** direct contribution - from profits and wages and relevant taxes⁸, all generated by IAG in the EU;
- **€5,619m** indirect impact - through the supply chain purchases made by IAG in the EU;
- **€1,793m** induced impact - as IAG enables wage spending in the economy, via its own employees, and employees throughout its supply chain.

Direct GVA contribution

IAG's direct contribution comprises €1.8bn of earnings before interest, tax, depreciation and amortisation (EBITDA); and €2.1bn of employee compensation.

Figure 5: IAG contributed c.€11.3bn GVA in the EU economy through a combination of its direct, indirect and induced impacts in 2019

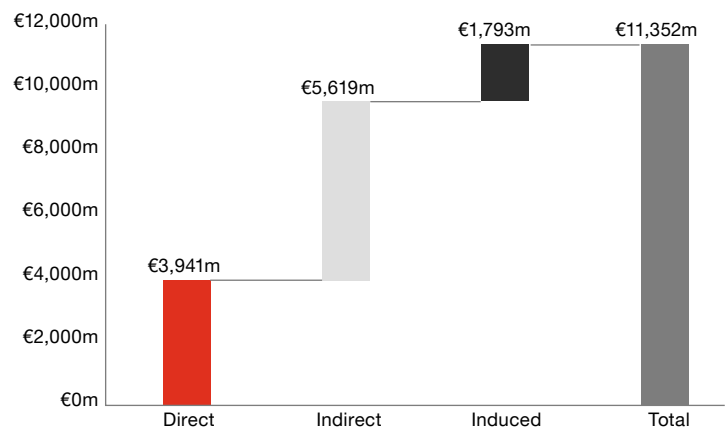
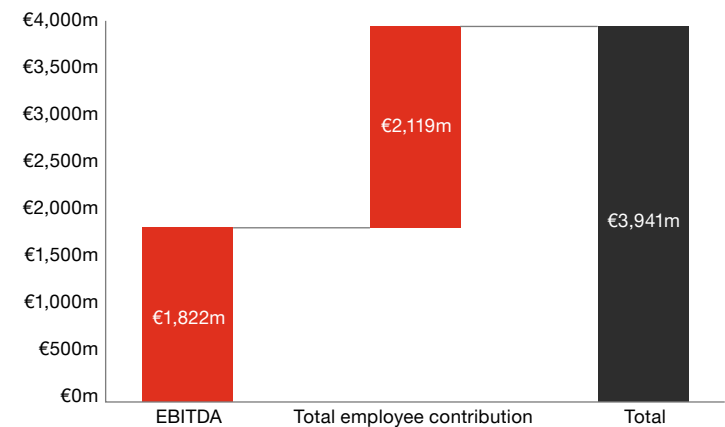


Figure 6: IAG's direct economic impact was driven by its profitability (€1.8bn EBITDA) and compensation of employees (€2.1bn) in 2019



⁸ Relevant taxes are any taxes on the production of goods and services, and not taxes on final goods or services sold, or taxes related to employment

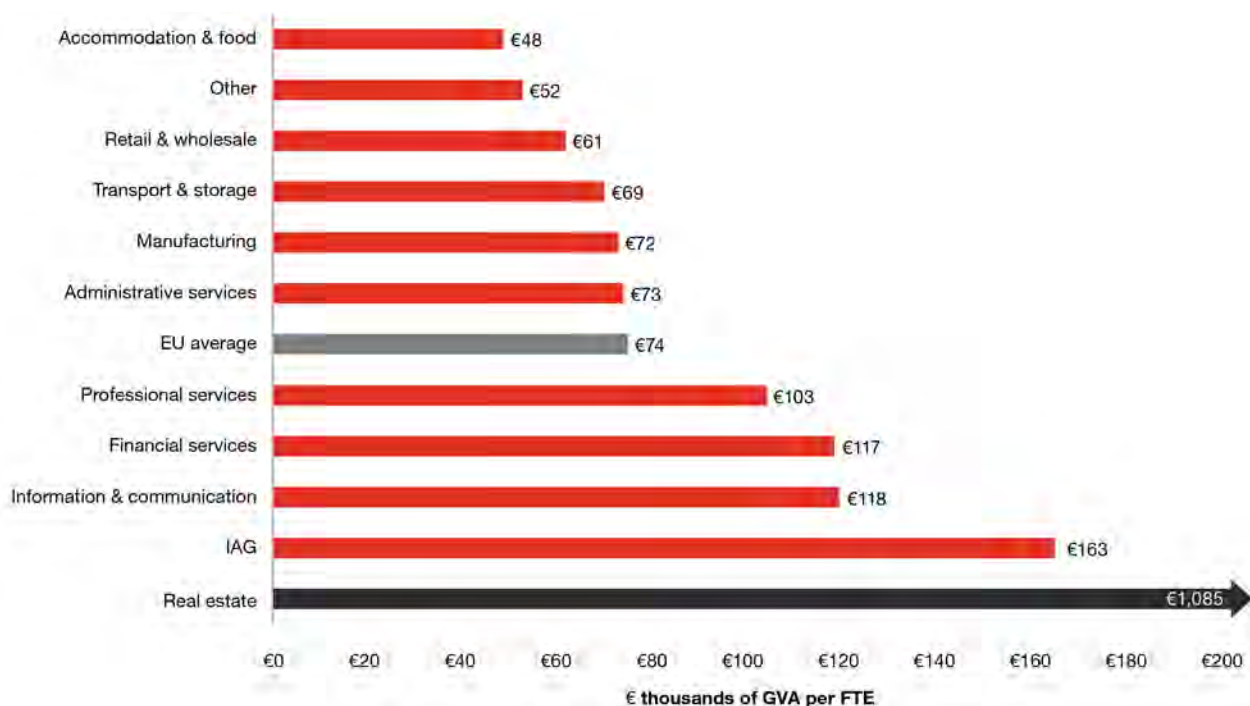
The Direct GVA contribution of a company to national GDP is made up of gross operating surplus (GOS), taxes on production and compensation of employees (COE). Below, we provide a short explanation of GOS and COE concepts, showing IAG's direct impact through these channels to the EU economy:

1. **Gross Operating Surplus (GOS):** This concept is broadly equivalent to EBITDA, in a company's financial accounts. For a company that operates across borders, such as IAG, the value of EBITDA associated with the EU economy is equivalent to IAG's taxable income in the EU. In this case, it relates to the income of Aer Lingus, Iberia, and Vueling, which reported an EBITDAR of €1.8bn in 2019.⁹ We include the EBITDA of IAG airlines in the EU, and not other operating companies for which IAG publicly disclose profitability data, as the direct GVA associated with the EU is the element of IAG's EBITDA taxable in the EU countries. We include further information related to this in our methodology.

2. **Compensation of employees (COE):** with respect to IAG, these have two main components: wages and salaries (including benefits in kind and pension contributions) and national insurance contributions from IAG to the EU Governments. For 2019, IAG's total employment compensation to employees based in the EU was €2,119m.

Overall, the direct GVA of IAG in the EU amounted to €3.9bn in 2019. When compared to the number of IAG employees in the EU, this is a comparatively high value add per worker. For example, Figure 7 displays the GVA per worker for the sectors in our analysis and the EU as a whole. The IAG average GVA of €163,000 per full time equivalent worker is significantly higher than that of the Information & Communication (€118,000) and the EU average (€74,000); indeed its GVA per worker is second only to the Real Estate sector. This stems from the relatively high profitability of IAG, and wage levels of its employees, compared to the average of the other EU sectors we have analysed.

Figure 7: IAG has a significantly higher GVA per full time equivalent worker (€ '000s) than the average for the EU



⁹ EBITDAR is equivalent to EBITDA, but is also before any deduction for 'rentals'. In the case of IAG, it is most appropriate to use EBITDAR, as rental payments are conceptually associated with amortisation under the 'right to lease' arrangements.

Indirect and Induced GVA contribution

The indirect and induced contributions occur through supply chain and wage spending of IAG. In 2019, IAG's operational and capital expenditure amounted to an equivalent of €23bn. This operational and capital expenditure was through the channels of the different IAG operating companies, as displayed in Figure 8¹⁰.

This operational expenditure and capital expenditure has knock-on effects on the GVA of IAG's supply chain, as employees spend their wages and suppliers purchase goods from other EU - based suppliers. Overall, IAG's supply chain (indirect impact) was €5.6bn, as IAG's suppliers contribute towards EU GDP, and the effect reverberates further throughout the supply chain. Moreover, IAG has an overall wage-spend (induced) impact of €1.8bn, as its relatively high proportion of wage spend creates further economic value throughout the EU economy.

Through its operations, IAG generates a total GVA of €11.353bn in the EU economy. This can be disaggregated into direct, indirect and induced GVA impacts of €3.941bn, €5.619bn and €1.793bn respectively.

GVA can additionally be disaggregated by airline. Iberia generates 42.1% of overall IAG GVA in the EU, Vueling 22.8%, British Airways 16.6%, Aer Lingus 14.6% and Other 3.8%. It is expected that Iberia would have the largest impact as the majority of operational expenditure from IAG in Europe is incurred by Iberia, whilst the wage spending of Iberia in the EU is considerably higher than other IAG airlines.

Figure 8: Over a quarter of IAG's total operational and capital expenditure was directed to EU based suppliers, with a total expenditure of €23bn.

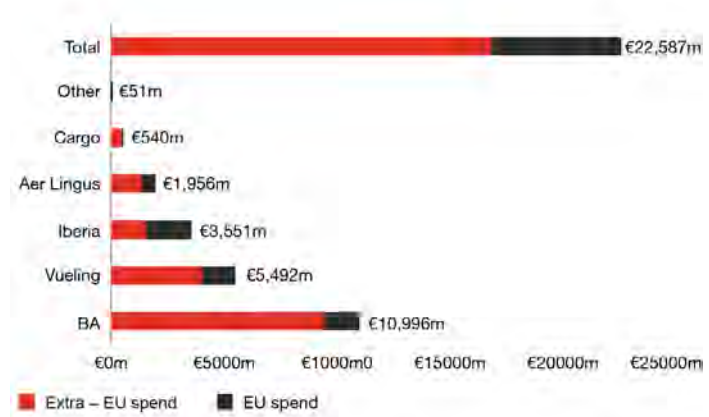


Figure 9: IAG's operational, capital and employment expenditure creates further €5.6bn and €1.8bn of value in the EU economy, through its supply chain and wage-spend impacts, respectively

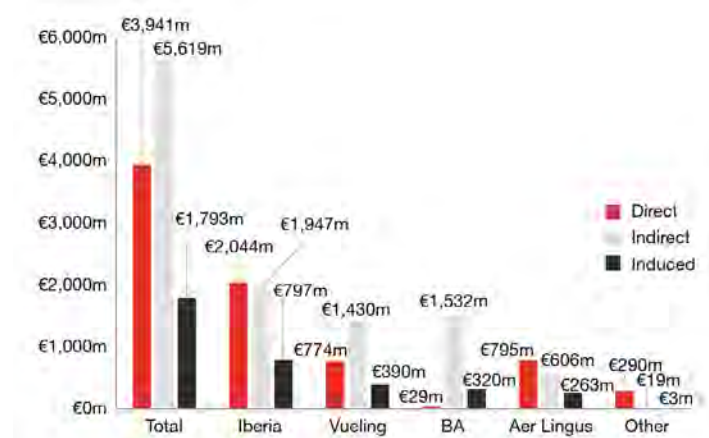
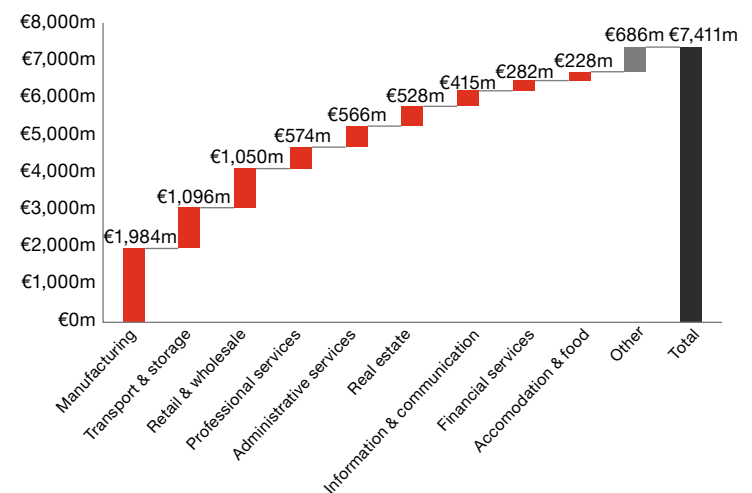


Figure 10: IAG generated value across a wide range of sectors in the EU economy, as GVA impacts by sector were largest in the manufacturing sector (€1,900m)



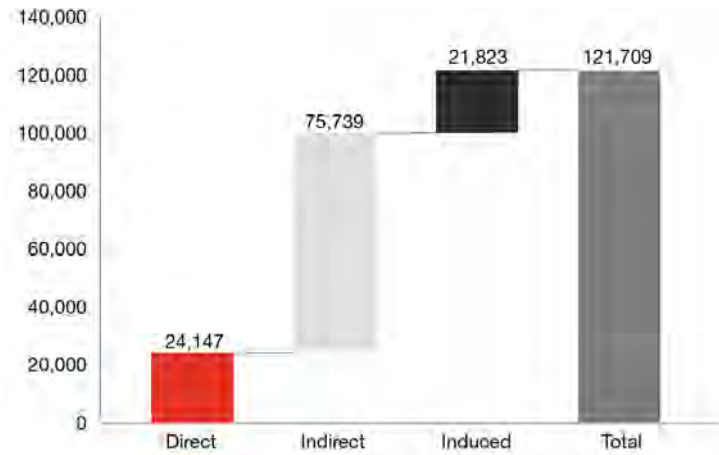
¹⁰ It should be noted that the definitions of operational expenditure and capital expenditure may not align with that in any given financial account, as operational expenditure so defined above does not include compensation of employees (COE), which typically would be included in Financial reporting. COE is accounted for by our model, though we do not display it above.

Indirect and Induced GVA impacts by IAG by sectors in the EU economy

Based on our sectoral classifications, IAG generates the greatest GVA in the manufacturing sector, as a result of the supply chain and wage spending impacts.

IAG's impact across these sectors shows a fairly even spread across important sectors in the economy. This is explained by IAG's supply chain activities, which stretch into other sectors such as transport & storage and retail & wholesale, e.g. from the spending impact at airports. This in turn generates significant value across a wide variety of sectors, generating positive supply chain impacts. There is a marked impact in the Air Transport, Manufacturing (generally) and the Manufacturing and Repair of Aircraft, specifically. This is unsurprising, given the nature of IAG's business.

Figure 11: c.121,709 full time equivalent jobs were supported by IAG in the EU economy in 2019



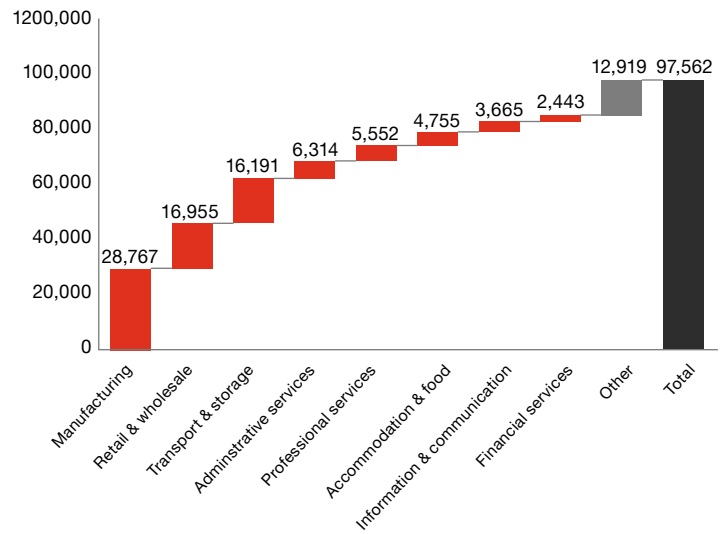
Contribution to employment

In 2019 IAG contributed 121,709 full time equivalent (FTE) jobs to the EU economy. This contribution is comprised of:

- **24,147** direct contribution - IAG's employees within the EU;
- **75,739** indirect impact - jobs created through the supply chain purchases made by IAG in the EU; and
- **21,823** induced impact - jobs created throughout the supply chain as IAG triggers wage spending in the economy, via its own employees, and employees throughout its supply chain.

This results in a high employment multiplier of 5, so that for every one job supported by IAG in the EU, a further 4 jobs are supported in the wider EU economy. This high direct and indirect impact reflects the relatively high levels of operational and capital expenditure within the EU; necessitated by IAG's operations, as well as the high relative pay of IAG employees.

Figure 12: IAG supported c.97,562 indirect and induced jobs across a wide range of sectors in the EU economy



The sectoral split of jobs supported by IAG in the EU differs slightly from the sectoral split of GVA as a result of the relatively different employment intensities of each sector. While manufacturing is still the biggest sector in terms of contribution, transport & storage is relatively less significant for employment given its low employment intensity.

IAG's activities in the EU support a wide variety of sectors, in different ways, with labour intensive industries benefiting from its supply chain impact.

Connectivity



This section analyses the connectivity impacts derived from IAG airlines operations on:

- Passenger connectivity and hub effects.
- Economic value of connectivity in terms of GVA, employment, and investment.
- Catalytic impact derived from tourist expenditure.
- Trade and cargo.

IAG's airlines provide connectivity globally, including within the European Union, and between the EU and the world. In this section of the report we set out the global scale of IAG's airlines operations, and specifically the connectivity it provides to the EU. We then identify the economic benefits which accrue to the EU as a result of this connectivity provided by IAG's airlines, including trade, tourism and business impact.

IAG provides a unique platform that enables the group airlines to efficiently fulfil its purpose: to connect people, businesses and countries around the world. The role of the group and its operating airlines is key in enabling social connectivity, including for families, and for social networks that are dispersed across the world. In addition, IAG airlines support business through enabling the freight of goods and making it easier for companies to establish business relationships from in-person meetings. Finally, the group contributes to the social and economic development of many regions around the world by offering frequent connecting flights from a great number of countries as well as committing with social initiatives such as vaccines transportation during Covid-19.

The enabler to achieve IAG's purpose "to connect people, businesses and countries around the world" is the global network that the group has developed. The network allows people and business to move between different countries and continents with a large and adapted offer to all needs through its diversity of airlines, ranging from full service to low cost and the leadership positions of these companies in the markets in which they operate. Each of the airlines operates independently but has the support of the group to adapt best practices, capital and operational efficiency and therefore, be able to offer a better and more competitive service to its customers.

IAG airlines offer connections all around the world; Figure 13 depicts the routes offered by IAG in 2019, this being the last full year with representative data before the Covid-19 pandemic.¹¹ IAG airlines connected 101 different countries, carrying 118.7 million passengers across the world in 2019. The airlines together offered 1,076 different routes, 891 of which were international, carrying 90.7 million passengers, and 185 were domestic¹², carrying almost 28 million passengers. Most of the routes have Spain, Republic of Ireland and the United Kingdom as either the origin or/and destination of the flight as these are geographic homes of IAG's airlines.

Figure 13: IAG airlines operated 1,076 routes in 2019, connecting 101 countries around the world with Spain, Republic of Ireland and the United Kingdom



Source: : IAG database.¹³ Note: Flows are expressed in number of passengers (i.e. a thicker line shows a larger number of passengers) and the routes with fewest passengers have been excluded for a better map visualization.

¹¹ For the purpose of this report, the data shown will refer to year 2019, since it is the last year before the Covid-19 pandemic where data is representative and available.

¹² We refer to domestic routes to all the routes that connect two cities or villages within a country (e.g. Madrid Barajas - Barcelona El Prat would be categorised as domestic route whereas Madrid Barajas - London Heathrow would be categorised as an international route).

¹³ The graphics in this document exclude routes to Russia and Ukraine which were flown in 2019 but have since ceased due to the ongoing conflict.

Description of each of IAG's key airline's operations globally



Iberia (registered in Spain, subsidiaries: Iberia Express, LEVEL)

Iberia carried more than 24 million passengers in 2019, operating a total of 255 routes within Spain and around the world. The main domestic routes operated in were Madrid - Barcelona and Madrid - Tenerife, while the main international routes were connecting Madrid to South America, the United States and the United Kingdom. Iberia has a hub-and-spoke operating model, with Madrid Barajas a hub airport that in 2019 connected 29 Spanish cities with 106 cities around the world, with 43% of Iberia's total passengers using this airport. In addition, Iberia is the main airline connecting Spain to the Americas with 54.7% of passengers travelling between Latin America and Spain using Iberia.



Aer Lingus (registered in the Republic of Ireland)

Aer Lingus carried 11.6 million passengers in 2019 and operated a total of 102 routes. More than 83% of the routes connected countries within Europe, with 97% having either the origin or destination in the Republic of Ireland. The most common route by number of passengers was Dublin - London Heathrow, which carried 1.1 million passengers, followed by Dublin - London Gatwick and Dublin - Paris. In 2021 Aer Lingus reinforced its international connectivity network by starting operations from a new hub in Manchester airport, enabling it to offer direct transatlantic connectivity from Manchester to the US and Caribbean.



Vueling (registered in Spain)

Vueling provides connectivity within Europe, flying between 137 European cities in 2019, carrying 34.5 million passengers across 421 routes. Barcelona is the main route that Vueling flights operate from, involved in 31% of Vueling routes, and from which the most popular destinations were Palma de Mallorca, Paris Orly, and Ibiza. In addition to connecting major cities in Europe, Vueling also flies to 40 European countries, 9 Africa including Morocco, Algeria, Egypt, Cape Verde, Gambia, Ghana, Senegal, and Tunisia, and Lebanon, Israel & Jordan in the Middle East.



British Airways (registered in the UK, subsidiaries: BA CityFlyer)

British Airways is the largest airline within IAG, carrying more than 48 million passengers in 2019 and operating 298 routes¹⁴, connecting the UK internally and to the world. British Airways has a hub at London Heathrow, the airport which most of its routes fly to or from, and where British Airways has a 46.5% share of total passengers using the airport. Through its hub-and-spoke model, British Airways connects 9 cities in the UK with 81 countries, with its most popular destinations being New York, Edinburgh, and Glasgow.

The number of passengers IAG carries¹⁵ has grown on average 10.9% per annum between 2011 and 2019, with an aggregate growth rate of 130% between 2011 and 2019 due to a combination of organic growth and acquisition. Since the group's creation in 2011 following the merger of British Airways and Iberia, IAG has acquired companies and created new brands to provide more adapted services to their customers. The group's structure allows the different brands to focus their efforts on their addressable markets, customer proposition, cultural identities, commercial strategy and industrial relations.

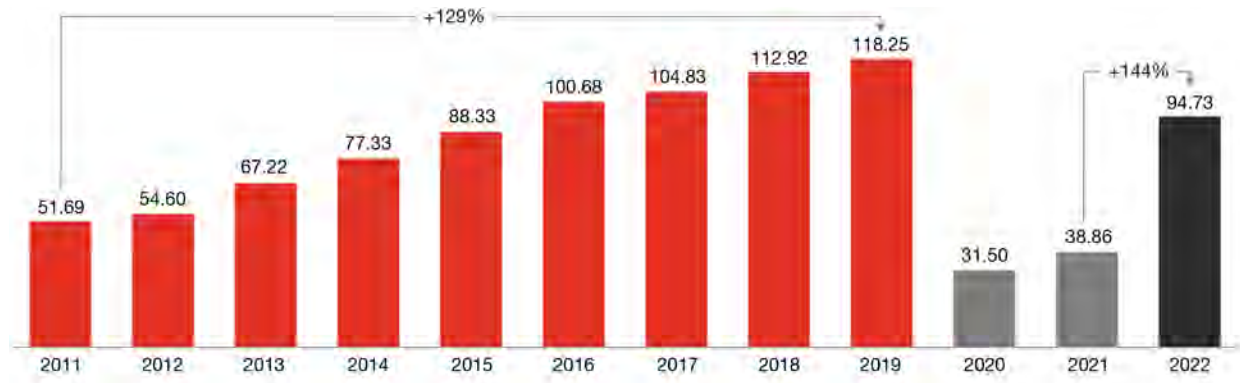
Passenger numbers during the 2020 and 2021 were significantly negatively impacted by travel restrictions associated with the Covid-19 pandemic; however there has been strong growth in passenger numbers during the first three quarters of 2022, reflecting a return to normality in the industry. From 2021 to 2022 IAG's passenger growth was 144%, outperforming the global airline industry.¹⁶

¹⁴ Source, IAG database

¹⁵ In order to be consistent with the technical literature in this field we note that a passenger is a seat on a plane. Therefore typically a traveller will be a passenger twice - once on their outbound and once on their inbound journey. A traveller is someone who moves between different geographic locations, for any purpose and any duration. A visitor is a traveller who is taking a temporary trip for the purpose of business or leisure. A tourist is a visitor if their trip includes an overnight stay. As we are reporting around air travel, almost all visitors will be staying overnight and therefore are tourists too. For simplicity we will use 'passenger' unless otherwise noted.

¹⁶ IATA. Passenger Demand Recovery Continued in December 2022 & for the Full Year. Press Release No: 4. Date: 6 February 2023, <https://www.iata.org/en/pressroom/2023-releases/2023-02-06-02/#:~:text=International%20traffic%20in%202022%20climbed,compared%20to%20the%20prior%20year>

Figure 14: IAG airlines carried 118.7 million passengers in 2019, with an aggregate growth of 129% since 2011¹⁷ and a fast recovery in 2022 from the Covid-19 pandemic



Source: IAG Group. Annual Report. (Traffic statistics report)

In terms of number of passengers, British Airways carried 41% of total IAG passengers in 2019, followed by Vueling with 29%, Iberia with 20% and Aer Lingus with 10%. Below is a description of each of the key airline's operations globally.

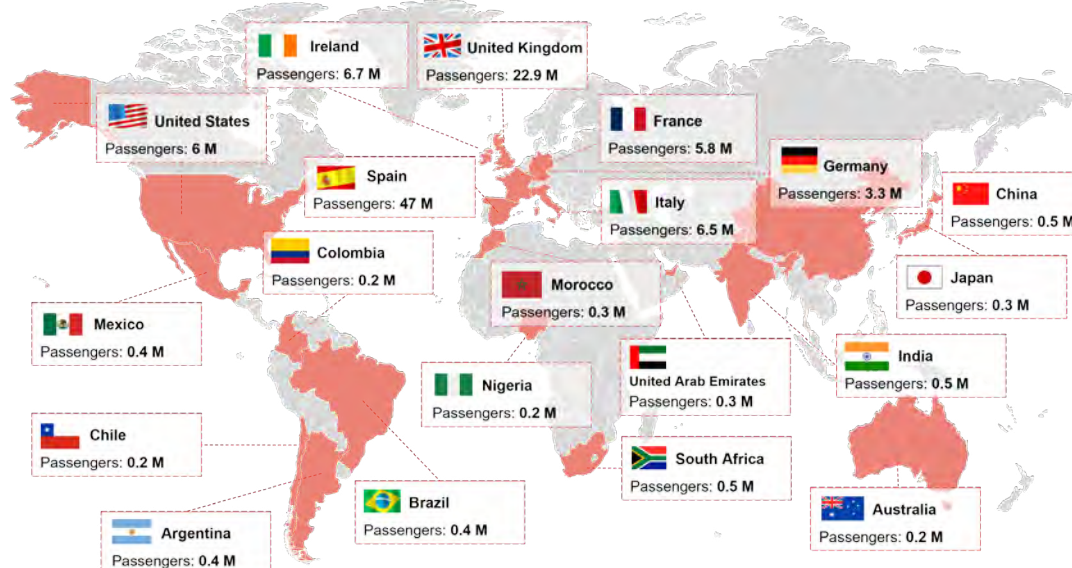
Besides carrying passengers, IAG contributes to international trade growth through the freight of high value goods mainly using the large bellyhold capacity existing in its long-haul passenger flights operated by Iberia, Aer Lingus, and British Airways. IAG Cargo is the goods transport division of IAG Group operating an air freight network, reaching 136 countries¹⁸ and carrying more than 428,520 metric tonnes¹⁹ of freight across the

world in 2019.²⁰ IAG Cargo can operate in every destination reached by IAG operating airlines' network and is used by over 10,000 businesses (clients) to move goods around the world.

In 2019 the countries in the EU that received the higher number of passengers travelling by IAG airlines were Spain, with 47 million passengers, the Republic of Ireland with 6.7 million passengers, and Italy with 6.5 million passengers as shown in Figure 14.

Outside the EU the country that received the largest number of passengers was the UK with 22.9 million passengers. The UK is the base of BA, the largest airline in IAG in terms of number of passengers.

Figure 15: Spain, Ireland and Italy are the main countries of destination²¹ for IAG passengers²² in the EU, facilitating the arrival of over 60 million passengers



Source: IAG, National Statistics Institutes (ONS, INE, CSO)

¹⁷ Number of passengers of IAG airlines

¹⁸ IAG Cargo uses subcontractors to reach countries where IAG airlines do not have routes

¹⁹ IAG Cargo has provided data on cargo weight but not regarding cargo value

²⁰ Bellyhold space refers to the vacant space in the bellyhold of passenger aircrafts that are operated by IAG airlines after the travellers' luggage has been loaded.

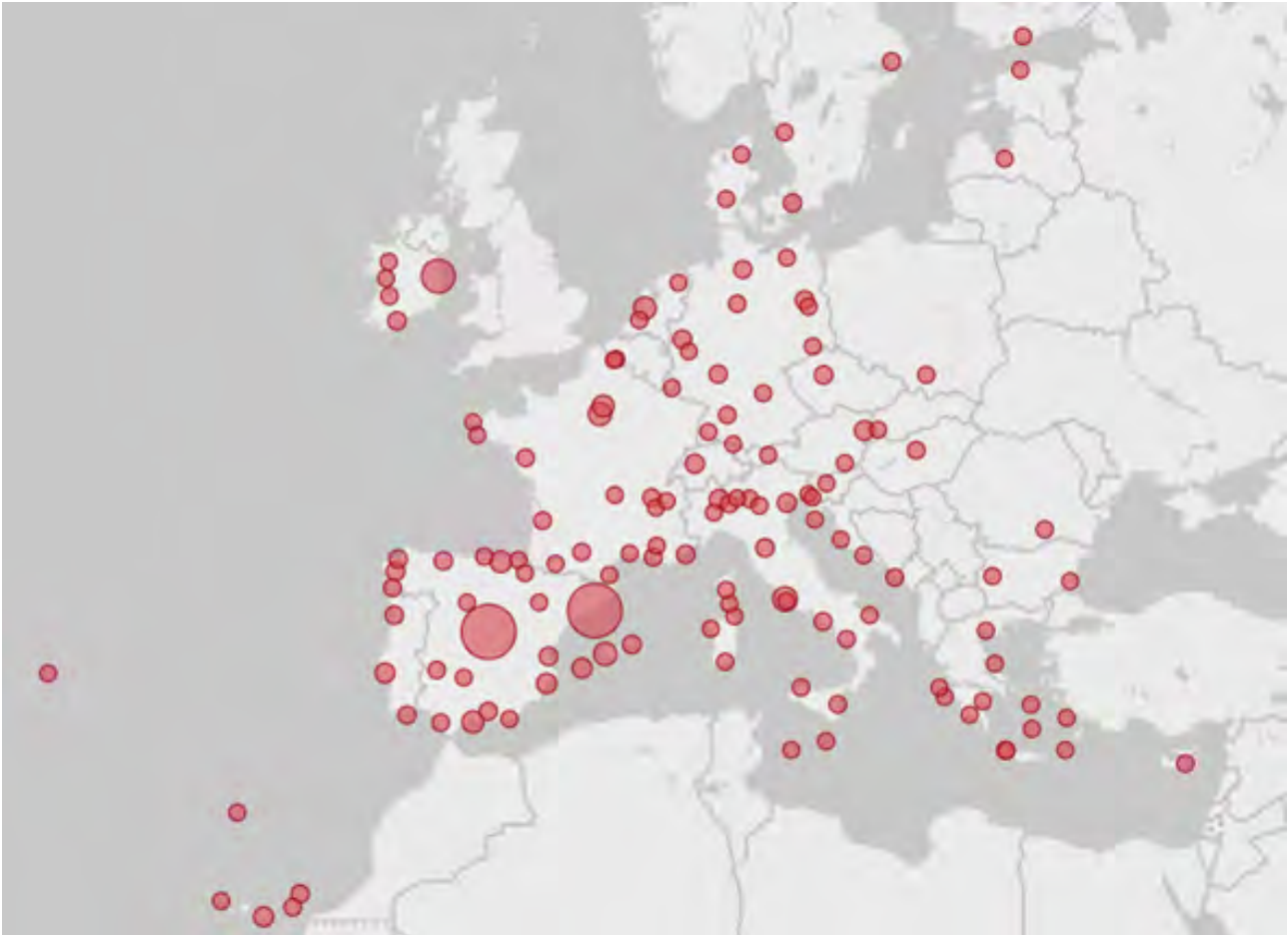
²¹ The country of destination refers to the place where the passenger lands, the final destination country of its journey. For instance, a passenger that flies from London Heathrow to Madrid Barajas and comes back to London Heathrow, has its destination in Madrid Barajas.

²² The number of passengers accounts for the passengers that arrived at the Country 1 airports using IAG airlines, including those travelling to the Country 1 (as destination) and those returning to a Country 1 airport (either from domestic or international routes).

IAG passengers connectivity in the EU

In 2019 IAG's airlines flew from 150 airports in the European Union, operating a total of 915 routes from these airports as displayed in Figure 16. IAG's airlines connect the UE to 44 countries worldwide, offering 352 extra-EU routes which carried 40.5 million outbound passengers outside the EU, or vice versa, in 2019, and 563 intra-EU routes carrying more than 51 million passengers. Overall, the IAG group transported more than 90 million passengers using the EU airports, representing 8.9% of total EU passenger movements in 2019 and 10.9% in the case of intra-EU passengers. Moreover, IAG offered flights from 26 out of the 27 European Union countries in 2019, greatly contributing to the connectivity of the region.

Figure 16: IAG airlines were present in 150 airports in the European Union in 2019, carrying more than 90 million passengers²³ in the European Union countries



Source: IAG Group. Note: The size of the ball expresses the number of passengers by airport

The busiest airports by number of passengers in the EU for IAG airlines in 2019 were Barcelona El Prat, Madrid - Barajas, and Dublin followed by Roma Fiumicino, Paris Orly, and Palma de Mallorca.

Each of the IAG's airlines provides different services in terms of routes and countries covered, operational model, network strategy and base location.

Iberia is a hub-and-spoke Spanish based airline with its hub located at Madrid - Barajas. In the EU, the airline had flights to/from 78 airports reaching 19 countries and carried a total of 22.4 million passengers in 2019. Iberia is focused on long-haul flights, especially connecting America to the European Union. In 2019 it offered a total of 170 routes. Its busiest route was between Madrid-Barcelona, while the international routes were mostly focused between Madrid to the biggest European capitals (London, Paris, Rome, etc.), and Madrid to America (Ciudad de México, Buenos Aires, and New York).

²³ Passengers carried in intra-EU and extra-EU flights in 2019 by IAG airlines

Vueling is a Spanish low-cost company that operates most flights from its bases including Barcelona- El Prat, Paris - Orly and Rome - Fiumicino using a point-to-point operating mode . Among IAG airlines, Vueling is the one offering the highest number of routes within the EU, 421, operating in 109 airports and carrying the largest number of passengers, more than 34.5 million. In 2019, the airline reached 20 countries in the EU. Its main routes were between Barcelona - El Prat to European capitals such as Paris, Rome, London, Amsterdam, Lisbon, and between Barcelona - El Prat to Spanish cities such as Valencia, Sevilla, Bilbao, Palma de Mallorca, Ibiza, and Mahón, the last three located in the Balearic Islands. These flights to the Balearic Islands play a critical role in supporting tourism in the islands, a sector that represents about 1/3 of the Balearic Islands GDP.

Aer Lingus is an Irish airline with its hub located in the Dublin airport from where it offers flights to Europe and to other continents, especially North America. The company carried more than 11.3 million passengers within the EU, reaching 16 countries and 57 airports. Out of the 101 routes offered in 2019, the busiest ones in terms of number of passengers were connecting Dublin to London, Paris, New York, Boston, Amsterdam and Málaga.

British Airways is the largest airline within IAG Group in terms of number of passengers, offering connections from the UK to major cities worldwide. In the case of the EU in 2019, the airline flew to 105 airports carrying more than 21 million passengers to almost all of the EU

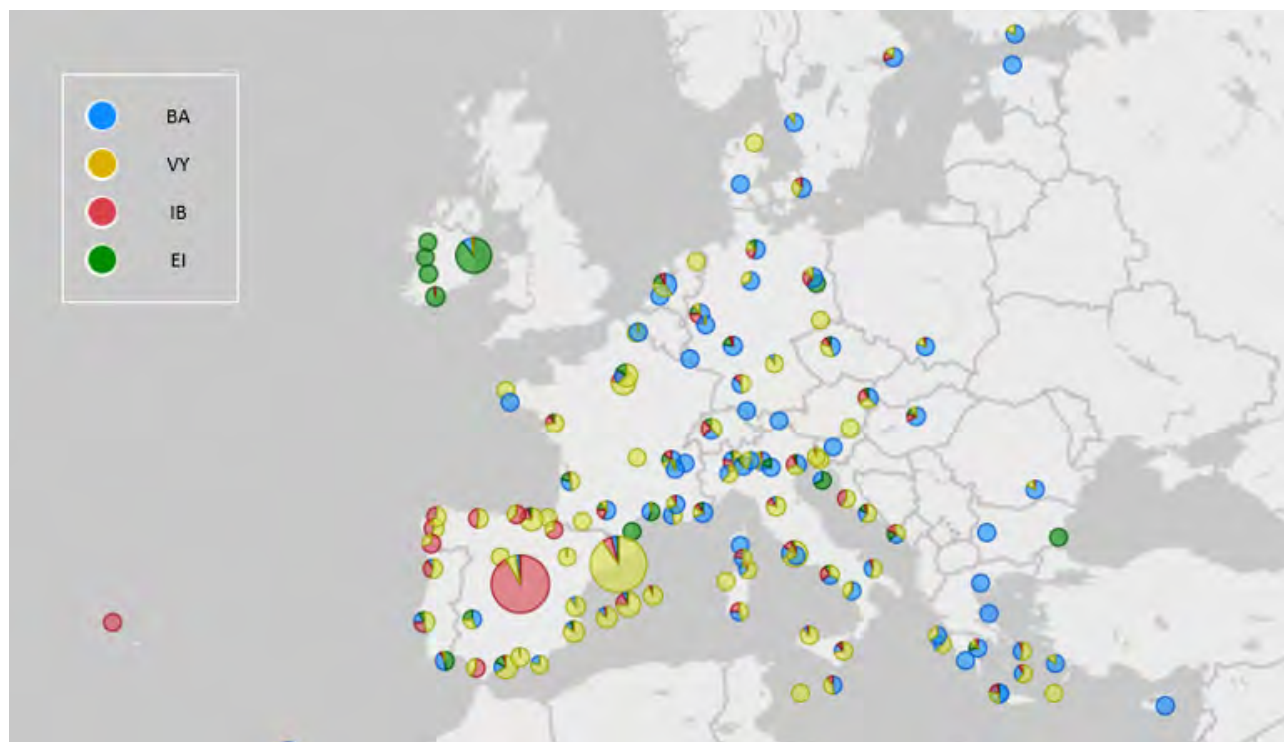
countries. British Airlines offered 166 routes which mainly connected London Heathrow to the biggest EU airports (Amsterdam Schiphol, Paris Charles de Gaulle, Madrid Barajas, Barcelona - El Prat, Dublin, Berlin or Munich).

The Figure 17 illustrates the number of IAG airlines passengers by operating airline and airport of arrival / departure showing the different strategies used by IAG airlines in each of the countries:

- Iberia, with its hub - and - spoke business model, centres its operations at Madrid - Barajas where it mainly connects the Spanish capital with the main European capitals and American destinations
- Vueling, with its point-to- point operating model, has an extensive network within Spain, particularly to the Balearic Islands and across the EU with passengers departing mainly from the Barcelona - El Prat airport
- AerLingus, with its hub - and - spoke business model, centres its operations in Dublin where it mainly connects the city with North American destinations such as Boston, Chicago, New York, San Francisco, Orlando, and Los Angeles
- BA supports connections from the UK to the main cities across Europe.

Each airline offers a type of service adapted to the different needs of the IAG group's clients during their travels, depending on the destination, purpose, passenger profiles and circumstances.

Figure 17: Among IAG airlines, Vueling is the airline that carried the largest number of passengers within the EU, accounting for more than 34 million and operating in 109 airports with a total of 421 routes.



Source: IAG database.²⁴ Note: Balls are expressed in number of passengers (i.e. a bigger the ball the larger the number of passengers)

²⁴ The graphics in this document exclude routes to Russia and Ukraine which were flown in 2019 but have since ceased due to the ongoing conflict.

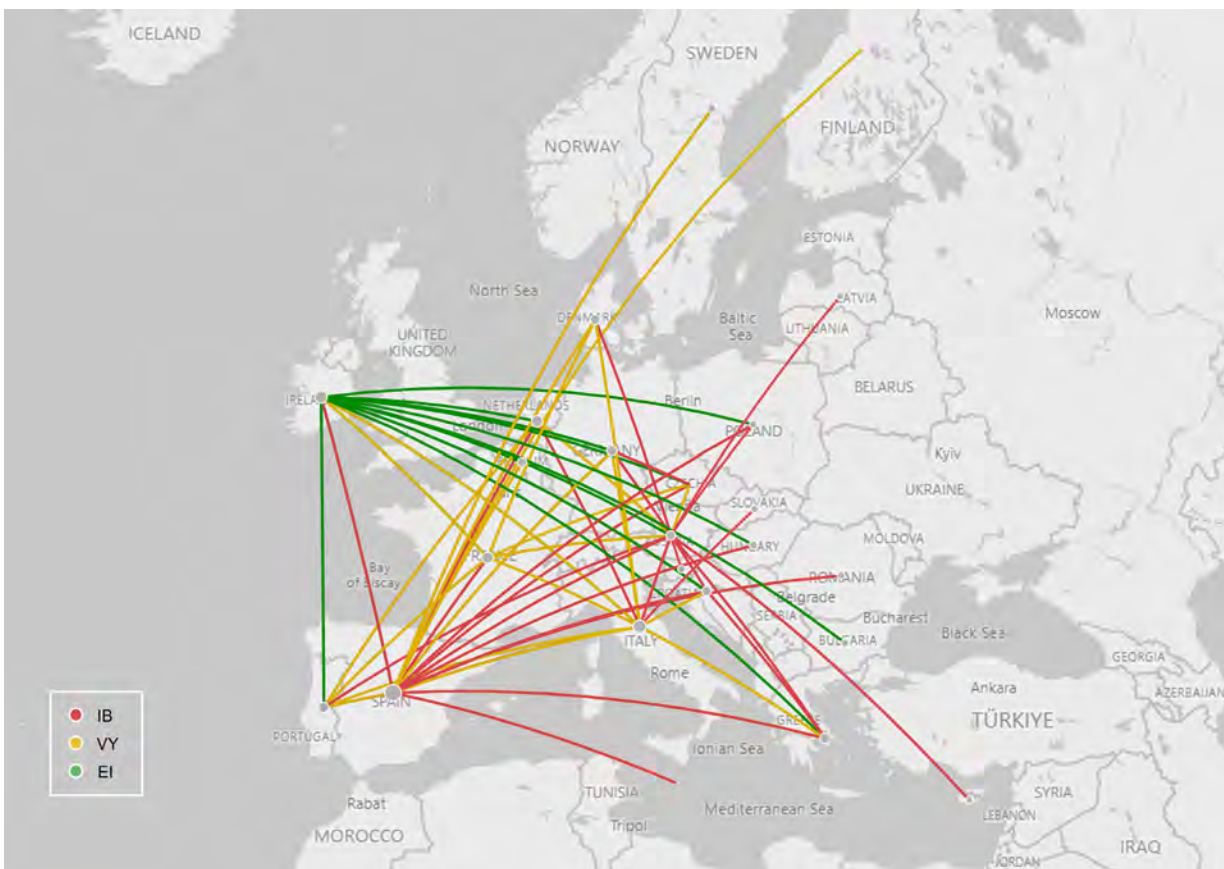
IAG intra-European Union connectivity

IAG's airlines operated 563 intra-EU routes (346 by Vueling, 147 by Iberia, and 70 by Aer Lingus), operating from 26 countries of the EU. 158 of those intra-EU routes were domestic, and 405 were between different EU countries (i.e. intra-EU routes). Madrid-Barajas, which is Iberia's hub, is the origin or destination airport for 16 million intra-EU passengers, accounting for 31% of IAG intra-EU passengers. Out of the 563 intra-EU routes, 143 were within Spain (22 million passengers), 42 connected Spain with Italy (5.4 million passengers) and 39 connected France with Spain (5.4 million passengers).

More than 93% of the intra-EU flights offered by IAG airlines in 2019 had either departure or arrival in the countries of Spain or Ireland, countries where both Iberia and Aer Lingus have their hubs, and Vueling its main base. Vueling is the operating airline which offers the largest number of intra-EU country flights, given its point-to-point operational model.

As displayed in Figure 18, the different airlines within the IAG group allow for connections between 26 EU countries from the hubs and main operating bases that the group has in the EU: Madrid, Barcelona, Dublin, Orly, and Rome.

Figure 18: IAG airlines were present in 150 airports in the EU in 2019, carrying more than 90 million passengers in the EU countries



Source: IAG database. Note: Flows are expressed in number of passengers and the routes with fewest passengers have been excluded for a better map visualization. Map shows connections between countries, not airports.

The available intra-EU connectivity provided by IAG's airlines offering complementary business models facilitates EU business relationships, fosters EU trade and investment, and encourages travelling for reasons such as leisure, education, and personal travel, strengthening the European common values.

The base of Vueling at Barcelona - El Prat

The main airports of IAG airlines in the EU:

IAG airlines have two different operational models within the EU market: hub-and-spoke for the case of Iberia and Aer Lingus, and point-to-point for the case of Vueling. The main advantage of the hub system is that it allows multiplying the offer of destinations without having to multiply the number of planes, since from each city it is possible to fly, through a stopover, to all the others served from the hub. In addition, it allows offering more frequencies as there are more passengers to each destination.

The main advantage of the point-to-point is that it offers more destination options, as they can fly to regional airports, providing access to destinations that are not served by other airlines, and offer more flexibility in terms of route planning.

This system allows the IAG group to offer complementary services to its clients, attending to their different needs.

The hub of Iberia at Madrid - Barajas

Iberia operates a hub-and-spoke model which provides global connectivity to Spain from its hub at Madrid - Barajas. IAG has a very strong presence at Madrid - Barajas, carrying a 46% of passengers²⁵ in 2019, where 93% of these passengers flew with Iberia and its airlines (Iberia Express and Air Nostrum²⁶) and the rest with Vueling, Aer Lingus, and British Airways.

The Madrid - Barajas airport was ranked 6th in Europe, Middle East and Africa, and 32nd in the world in 2022 in terms of connectivity, measured by comparing the number of scheduled connections to and from international flights with the number of destinations served from the airport.²⁷ The 'hub and spoke' model operated by Iberia is unique in Spain and South of Europe and plays a major role in connecting Southern European countries to the rest of the world, particularly to Latin America, facilitating business relations. The acquisition of Air Europa by IAG has the aim to reinforce the Madrid - Barajas hub, in order to be able to grow the airport positioning the hub at the level of other European hubs such as Paris-Charles de Gaulle, Frankfurt, Amsterdam Schiphol or London Heathrow. The growth of the Madrid - Barajas hub will be beneficial for the EU as it will strengthen the position of Iberia in the highly attractive Latin America and Caribbean markets as well as enable IAG to open routes to new destinations in Asia.

In 2019 top 3 IAG routes at Madrid Barajas were Barcelona-Madrid (2.1m passengers), Madrid-Heathrow (1.7m passengers), and Madrid-Tenerife Norte (880,000 passengers).

The base of Vueling at Barcelona - El Prat.

Vueling is a low-cost airline that operates mainly in Spain offering point-to-point short and medium-haul flights in Europe and North of Africa. Even though it does not have a hub which offers connections to medium and long-haul flights, more than 60% of the flights offered by the company had the base at Barcelona - El Prat airport as origin or destination. The airport of Barcelona - El Prat was the origin/destination of 21.3 million passengers, out of the total 34.5 million passengers who flew with Vueling in 2019.

The contribution of IAG to the Barcelona - El Prat airport is relevant with Vueling and Iberia, as the first and third most important airlines in terms of number of passengers. In 2019, IAG airlines accounted for 44% of all passengers in the airport, with Vueling accounting for 39%. The low-cost airline has been positioning itself as the main airline in the airport of Barcelona, with a growing share of passengers compared to other low-cost airlines, accounting for 42% of the passengers in 2022, three percentage points more than in 2019.

In 2019 top 3 IAG routes at Barcelona - El Prat were : Barcelona-Madrid (2.1m passengers), Barcelona-Palma de Mallorca (1.2 m passengers), and Barcelona-Orly (1m passenger)

The Aer Lingus hub in Dublin

Aer Lingus is an airline that offers both short and long-haul flights from Ireland to other European countries and North American cities. 74% of the flights operated by the airline and 86% of the passengers carried in 2019 had either origin or destination the airport of Dublin, the main airport in the country in terms of number of passengers and flights offered by the airline.

Out of the 32.7 million passengers that flew in 2019 in the airport of Dublin, IAG airlines carried 33% of the total passengers, with Aer Lingus being the main airline and accounting for more than 89% of them. The route Dublin - London Heathrow was the main route in terms of number of passengers, where Aer Lingus and British Airways together flew 99,3% of the passengers. The routes Dublin - Paris Charles de Gaulle (430,000 passengers) and Dublin - Málaga (335,000 passengers) are also within the top ten routes of the airport and IAG accounted for 56% and 51% of the passengers respectively, proving the importance of the airlines group in this airport.

In 2019 top 3 IAG routes at Dublin Airport were: Dublin - Heathrow (1.8.m passengers), Dublin - Gatwick (476,000 passenger) and Dublin - Charles de Gaulle (430,000 passengers).

²⁵ Data from AENA and IAG

²⁶ Air Nostrum does not belong to the Iberia group but the flights of the airline are commercialised by Iberia

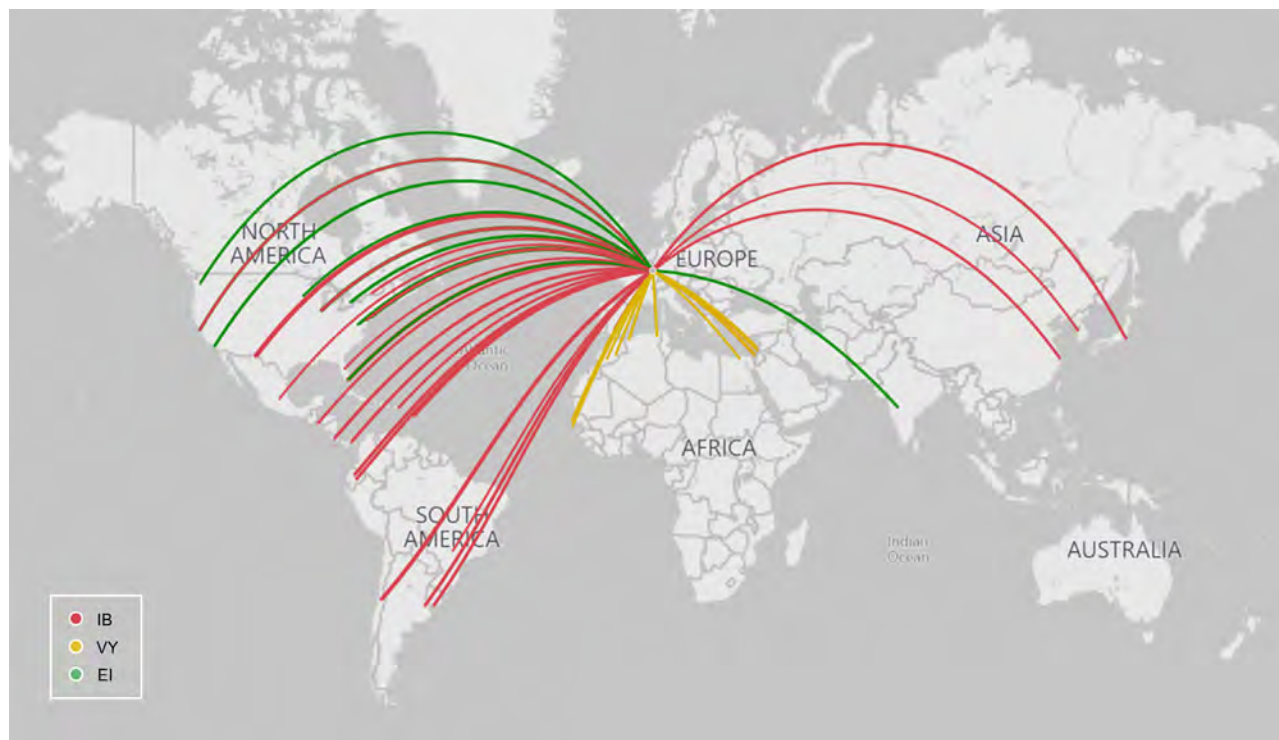
²⁷ Official Aviation Guide of the Airways (OAG). Megahubs. 2022

Connecting the European Union to the world

Besides intra-EU routes, IAG airlines operated 352 extra-EU routes in 2019. The most important extra-EU routes were the ones connecting Madrid to North America, Madrid to Central and South America, and Dublin to the US.

Although the EU based operating IAG airlines reached destinations such as Egypt, India, Japan, China, or Korea, the main international routes connected the European Union to America.

Figure 18: IAG airlines carried 40.5 million passengers in extra-EU flights departing from / arriving to the EU, with America being the main destination of flights operated mainly by Iberia, followed by Aer Lingus



Source: IAG database. Note: Flows are expressed in number of passengers

Connecting the European Union with America

Iberia was the leading EU based airline in the group connecting the EU and America by number of extra-EU routes in 2019. The airline offered routes that connected the EU to 43 cities in America, having frequent flights to cities such as New York, Ciudad de México, Boston, Buenos Aires or Miami. Moreover, Madrid – Ciudad de México flight was the main route to America, carrying almost 540,000 passengers in 2019, followed by Madrid – Buenos Aires route, that carried 451,000 passengers, and Madrid - New York City, which carried more than 442,000 passengers. In particular, Iberia was the leading airline in the connections between Spain and the US, Mexico, Argentina, Chile, Guatemala, Salvador, and Costa Rica. On average, Iberia carried around 50% of all passengers flying from Spain to America in 2019.²⁸

Madrid - Barajas, Iberia's hub, plays a strategic role in connecting not only Southern European countries but the European Union to America, in direct competition with other EU airline groups.

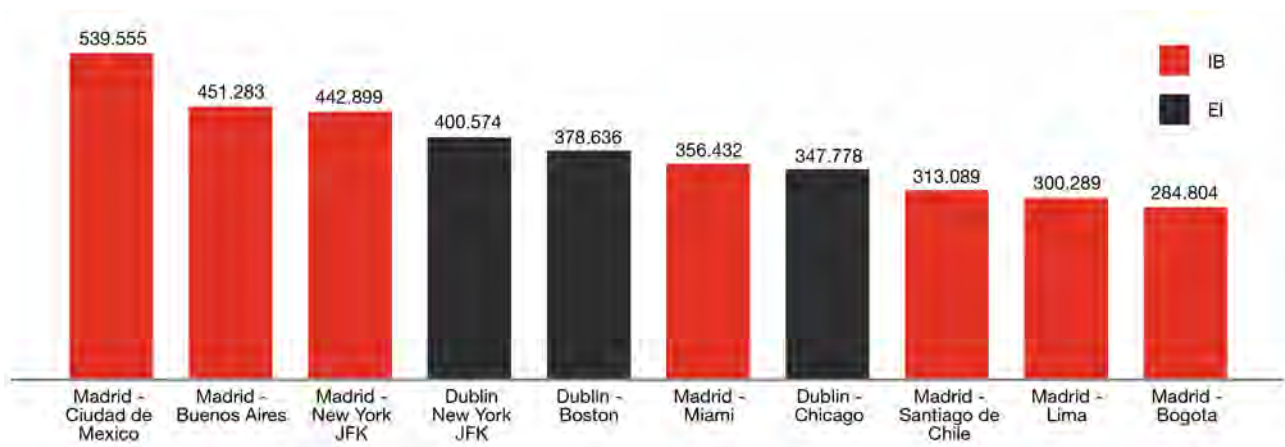
In the case of Aer Lingus, the Irish airline also contributes in connecting the EU to America through the 16 routes offered from the airports of Dublin, Cork and Shannon to US cities such as New York, Boston, Chicago, San Francisco, Orlando and Los Angeles. The hub of Aer Lingus is located in Dublin airport, where it operates most of its flights. In 2019, more than 73%²⁹ of the passengers who flew between Dublin airport and the United States flew with Aer Lingus.

These routes allow direct and frequent air connections from the EU to America, facilitating business relationships between European and American companies

²⁸ Data from AENA and IAG for 2019

²⁹ According to the Aviation Statistics of the Central Statistics Office of Ireland (CSO), there were 3.74 million passengers travelling from the United States to Dublin airport, and vice versa. IAG carried 2.55 million passengers between the United States and Dublin, accounting for a 73% of the share.

Figure 19: The top 10 routes offered by IAG airlines, connecting the EU with non-European countries, were operated by Iberia and Aer Lingus, with the Madrid - Ciudad de México and Madrid - Buenos Aires routes recording the highest number of passengers



Source: IAG database

All these international routes offered by IAG airlines allow the European Union economy to benefit from all the elements associated with greater connectivity, such as fostering international trade, economic growth, attraction of foreign direct investment, talent attraction, and increasing economic activity and employment.

Economic value of connectivity

The air connectivity which IAG's airlines bring provides economic benefits to the EU economy. Air transport enables key flows of activities such as tourism, trade, investment, and knowledge. Air routes that connect cities contribute to economic growth by boosting the supply side of the economy and facilitate investment flows. Key economic variables which are affected by spillover benefits of air connectivity are:

- GDP
- Employment
- Tourism, including education tourism
- International trade (goods and services)
- Foreign Direct Investment

The EU economy has, on top of a powerful manufacturing sector, a strong services focus, very active sectors such as in professional and technical services, tourism, finance & insurance, real estate services, IT and communication. Firms operating in these sectors are likely to benefit from the high connectivity provided by the IAG transport services.

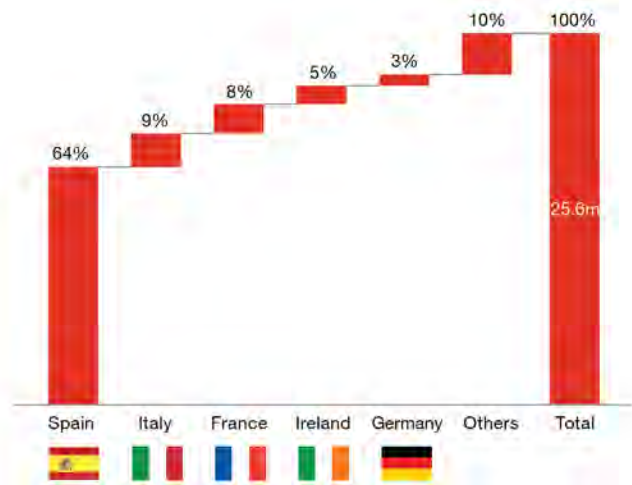
In this section of the report, we will firstly describe and quantify the catalytic economic benefit to the EU economy of the passengers brought to the EU by IAG, and then we discuss the importance of IAG's cargo operations for EU trade.



Passenger inflow to the EU by IAG

People from across the globe arrive in the EU for different purposes on IAG’s airlines. 41 million passengers that arrived in the EU in 2019 using IAG services. 63% of these were EU passengers (25.6 million), with the most common destination they travelled from being Spain (16.4 million), Italy (2.3 million), France (2 million), Republic of Ireland (1.4 million), and Germany (0.8 million). This data is consistent with the fact that both Iberia and Vueling are based in Spain, one of the most visited countries in the world.

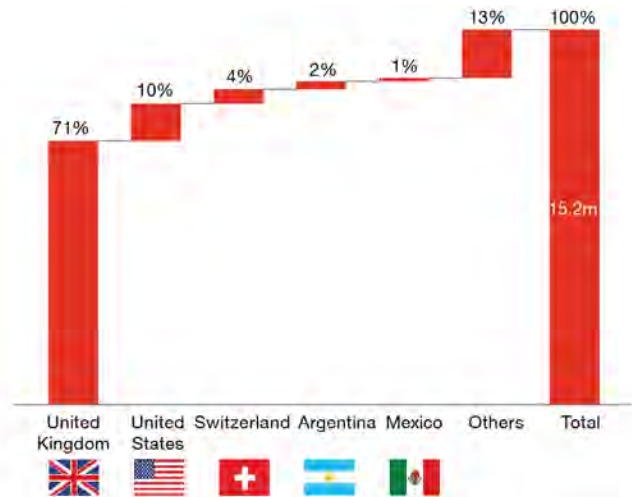
Figure 20: IAG EU passengers to the EU by departing country



Source: IAG

Also, IAG connects the EU with other non-EU countries. 15.2 million passengers from outside the EU arrived to the EU countries in 2019 on IAG services (37% of total IAG’s passengers). Most common origin for passengers visiting the EU was the UK (10.8 million passengers) followed by the US (1.5 million) and Switzerland (0.6 million).

Figure 21: IAG extra-EU passengers to the EU by departing country



Source: IAG, ONS and Eurostat



Supporting tourism in the EU

IAG passengers' makeup 10.2% of all airport passengers in the EU (both international and domestic). The arrival of both domestic and international tourists to a city or region has an impact on the local economy derived from the expenditure of visitors on accommodation, transport, restaurants, retail, or other activities. This catalytic impact can be measured in terms of GVA and FTE jobs creation. In the section below we calculate this impact in terms of the direct, indirect and induced impact of tourists brought to the EU by IAG's airlines.

Catalytic impact

In addition to contributing to the EU economy through its operational and capital expenditure as explained in the sections above, IAG plays a key role in catalysing tourism in the EU. In this section we estimate the contribution of this catalytic effect to the EU economy. In doing so, we calculate the gross value added and employment generated by tourism and business travel spending by IAG's international and domestic passengers.

The total catalytic impact is the result of:

- An direct impact: the contribution to the economy of the expenditure made by IAG passengers (in restaurants, hotels, etc.);
- An indirect impact: the onward supply chain impact of the business where IAG passengers spend money (e.g. providers of foods and drinks to the restaurants, utilities, etc.); and,
- An induced impact: the contribution to the EU economy resulting from employment supported by IAG passenger expenditure (e.g. rent, transport, groceries, etc.).

The expenditure of IAG passengers in 2019 was distributed as shown in Figure 23. Accommodation was the main component of expenditure (€9.7bn), followed by transport (€8.4bn), and food and beverage expenditure (€6.9bn). There is also expenditure related to cultural, sports and leisure activities (€3.9bn).

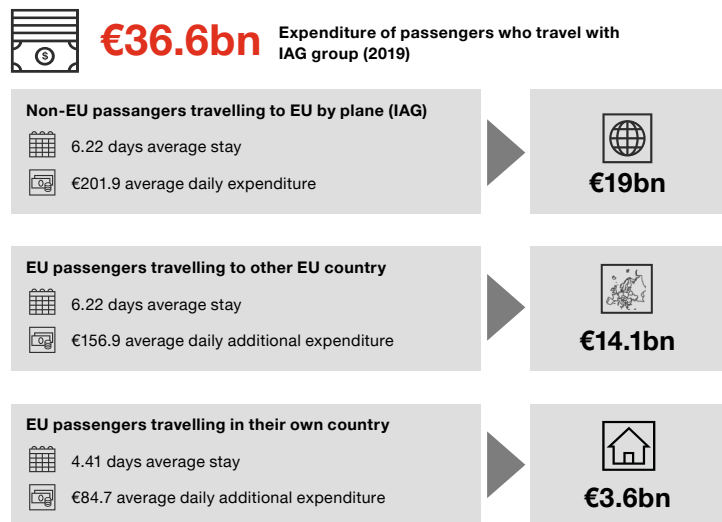
To estimate the catalytic impact we use the total number of passengers travelling to and within the EU, and compute tourism expenditure per passenger and the sectoral composition of this expenditure for domestic and international passengers using OECD and Eurostat data.

Passenger expenditure

Our modelling suggests total expenditure by IAG passengers in the EU economy was c.€36.6bn in 2019. This figure is made up of non-EU passenger expenditure of €19bn and domestic passenger expenditure of €17.6bn.

The expenditure of IAG passengers in 2019 was distributed as shown in Figure 23. Accommodation was the main component of expenditure (€9.7bn), followed by transport (€8.4bn), and food and beverage expenditure (€6.9bn). There is also expenditure related to cultural, sports and leisure activities (€3.9bn).

Figure 22: Total expenditure (€bn) in the EU by IAG passengers (domestic and international)



Source: IAG, Eurostat (TSA EU members) and OECD

Figure 23: Distribution of IAG passengers' main expenditures in the EU, 2019 (€bn)



Source: IAG, Eurostat (TSA EU members) and OECD

GVA impact

Figure 24 shows the direct, indirect and induced impact on the EU GVA that the expenditure of IAG airlines passengers has. While direct refers to the impact on the business that the passenger spent the money, indirect refers to the impacts on the value chain of the business, and the induces refers to the impact resulting from employees (of the main business & value chain business) expenditure.

Total IAG catalytic effect in the EU was at €39.7bn, equivalent to 5% of EU's tourism (€786bn).³⁰ This is comprised of:

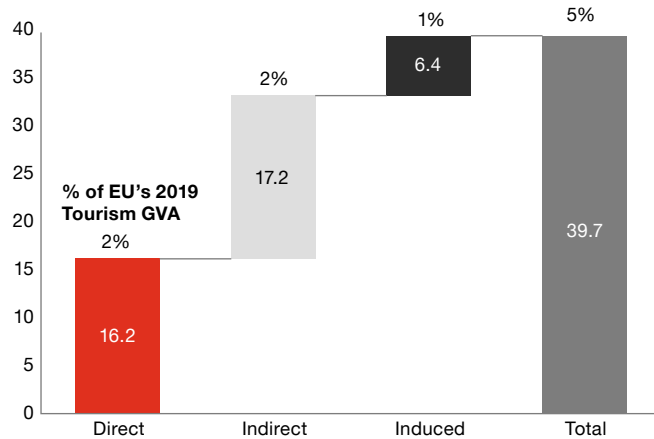
- **A direct impact of €16.2bn**
 - This is the impact that results from the IAG passengers' total expenditure in the economy.
 - Equivalent to 2% of EU's Tourism GVA.
- **An indirect impact of €17.2bn**
 - This is the impact that results from the industry value chain in the recipient sectors of passenger expenditure.
 - Equivalent to 2% of EU's Tourism GVA.
- **An induced impact of €6.4bn**
 - This is the impact of the spending by the households that have been impacted directly and indirectly, eg. hotel employees' expenditures.
 - Equivalent to 1% of EU's Tourism GVA.

Iberia is responsible for 39% of the total IAG catalytic impact with Iberia passengers contributing €15.3bn out of the €39.7bn that IAG's passengers contribute to the total EU's GVA. British Airways contributes 28% of the catalytic impact, Vueling contributes 19%, and the remaining 14% comes from Aer Lingus' passengers.

The catalytic impact benefits a range of sectors across the EU economy. The largest single catalytic contribution is to accommodation and food services at €9.3bn, followed by real estate services at €2.5bn, and cultural activities at €2.5bn. The majority of these impacts are direct, i.e., they are a direct result of IAG passenger spending.

Other smaller sectoral impacts, such as the impact on warehousing and support services for transportation (€2.2bn), have a more substantial indirect impact, which means that these impacts are a result of other industries' supply chains impacted by IAG passenger spending.

Figure 25: IAG catalytic impact in the EU, GVA 2019 (£bn)



Source: IAG, Eurostat (TSA EU members) and OECD

For each passenger who flies with IAG to the EU, there is a catalytic impact of €976 to the EU's GVA.

For each passenger who flies with IAG

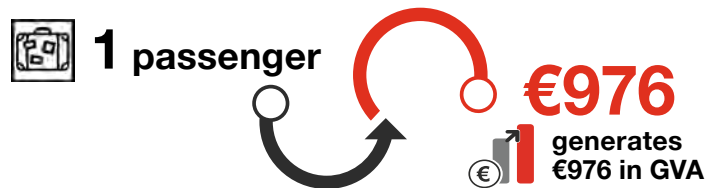
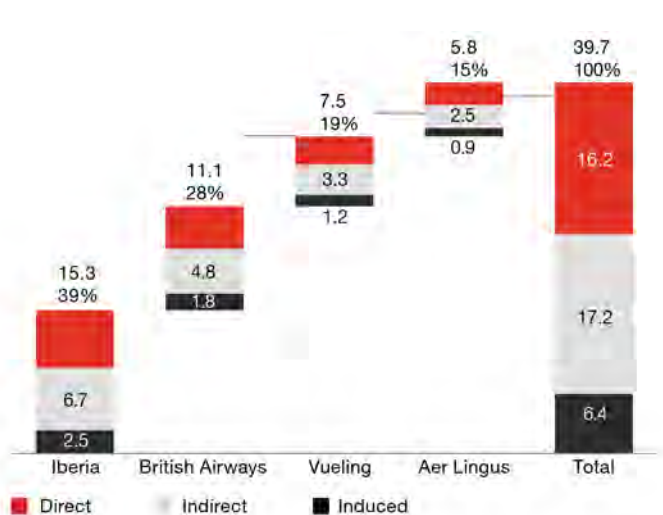


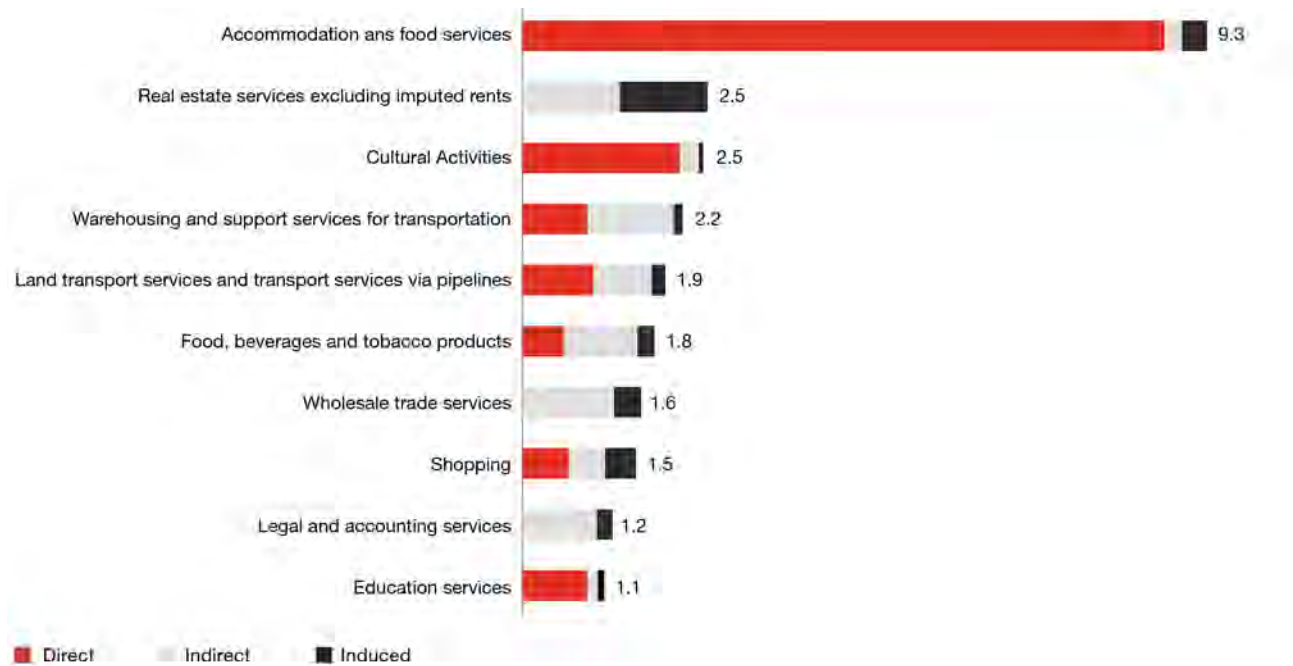
Figure 26: Distribution of catalytic impact by airline in the EU 2019 (€bn)



Source: IAG, Eurostat (TSA EU members) and OECD

³⁰ Eurostat, excluding UK data. Tourism Satellite Accounts in Europe 2. 2019 Edition. <https://ec.europa.eu/eurostat/documents/7870049/10293066/KS-FT-19-007-EN-N.pdf/f9cdc4cc-882b-5e29-03b1-f2cee82ec59d?i=1575909526000>

Figure 27: Top 10 sectors on IAG catalytic impact in the EU 2019 (€bn)



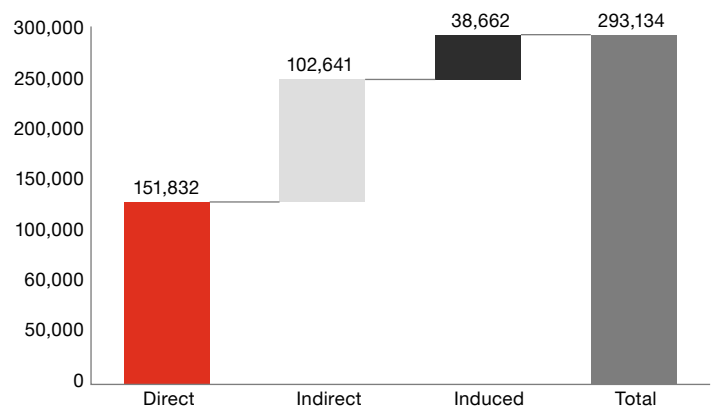
Source: IAG, Eurostat (TSA EU members) and OECD

Jobs impact

IAG’s catalytic effect supported approximately **293,000 full-time equivalent (FTE) jobs** in the EU in 2019. These FTE jobs are the result of the total expenditure made by passengers within the EU in the sectors described in Figure 39. This is comprised of:

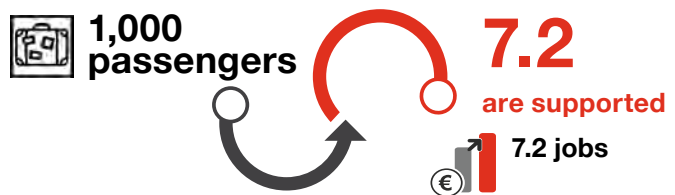
- **c.152,000 FTE jobs directly supported**
 - These are jobs supported by the expenditure of IAG passengers in the EU, e.g., jobs that are created in hotels, restaurants, and transport to provide services.
- **c.103,000 FTE jobs indirectly supported**
 - These are jobs supported by supply value chains of the sectors where the passengers spent money, e.g., jobs created in the supply chains of hotels and restaurants.
- **c.39,000 FTE jobs that are induced**
 - These are jobs that are supported by the spending of employees who are employed directly and indirectly, e.g., jobs created by the expenditure of employees who work in retail or hospitality in their day-to-day lives.

Figure 28: Catalytic effect of IAG on employment (FTE) in the EU



Source: IAG, Eurostat (TSA EU members) and OECD

For every 1,000 passengers who fly to the EU with IAG

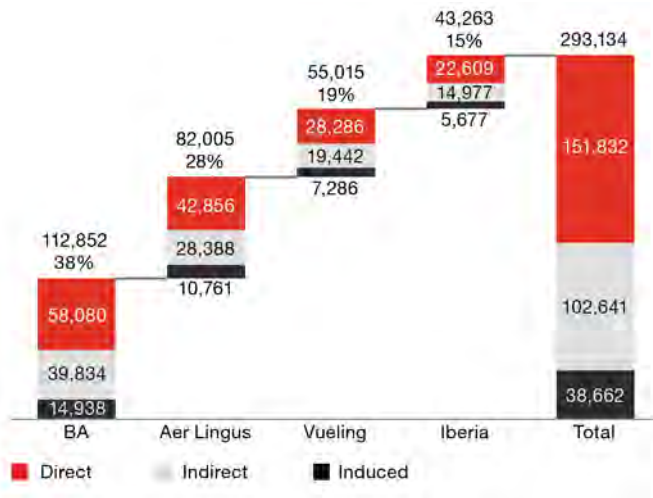


38% of the total catalytic impact of IAG's airlines on FTE jobs in the EU comes from Iberia. Iberia passenger expenditure supports 113,000 of the roughly 293,000 FTE jobs. British Airways passenger expenditure supports c.82,000 FTE jobs, Vueling c.55,000 FTE jobs, and Aer Lingus c.43,000 FTE jobs.

The catalytic impact on employment of IAG passenger spending in the EU is distributed across 105 different sectors, evidencing a broad impact of IAG to EU job creation. The largest sector which benefits from an employment catalytic impact of IAG passenger spending is the provision of accommodation and food services where c.101,000 FTE jobs are generated. This is followed by cultural activities services with c.20,000 FTE jobs. The third and fourth largest sectors in terms of employment impact are education and shopping with c.18,000 and c.15,000 jobs respectively.

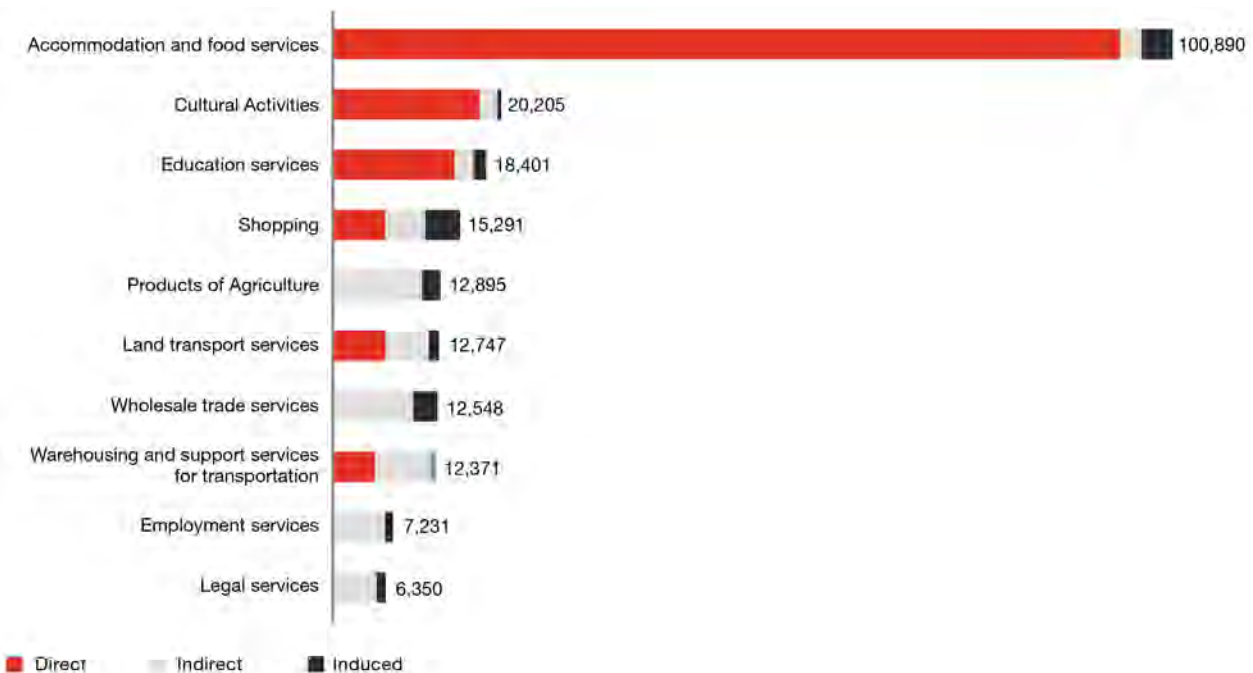
Most of the jobs created are created as direct impact, meaning that they directly result from IAG passenger spending. However, there is also evidence of substantial indirect and induced impact on jobs in the EU, particularly agriculture services. These are jobs supported as a result of spending from IAG passengers flowing through the supply chain to other industries, or spending of IAG employees, and EU households working in the supply chain sectors.

Figure 29: Catalytic effect of IAG on employment (FTE jobs) in the EU by airline



Source: IAG and ONS (IPS)

Figure 30: Catalytic effect on employment (FTE) of tourism resulting from IAG passengers by sectors, EU 2019



Source: IAG, Eurostat (TSA EU members) and OECD

Cross-border trade

IAG Cargo operations

IAG Cargo is the cargo division of IAG Group operating (picking up and setting up freight) in 136 countries and transporting more than 428 thousand metric tonnes³¹ (including tranships - the transfer of cargo between transport forms) of freight across the world in 2019.

IAG Cargo's activity contributes to facilitating international trade and access to international supply chains, a major engine of economic growth. Air cargo is a particularly important transportation mode for high added-value products such as power generating machinery, scientific equipment, pharmaceuticals, telecoms, gold, and other goods in need of urgent transportation. Although air cargo often represents a small fraction of trade by volume of goods shipped, it makes up a big portion of total trade by value.³²

IAG Cargo product offerings³³ include:

- IAG General Cargo, under categories of loose or unitised.³⁴
- IAG Cargo Air Mail, to provide services to the world's postal operators. In the the UK, BA has had a long-running partnership with Royal Mail that allowed to enable overnight cargo between London and Scotland (including the Highlands)
- IAG Cargo Constant Fresh designed for temperature sensitive perishable products.

- IAG Cargo Constant Climate designed to transport pharmaceutical goods.

Other IAG Cargo market solutions include: Prioritise (express services), Courier, Dangerous groups, General cargo or Live animals and pets.

The majority of demand for air freight is for products that are high value-added, and perishables. Examples of these are pharmaceuticals, fresh products, IT products, energy machinery, and gold.

IAG Cargo operates a forwarder business model where the majority of cargo is transported in the hold of passenger aircraft on long-haul routes using the two large hubs IAG airlines has in Madrid Barajas and London Heathrow as distribution centres. This model allows IAG Cargo to utilise the large number of passenger routes in the IAG's network to transport cargo worldwide on frequent flights. IAG Cargo's top five routes by origin and final destination (at the country level) are the US to the UK (45 thousand metric tonnes), India to the US (32 thousand metric tonnes), the US to India (28 thousand metric tonnes), domestic routes in Spain (24 thousand metric tonnes), and China to the UK (19 thousand metric tonnes).

Focusing on the EU, the routes with the largest weight of cargo transported by IAG from the EU in 2019 were between Spain and the United States and Mexico.

Figure 31: The routes with the largest weight of cargo transported by IAG worldwide in 2019 were between the United Kingdom with the United States, followed by the United States with India



Source: IAG Cargo. Note: A thicker line shows a larger number of metric tonnes

³¹ IAG Cargo has provided data on cargo weight but not cargo value. The methodology used to allocate the cargo transported by IAG has been to select the maximum data recorded by order and route (since it is not possible to discriminate whether cargo is collected or deposited at each airport through which the aircraft passes on a route). With this, we try to get as close as possible to the real data without incurring in overestimation of the cargo transported by IAG.

³² Steer (2018) Assessment of the value of air freight services to the UK economy. October 2018.

³³ IAG Cargo only provided data on the metric tonnes, the product offering is the closest approach to know the freighted products

³⁴ Loose cargo is a single item, and unitised cargo refers to a group of items that are shipped together.



Transporting pharmaceuticals including Covid-19 vaccines

IAG Cargo plays a key role delivering pharmaceuticals such as vaccines around the world due to its Constant Climate service. This is a cold-chain product enabling temperature sensitive pharmaceutical products to take advantage of the speed of being transported as air cargo. This product ensures that the goods are kept at the optimum temperature throughout the time they are in the airport, and is catered for with dedicated facilities at three global hubs:

- **Madrid - Barajas:** In February 2019 IAG Cargo opened a new centre dedicated to its Constant Climate product for transporting time and temperature-sensitive pharmaceutical products, including serving the Latin American market. The facility has two dedicated temperature-controlled chambers for 2-8°C and 15-25°C goods totalling over 900 square metres.
- **Dublin:** This temperature controlled facility in Ireland offers 2-8°C and 15-25°C zones to enable IAG Cargo and Aer Lingus to serve the Irish market and beyond, providing direct access to

destinations in the US and Canada and supporting a growing pharmaceutical market in Ireland.

- **London - Heathrow:** The Constant Climate Centre is a dedicated site for pharmaceutical shipments opened in 2013, and has separate temperature-controlled zones, at 2-8°C and 15-25°C totalling 6,000 square feet.

During the Covid-19 pandemic IAG supported delivering this vaccine to millions using these Constant Climate and climate controlled facilities. IAG was able to support the global pandemic response by:

- In 2021 IAG Cargo transported over 19 million doses of Covid-19 vaccines around the world.
- IAG Cargo partnered with UNICEF to support its COVAX programme which was aiming to provide equitable global access to Covid-19 vaccines, delivering four million doses of vaccines to Nigeria.

Cargo's impact on EU trade

IATA estimates that a 1% increase in air cargo connectivity³⁵ is associated with 6% more trade, widening the business opportunities for firms and consumer choices.³⁶

In 2019, the trade in goods balance of the EU was in surplus by €200 billion.³⁷ Air transportation played a key role in reaching this surplus by supporting the exports of high added value products by EU exporting firms.

Freight transportation by air reached 3,760 thousand metric tonnes in the EU countries in 2019.³⁸

IAG transported 375 thousand metric tonnes of cargo, representing 10% of total air cargo transportation in EU countries in 2019.³⁹

Measured in value, air transport accounted for 25.9 % of the EU's exports and 19.0 % of its imports.⁴⁰ In terms of volume (based on tonnes), air transport accounted for just 0.7 % of the EU's exported goods and 0.3 % of its imported goods. The difference in between the shares of air transport in value terms and tonnes gives an indication of the high unit value of goods transported by air.

³⁵ "Air connectivity is a composite measure reflecting the ease of accessing various locations around the world. It is a composite measure reflecting the number and economic importance of the destinations served from a country's major airports and the number of onward connections available from each destination". IATA. Air Connectivity. Measuring the connections that drive economic

³⁶ IATA. Air Connectivity. Measuring the connections that drive economic growth. <https://www.iata.org/en/iata-repository/publications/economic-reports/air-connectivity-measuring-the-connections-that-drive-economic-growth/>

³⁷ Eurostat. International trade in goods. [https://ec.europa.eu/eurostat/documents/2995521/10624801/6-25032020-AP-EN.pdf/c65584e1-c88c-f038-aec1-bd1235c395e1#:text=In%202019%2C%20the%2027%20EU,\(intra%2DEU%20trade\)](https://ec.europa.eu/eurostat/documents/2995521/10624801/6-25032020-AP-EN.pdf/c65584e1-c88c-f038-aec1-bd1235c395e1#:text=In%202019%2C%20the%2027%20EU,(intra%2DEU%20trade))

³⁸ Eurostat. Freight transport statistics.

³⁹ Eurostat. International trade in goods by mode of transport. Data for 2021. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International_trade_in_goods_by_mode_of_transport&oldid=494356#Trade_by_mode_of_transport_in_value_and_quantity

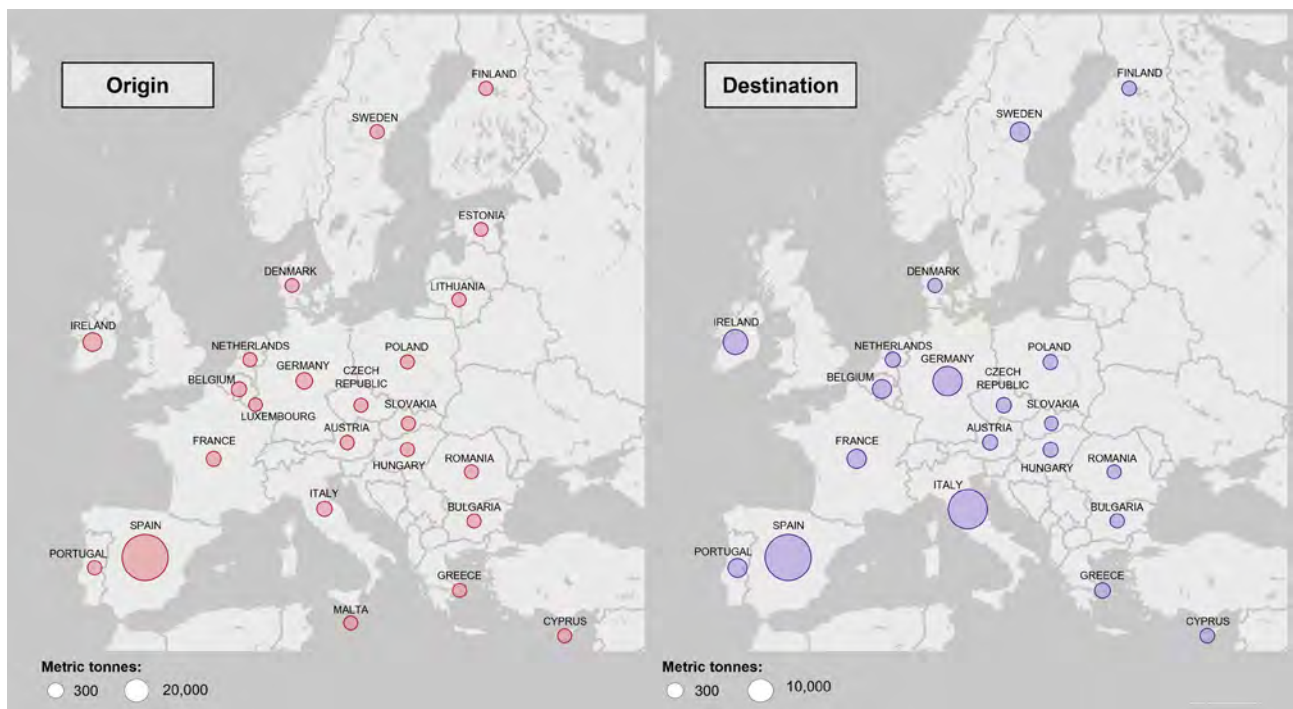
IAG Cargo operations in the EU

According to Eurostat in 2019, Madrid-Barajas moved 623 thousand metric tonnes of air freight in the EU, and in Madrid-Barajas, IAG bellyhold cargo makes up almost 30% of the total cargo moved, benefiting from the long haul flight availability.

IAG Cargo in particular contributes to international trade in the EU, handling the freight of over 3% of total cargo in the EU, and over 30% of goods in Madrid-Barajas in 2019. (See Cross-border section for further information on IAG Cargo activity). Barajas airport, the hub of Iberia in Spain was involved in 44% of IAG's total cargo movement in the world.



Figure 32: IAG contributes to European Union connectivity by importing and exporting goods at several airports⁴⁰ all around the continent, operating in 26 of the total 27 countries:



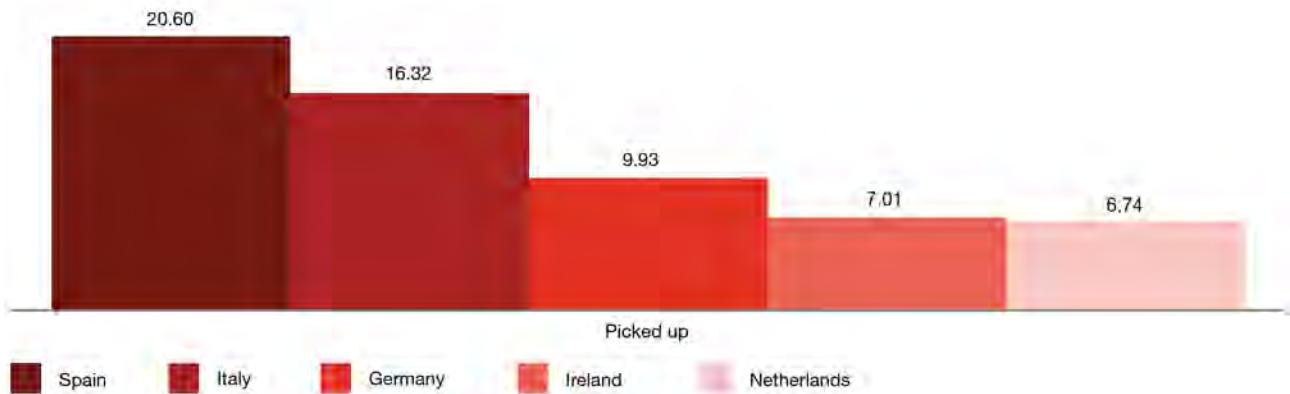
Source: IAG Cargo. Note: The relative size of each ball denotes kilograms of cargo sent (left) or received (right) by airport

The main airport for IAG cargo activities was Madrid - Barajas for origin of freight, and Madrid - Barajas and Rome - Fiumicino for destination of freight, supporting trade particularly in- the Southern countries of Europe.

IAG exported 84 thousand metric tonnes from the EU in 2019, which represented less than 1% of total air exports from the EU (almost 16 million metric tons). The largest origin countries were Spain (20 thousand metric tonnes), Italy (16 thousand metric tonnes), Germany (10 thousand metric tonnes), Ireland (7 thousand metric tonnes) and Netherlands (7 thousand metric tonnes)

⁴⁰ The map has been populated using IAG Cargo data. Some of the freight may have reached the destination airport by truck as bonded freight, not by air

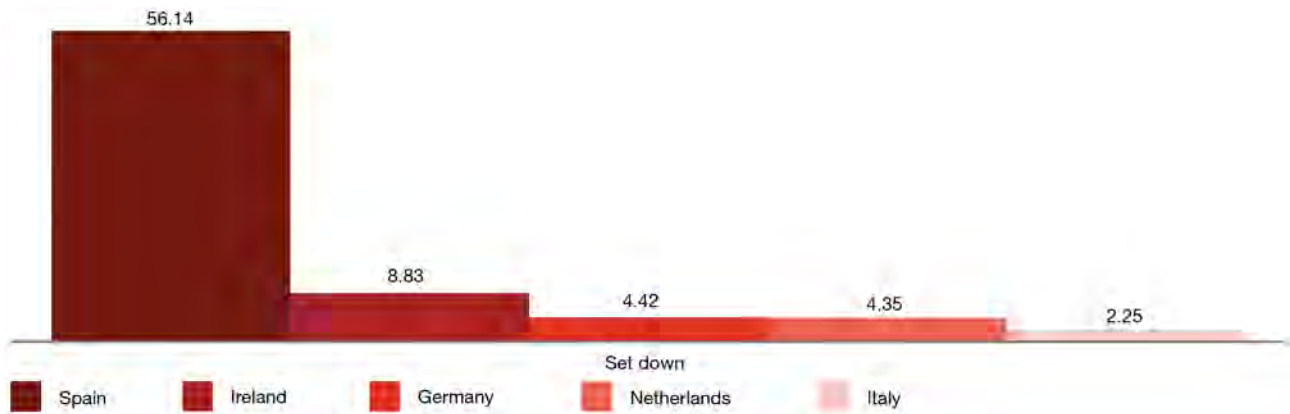
Figure 33: Main origin of the EU's exports by IAG, 2019 (thousand metric tonnes)



Source: IAG Cargo

IAG imported 83 thousand metric tonnes to the EU in 2019, which represents almost 2% of total air cargo imported to the EU (4.9 million metric tonnes). The largest EU destination countries for these imports were Spain (56 thousand metric tonnes), Ireland (8.83 thousand metric tonnes), Germany (4 thousand metric tonnes), Netherlands (4 thousand metric tonnes), and Italy (2 thousand metric tonnes).

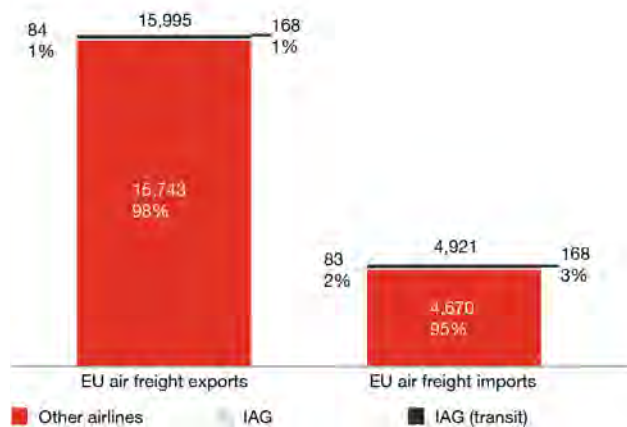
Figure 34: Main origins of the EU's imports by IAG in 2019. (thousand metric tonnes)



Source: IAG Cargo

IAG Cargo freighted 2% of total air cargo departing to the EU airports (as measured by weight), 67% in transit and 33% initial pick up (Figure 35) and 5% of total air cargo arriving to the EU (with a similar distribution between final set down and transit) . IAG therefore plays a critical role in the transit in the functioning of global value chains essential to the manufacturing of many products such as cars, cell phones, and other IT equipment.

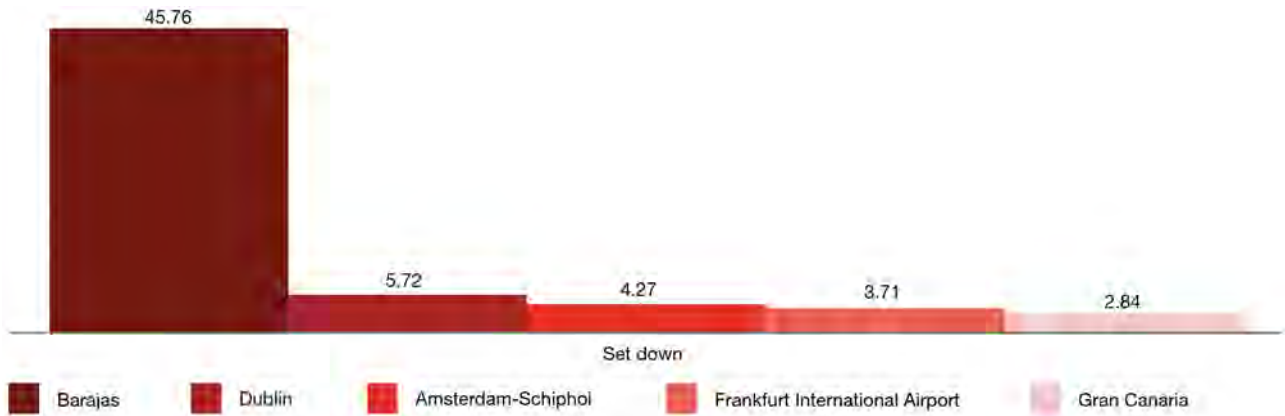
Figure 35: IAG cargo in the EU, 2019 (thousand metric tonnes)



Source: Civil Aviation Authority & IAG Cargo

If we are looking by airports, Madrid-Barajas was the main EU airport in terms of set down cargo in 2019, receiving almost 46 thousand metric tonnes. Other main airports in the EU in 2019 were Dublin (6 thousand metric tonnes), Amsterdam-Schiphol (4 thousand metric tonnes), Frankfurt (4 thousand metric tonnes) and Las Palmas de Gran Canaria (3 thousand metric tonnes).

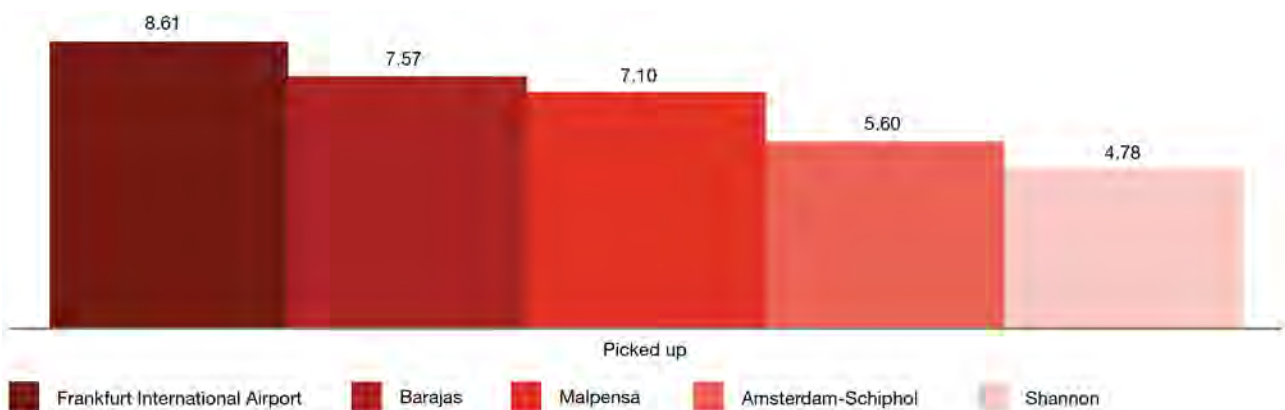
Figure 36: EU's set down freight by airports. Only final destination, 2019 (thousand metric tonnes)



Source: IAG Cargo

Frankfurt airport had the largest volume of goods exported ('picked up freight') considering only the origin of the product and excluding products in transit, followed by Barajas and then Malpensa airports. Other relevant airports in terms of picked up freight are Amsterdam-Schiphol and Shannon's airports.

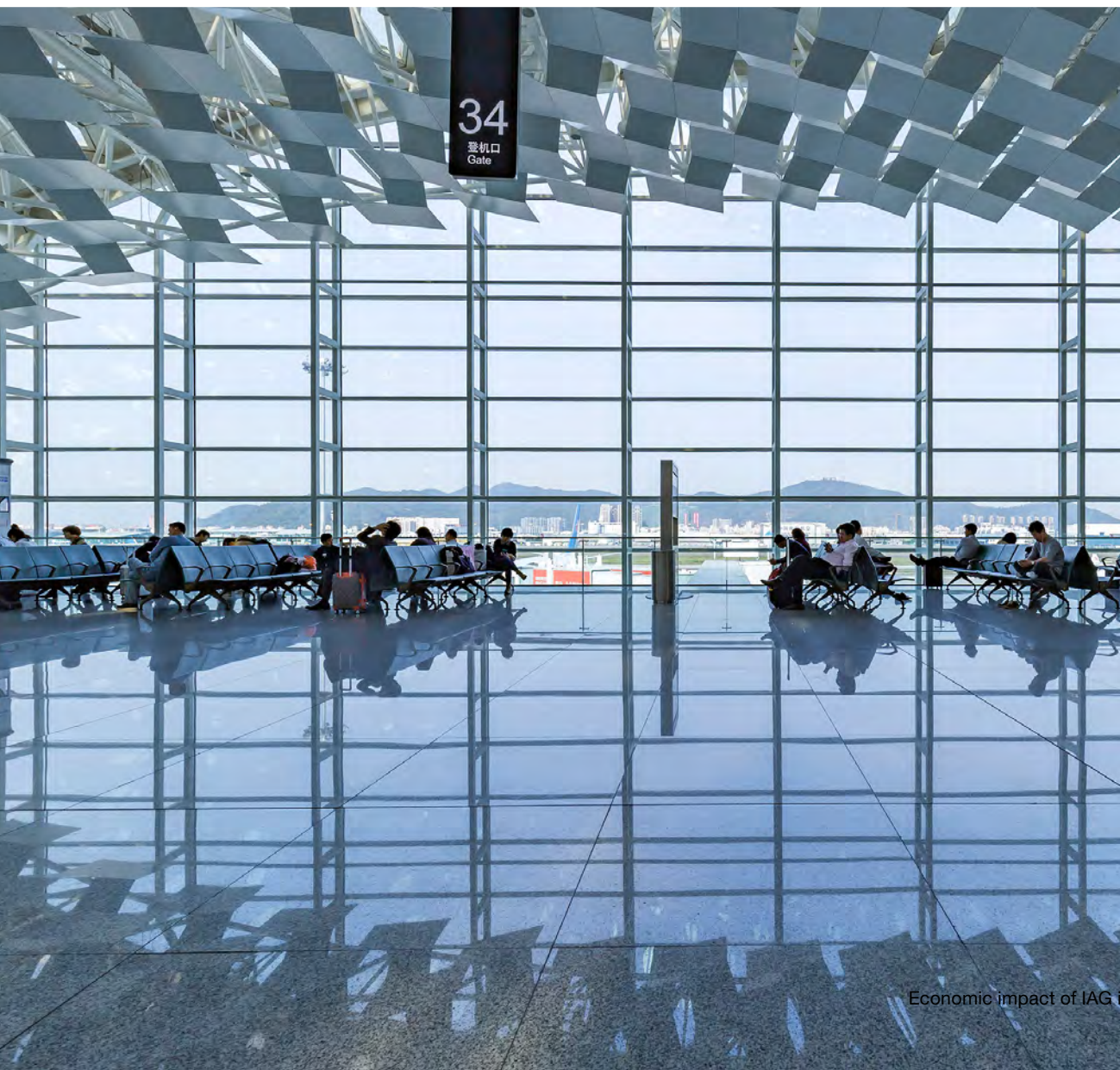
Figure 37: EU's picked up freight by origin airport, 2019 (thousand metric tonnes)



Source: IAG Cargo



Sustainability



Aviation's net zero challenge

The aviation industry faces a challenge to decarbonise in order to keep the EU on track to meeting its environmental commitments. The sector is in the process of adapting so that it can continue to provide the economic benefits described in this report, including its contribution to EU GDP, jobs, trade and connectivity, whilst minimizing the impact it has on the environment.

Domestic and international aviation accounted for 3.8% of EU greenhouse gas (GHG) emissions in 2019.⁴¹ Passenger levels are rapidly recovering after the Covid-19 pandemic, with the International Air Transport Association (IATA), the global airline trade association, expecting the numbers of travellers in 2023 to reach 86% of the 2019 peak.⁴² Forward projections estimate a doubling of passenger numbers by 2040.⁴³ As a result of this expansion and the carbon intensity of the industry, aviation is forecasted to be a sector with one of the largest residual emissions remaining after technically and economically feasible reductions in the UK by 2050.⁴⁴

Improving the sustainability of the aviation industry is an important component in meeting the EU's commitment to be climate-neutral by 2050 – an economy with net-zero greenhouse gas emissions.

Green Deal & the Sustainable and Smart Mobility Strategy

The European Commission presented in 2019 the European Green Deal⁴⁵ with the goal to transform the EU into a modern, resource-efficient and competitive economy, ensuring:

- no net emissions of greenhouse gases by 2050
- economic growth decoupled from resource use
- no person and no place left behind.

The aviation industry faces a challenge to decarbonise in order to keep the EU on track regarding the achievement of its environmental commitments: transform Europe into the first climate-neutral continent by 2050.⁴⁶ The goal requires cutting transport-related greenhouse emissions by 90%. However domestic and international aviation accounted only for 13.9% of total transport greenhouse emissions in EU-28 in 2018⁴⁷, being the road transport responsible for 71.1% of total emissions.

In order to tackle the transport and aviation emissions, the Sustainable and Smart Mobility Strategy sets out a list of measures to support aviation's sustainable transformation

- supporting the development of new aviation technologies
- making flying more efficient through the Single European Sky
- gradually replacing fossil jet fuel with sustainable alternatives
- making sure carbon emissions are cut in a cost-effective way through the EU Emissions Trading System

The aviation sector is in the process of adapting so that it can continue providing the economic benefits (GDP & trade), and connectivity, while stimulating innovation and minimising the impact it has on the environment committing to:

- sustainability and net zero carbon emissions by 2050 for all flights within and departing from Europe, as expressed in the DESTINATION 2050 initiative of 2021,
- European Union Fit For 55 and RefuelEU Aviation; to foster biofuel use, with a minimum mandate for the use of SAF on flights of 2% in 2025, 5% in 2030, and a gradual increase to 63% in 2050.

IAG sustainability leadership

IAG's past achievements and future strategy demonstrate that it is committed to making the aviation industry a more sustainable part of the EU economy, and the group will play a central role in the sector's decarbonisation.

IAG has a history of leadership in the aviation industry's progress towards sustainability, including setting precedents for meaningful and challenging targets:

- In 2019 IAG became the first airline group to commit to reaching net zero carbon emissions by 2050, meaning it will remove all the direct and indirect emissions associated with IAG operations (such as aircraft fuel and ground facility electricity).
- IAG stretched this target further in 2021 becoming the first airline group to commit to reaching net zero Scope 3 emissions by 2030, meaning it will additionally remove all indirect emissions associated with products IAG buys and sells (such as emissions related to aircraft deliveries).
- In 2021 IAG became the first airline group to commit to 10% sustainable aviation fuels (SAF) by 2030.

⁴¹ European Commission. European Environmental Agency (EEA)

⁴² IATA. Airlines Cut Losses in 2022; Return to Profit in 2023. Press Release No: 56. Date: 6 December 2022 <https://www.iata.org/en/pressroom/2022-releases/2022-12-06-01/>

⁴³ IATA. Global Outlook for Air Transport Times of Turbulence. June 2022. <https://www.iata.org/en/iata-repository/publications/economic-reports/airline-industry-economic-performance---june-2022---report/>

⁴⁴ UK Department of Transport. Jet Zero Strategy Delivering net zero aviation by 2050 . July 2022. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1095952/jet-zero-strategy.pdf

⁴⁵ Green Deal encompasses the European Climate Law, the Sustainable and Smart Mobility Strategy, and the Zero Pollution Action Plan

⁴⁶ The 2021 European Climate law

⁴⁷ EEA.

Looking forward, IAG's vision is to be one of the world's leading airline groups on sustainability. IAG is a large airline group which understands that its scale supports its ability to influence the sector as a whole, and it takes seriously its ability to play a leadership role in the sector, taking on a variety of leadership positions in industry associations.

Globally IAG representatives are active in IATA's Sustainability and Environmental Advisory Council and working groups. IAG representatives lead sustainability activities within the Oneworld Alliance, including chairing the Environmental and Sustainability Best Practice Group.

IAG sustainability strategy

In its 2021 Sustainability Report IAG sets out its ambitions and strategies to drive change to create truly sustainable aviation, and meet these targets.⁴⁸ IAG has aligned its environmental strategy to its overall strategic priorities, and sets out nine strategic priorities against which its sustainability strategy and progress is tracked. These are:



- Clear and ambitious targets relating to IAG's most material issues
- Low-carbon transition pathways embedded in business strategy
- Management incentives aligned to delivering a low-carbon transition plan
- Leadership in carbon disclosures
- Accelerating progress in low-carbon technologies including aircraft technology, SAF, carbon offsets and carbon removals
- Accelerating innovation in low-carbon technology as above
- Industry leadership in the innovation and deployment of SAF including power-to-liquids
- Stepping up our social commitments including on diversity, employee engagement and sustainability as a core value
- Industry leadership in stakeholder engagement and advocacy

IAG transition plan

IAG has created a Flightpath Net Zero strategy in order to meet its net zero emissions target which it recognises as essential to limit global warming below 1.5°C. Its roadmap is a 30-year plan, incorporating short (1-2 years) and medium-term (3-5 years) targets to stay on track. The pillars of this roadmap are: new aircraft and operations; Sustainable Aviation Fuels (SAF); market-based measures with offsets; and carbon removals.

Flightpath net zero

IAG launched its Flightpath net zero⁴⁹ a package of measures aimed to reduce its carbon footprint by 2030 and to reach net zero CO2 emissions across its full operations and supply chain by 2050. Flightpath net zero highlights:

- 1st airline group worldwide to commit to achieve net zero carbon emissions by 2050
- By 2025: 10% reduction in CO2 per passenger kilometre
- By 2030: 20% reduction in net CO2 and use of 10% sustainable aviation fuel
- By 2050: Net zero CO2 across its full operation and supply chain.



⁴⁸ IAG. Driving change to create truly sustainable aviation. Annual Report and Accounts 2021. <https://www.iairgroup.com/-/media/Files/1/IAG/documents/sustainability/sustainability-report-2021.pdf?9526000>

⁴⁹ IAG. Flight path Net Zero. <https://www.iairgroup.com/en/sustainability/flightpath-net-zero>

Supply chain strategy

IAG extended its net zero commitment for 2050 to its supply chain in 2021. IAG is committed to supporting and monitoring its suppliers' performance to ensure that all products and services provided to IAG reach net zero emissions by 2050. IAG Global Business Services (IAG GBS) leads on this mission and is supported by EcoVadis which provides sustainability ratings to enable IAG to monitor its supply chain.

Sustainable Aviation Fuel (SAF)

IAG has committed to using 10% SAF by 2030 with appropriate government support, and estimates that this will be the equivalent of using 1 million tonnes of sustainable fuel. This commitment is important as IAG's scale is able to support the development, improvement and availability of SAF for the whole sector. IAG is investing \$865m⁵⁰ in SAF purchasing and investments to support the construction of a waste residue plant in the North East of England. Purchasing SAF and future purchase agreements help to support the financial

viability of SAF, in addition to the investments in SAF production capacity that IAG has made. IAG has also been responsible for coordinating the oneworld roadmap to 10% SAF by 2030.

Iberia is the number-two airline in the world in regards to the reduction of CO2 emissions on long-haul flights.

Among the initiatives to promote the production of SAF, in October 2021, Iberia and Repsol operated the first flight with a mixture of biofuel generated from waste at the Petronor plant.

In June 2022, they partnered again in the operation of the first transatlantic flights from Spain with SAF sourced from waste.

Innovation in low-carbon technologies is central to IAG's sustainability strategy and provides a route to meet decarbonisation targets across the group and to drive industry-wide change. The next section of this report focuses on how IAG is supporting innovation in the aviation sector, to support sustainability and other goals.

Iberia Chair for the Decarbonisation of Air Transport

In 2020 Iberia created the Iberia Chair for the Decarbonisation of Air Transport together with the Polytechnic University of Madrid, actively collaborating in the search for solutions that help us decarbonise air transport:

- Assessment of initiatives that lead to more efficient flights.
- New fuel that reduces emissions
- More efficient waste management systems



Aviator Project

Along with 16 partners, Iberia takes part in the AVIATOR project, led by the Spanish National Institute of Aerospace Technology (INTA) and funded by the European research and innovation programme Horizon 2020 and National Research Council Canada (NRC).

This project aims to assess the impact of aviation emissions on local air quality at airports and their environment, in order to develop cleaner and more efficient engines.



⁵⁰ Including future investments and purchases

Innovation



IAG's innovation strategy

IAG is investing in solving these business challenges through research and innovation. Innovation is a focus across multiple areas of the business, including accelerated climate tech adoption, customer solutions, and operational efficiency. Innovation within IAG happens both at the level of the group, and individual airlines. IAG supports innovation across a range of areas: sustainability and fuel innovation, airside innovation, new customers and loyalty offerings, and enhanced tech and cyber.

Hangar 51 is IAG's core innovation platform to fund, support and scale emerging technologies. Launched in 2016, its mission is to work with start-ups and scale-ups that can help innovate and transform IAG, as well as the wider travel industry.

Hangar 51 programmes include:



Accelerator, to scout for and rapidly test new technologies



Labs, to rapidly prototype new solutions for operational use



Venture capital, to support the growth of early-stage start-ups



Incubator, to support the implementation of new technologies within our operations and the commercial development of portfolio companies



R&D, to horizon scan for new opportunities and technologies to stay at the forefront of innovation relevant to the sector

IAG Tech is the group's internal platform to support the group to enhance their technology capabilities. IAG Tech works across the group's operating companies and helps to roll out new technologies across the business to embed innovation in practices. This includes implementing new platforms, systems, and delivering initiatives to reduce costs and improve efficiency such as the automation of processes.



Emu

Emu Analytics joined IAG's Hangar 51 global accelerator programme and was embedded within IAG to develop innovative digital twin solutions focused on cargo and passenger logistics. As part of this work, BA and IAG Cargo now have access to real-time tools that assist with tactical decision-making; saving fuel, cost and improving overall ground operations.⁵¹



Innovation in sustainability

Innovation is a central part of IAG's response to the challenge of making the aviation industry more sustainable. Climate technology is supported by IAG through the Hangar 51 platform, which has been scouting for and working with sustainability start-ups since 2019. IAG's engagement with new technologies and support for them will help to bring these technologies to market faster. In turn, these technologies will help IAG in meeting its future sustainability targets and enable it to decarbonise the group and support the industry as a whole becoming more sustainable. The 2022 Jet Zero Strategy notes that the technologies which will be needed to decarbonise aviation are still being developed, making innovation central to the sector's green transition.⁵² Creating new jobs and technologies as part of this transition demonstrates how innovation, sustainability and economic output can all be advanced while the sector undergoes these significant changes.

⁵¹ Emu Analytics. <https://www.emu-analytics.com/casestudies/iagcargo>

⁵² UK Department of Transport. Jet Zero Strategy Delivering net zero aviation by 2050 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1095952/jet-zero-strategy.pdf

ZeroAvia

IAG and British Airways were the first airline in the world to invest in Hydrogen powered flight. In 2021 IAG's accelerator programme Hangar 51 accelerated and made an investment into ZeroAvia, an innovator in hydrogen-powered aircraft. They use hydrogen produced from electrolysed water to power a fuel cell which produces electricity for the motor. This partnership is intended to accelerate the development of an aircraft with no CO₂ emissions. ZeroAvia subsequently secured investment from three large carriers in the USA and has increased the size of their team in the US and UK.

The company has a research hub in Kemble, Gloucestershire, from where it made the UK's largest hydrogen powered flight in 2023. ZeroAvia has the target of producing hydrogen powered motors for small commercial passenger flights before 2030. IAG continues to back the company to produce larger powertrains that can be used on larger aircraft and contribute to IAG's plan to reach net zero by 2050.⁵³



⁵³ British Airways Media Centre. <https://mediacentre.britishairways.com/factsheets/details/86/Factsheets-3/217?category=1&pgck=L2ZhY3RzaGVldHM->

Conclusion



IAG makes a significant economic and social contribution to the EU by enabling global connectivity in the movement of people and goods. Iberia, with its hub - and - spoke business model, centres its operations at Madrid - Barajas where it mainly connects the Spanish capital with the main European capitals and American destinations. AerLingus, with its hub - and - spoke business model, centres its operations in Dublin where it mainly connects the city with North American. Vueling, with its point-to- point operating model, has an extensive network within Spain, particularly to the Balearic Islands and across the EU with passengers departing mainly from the Barcelona - El Prat airport.

IAG contributes €11.3bn gross value-added to EU GVA, and supports c.122,000 FTE jobs, by its direct, indirect, and induced impacts. For every €1 spent by IAG in the EU economy, €1.3 GVA is created elsewhere across the economy, and for every direct IAG employee, a further 4 FTE jobs are supported in the EU economy.

Additionally, through the tourism and business travel its flights facilitate, an additional €40bn of catalytic GVA and c.295,000 FTE jobs are supported in the EU.

Additionally, IAG's airlines, including IAG Cargo, transported 429 thousand metric tonnes of freight in 2019, reaching 136 countries. Due to the high value of this cargo, this contributes to the EU maintaining a balance of payments surplus on air cargo.

IAG is also an industry leader in sustainability, setting industry leading targets for decarbonisation. It also has a forward-looking approach to innovation, with initiatives such as Hangar 51 helping to support and scale emerging technologies across travel.

IAG's scale in the EU means its operations are a core component of the country's travel infrastructure. The magnitude of its economic footprint in the EU as identified in this report is a reflection of this.



Appendix 1: Technical approach and detailed methodology



Our approach

Step 1: Building the input–output model

We built a bespoke input–output model using the following Eurostat data:

- The EU’s input–output tables
- GVA, employment and consumption data by industry
- National and regional labour productivity levels over time.

Step 2: Applying the model to IAG’s operational expenditure

Once constructed, we apply the model to data provided to us by IAG. This data includes:

- Operational expenditure by IAG operating company, supplier, and location. This is matched to proprietary PwC and Companies House data.
- Capital expenditure by IAG operating company, supplier, and location.
- Aggregated employment data, by IAG operating company, pay band, and location. These data are aggregated to FTE equivalents.

Economic Modelling Approach

Measuring economic contribution

We estimated IAG’s economic contribution to the EU economy against two indicators:

1. Contributions to GDP: measured in terms of Gross Value Added (GVA).
2. Employment: expressed as the number of full time equivalent (FTE) jobs supported.

GVA measures the value that is added by a business or industry sector. It is measured as the difference between the value of goods and services produced and the goods and services used as an input. It is, therefore, the company and sector level equivalent of GDP, and summing all sector–level GVA in an economy produces a measure of that economy’s GDP.⁵⁴

The contribution across the indicators is divided into three tiers:

- **Direct impact:** This is the impact of IAG’s own day to day operations. Direct GVA is calculated as a sum of returns to labour and capital, while direct employment is the total number of employees for the year, in terms of FTE.
- **Indirect impact:** This is the impact on the EU economy as a result of IAG’s procurement, this includes both the economic value added from immediate suppliers but also of the wider supplier chain (supplier of the supplier and so on).
- **Induced impact:** This is the impact from the spending of IAG’s employees and that of the employees linked to the supply chain.

Approach to estimating the direct economic contribution

We use an income approach⁵⁵ using data from IAG’s financial accounts to calculate its direct contribution to GVA, which is shown below. To calculate the direct employment contribution, we used human resources data.

Approach to estimating indirect and induced economic contribution

We used an input-output model to estimate IAG’s indirect and induced contribution to the economy. Input-output modelling enables us to account for how industries interact and relate to one another, by estimating how activity by one company stimulates economic activity elsewhere in the economy.

An input output table provides information on what a typical business in the suppliers sector requires for producing one unit of output. It allows us to trace the typical input requirements through the entire supply chain for production activities in each sector and calculate the total value of production stimulated. An input-output table also provides data on the share of revenue that constitutes profit and wages for each sector. Hence, we can apply this ratio to the total production value simulated and estimate the total GVA in the supply chain by sector associated with this.

Additional statistics on employment provide information on the number of individuals that work in any particular sector. As we know the output simulated in each sector, we can estimate the production value to job ratio. We then apply this to the total production value simulated in the supply chain, which allows us to estimate indirect employment, i.e., the number of jobs supported in the supply chain.

These steps are repeated to calculate the induced contribution, with an addition of using wage data to estimate how much production is stimulated in the supply chain that supports the products employees buy, e.g. arts, entertainment and food.

We then applied IAG’s financial and employment data to the multipliers for each of the key indicators, to estimate the indirect and induced contribution across the EU.

Deriving the Multipliers

We derive Type I, and Type II, multipliers for output, GVA and employment. Type I multipliers account for the direct and indirect impact, while Type II also capture the induced impact. In order to derive the multipliers, we first construct a technical matrix, A, which shows detailed purchases per unit of output by the purchasing firm from the various domestic supplying industries. It is calculated by dividing the entry in each row by the total gross output for its respective column.

⁵⁴ After adjusting for taxes and subsidies on products.

⁵⁵ Note: Income approach is a method of calculating GDP, which is based on the idea that all expenditures in an economy should equal total income generated by the production of economic goods and services

Calculating Type I multipliers:

- We use a technical A_1 matrix, in which each cell in row i and column j represents the value of industry i 's output required to produce a unit of output in industry j .
- In the case of the EU model the technical matrix A_1 in a 66 x 66 matrix.

Calculating Type II multipliers

- To calculate Type II multipliers, we also include an additional notional sector, 'endogenous labour'. It involves adding a new row that is composed of the ratio between compensation of employees and total output, and a column that consists of the ratios of private consumption on each industries' output to an estimated household income. Hence for the EU model the technical matrix A_2 becomes:
 - For the EU model a 66 x 66 matrix.

From the A matrices, we then calculate the Leontief matrices.⁵⁶ In order to do this, we first construct the $I - A$ matrix, where I is an identity matrix with the same dimensions as A .⁵⁷

For Type I multipliers we invert the $I - A$ matrix, excluding the column for private consumption and row for compensation of employees, yielding $L_1 = (I - A_1)^{-1}$. This returns a matrix of output multipliers.

To calculate Type I GVA and employment multipliers we take each sectors respective 66 x 1 column vector of output multipliers for L_1 : (Note 66 x 1 column vector for EU model)

Where i = buying (column) IAG's sector corresponding to the Input Output Table

We then calculated the 1 x 66 row vector of GVA-to-output ratios across the buying sectors:

$$x = \left[\frac{GVA_1}{Output_1} \quad \dots \quad \frac{66}{Output_{66}} \right]$$

To calculate the GVA effect for each sector we multiply the row vector by the column vector::

$$GVA\ Effect_i = x \cdot l_i$$

The type I GVA multiplier is then calculated as the following:

$$Type\ I\ GVA\ Multiplier\ for\ sector\ i = \frac{GVA\ Effect_i}{GV\ A_i / Output_i}$$

Repeating the steps above, but instead with a row vector of employment-to-output ratios for each buying sector will yield Type I Employment Multipliers.

$$\left[\frac{Employment_1}{Output_1} \quad \dots \quad \frac{Employment_{66}}{Output_{66}} \right]$$

$$GVA\ Effect_i = y \cdot l_i$$

$$Type\ I\ Employment\ Multiplier\ for\ sector\ i = \frac{Employment\ Effect_i}{Employment_i / Output_i}$$

For Type II multipliers, we inverted the $I - A$ matrix, including the column for private consumption and row for compensation of employees yielding $L_2 = (I - A_2)^{-1}$. As explained above the L_2 differs from L_1 because it includes the induced effects in addition to the direct and the indirect effects. The induced effect is a result of the additional spending of employees.

Again, repeating the steps above to calculate the sectoral GVA output ratios, GVA effects and GVA multipliers using L_2 instead of L_1 will yield Type II GVA multipliers, and similarly for Type II Employment multipliers.

Direct GVA estimation

The process for estimating the direct GVA impact on one country or region for multinational organisations such as IAG is not straightforward. This is because IAG creates value across borders, so it is not immediately obvious how the aggregate value that IAG creates should be attributed. To make the question even more complex, much of IAG's capital is mobile – meaning that the production process itself is mobile. To address these complications in allocating IAG's capital, we follow two principles below which provide the foundation of our estimate of IAG's direct GVA impact in the EU.

Firstly, allocation of GVA from multinational organisations to an area within national boundaries should follow the same principles as that of the FIGARO tables for EU, from Eurostat, in tandem with relevant international national accounting standards such as the System of National Accounts (2008) (SNA, 2008), published by the United Nations in conjunction with the European Commission, the Organisation for Economic Co-operation and Development, the International Monetary Fund and the World Bank Group.⁵⁸

⁵⁶ Also referred to as the Leontief inverse

⁵⁷ The Identity matrix is a matrix in which all elements along the principal diagonal are 1 and the remaining elements are zero.

⁵⁸ The SNA (2008), is accessible [here](#). The ONS refer to the ongoing review of the SNA (2008) as influential in the ONS' development of their own National Accounts, going forwards ([System of National Accounts update](#)).

Secondly, the allocation of GVA from IAG should follow the same principles as used by Eurostat in the compilation of the Input - Output tables in their National Accounts, which contain GVA aggregates by industry. This indicates that GVA is equivalent to: Gross Operating Surplus + Compensation of Employees + Taxes on Production. Each of these terms are examined below:

1. **Gross Operating Surplus (GOS):** GOS in its appearance in National Accounts such as the Input Output table is not net of depreciation. This is broadly equivalent to the concept of earnings before interest, taxes, depreciation, and amortisation, as stated in the financial statements.
In order to assess IAG's EBITDA relevant to the EU, it must be determined what portion of IAG's profits are relevant to EU activity. The Eurostat uses taxable profits as the starting point for understanding a company's gross operating surplus. This is informative, as it shows the country in which subsidiaries' profits are booked should be the country against which their GVA is accounted. As such, all EBITDA from IAG subsidiaries that are generated in the EU should be understood as contributing to the EU GVA.
2. **Compensation of employees (COE):** with respect to IAG, these have two main components: wages and salaries and social insurance contributions payable by employers. Wages and salaries should be understood broadly, including benefits in kind and pension contributions.
3. **Taxes on production:** these are defined as 'unrequited payments levied on the production and

importation of goods and services, the employment of labour, the ownership and use of buildings or other assets used in production.

Catalytic impact on the EU economy enabled by IAG's operations

Below, we set out the methodology for estimating the catalytic impact of IAG passengers' expenditure on the EU economy.

Step 1: Estimating the number of IAG passengers who are not domiciled in the EU

- IAG supplied us with a total number of passengers by route. However, this data was not disaggregated by direction of travel, so we make the simplifying assumption that a representative aeroplane is equally likely to carry empty seats in either direction, in any given cabin and on any given route. For the subset of IAG flights that are international, we therefore divide the total passenger numbers by 2.
- In the first place, we took the passengers of IAG to see how many passengers arrived in the European Union in 2019, considering both domestic passengers and those coming from another European country
- Calculating UK and US inbound factor ratios:



- The 'inbound factor ratio' calculates for a given international route, the split of passengers between international passengers from a foreign country arriving in the EU compared to the number of EU passengers travelling to the foreign country (as an example, in the case of US & EU routes the inbound factor is 45%, meaning that 45% of the passengers on the route are from the US).
- Using International Passenger Survey (IPS) data from the ONS we can compute the inbound factor ratio of the UK and the EU by dividing the number of UK passengers going to the EU by the total number of air passengers travelling between the UK and the EU (e.g. UK residents travelling to the EU + EU residents travelling to the UK by air).
- With the data obtained from Eurostat (EU travellers going to the United States and vice versa), we calculated the inbound factor of US citizens with the European Union.
- We calculate a weighted inbound ratio of the US and the UK based on the number of passengers each had with the EU in 2019
- As we do not have any further information on how many passengers from other countries arrive in the EU and those passengers from other countries are the majority of those who arrive in the EU with IAG (80%), we assumed that inbound factor for all passengers coming from outside the EU.
- To obtain the number of international passengers arriving in the EU flying with IAG we multiply the total number of IAG passengers arriving per country by the inbound factor ratio.

Step 2: Split between domestic and intra-EU passengers

- For the case of domestic passengers and internal EU passengers, we differentiate them because they will have different consumption patterns. However, for both, the inbound factor is 1:



Step 3: Calculating passenger expenditure

- To compute the expenditure of international passengers:
 - With the TSA data from Eurostat (last available information by EU countries, from which we have removed the data from the UK, as it is no longer part of the European Union), we have obtained the per-person spending of international tourists in EU countries, as well as the average number of days they stay in the European Union.
 - As we do not have sufficiently disaggregated data for the EU, we took data from Germany, France, and Spain (from Destatis, Insee and INE, respectively) on the distribution of spending by international tourists in those countries. With this, we obtained a proxy for how much international tourists spend in EU countries, as these three countries concentrate the majority of tourists who go to the EU.
 - So, now that we know how much tourists spend and on what, we can input it into the input-output tables.
- To compute the expenditure of european passengers:
 - For the case of intra-EU passengers who are not domestic (those Europeans travelling to another European country), we took the IAG passengers who make such trips and assigned them the same spending as we have assigned to passenger from outside the EU (assuming the same behaviour pattern in all international tourists, as the databases of the consulted countries do not differentiate between European and non-European passengers). However, later on we will explain that this consumption is not fully attributed in the input-output tables, since we must take into account that, in the event of not travelling, they would be consuming at home (within the EU).
 - For domestic passengers, we took consumption data for domestic tourists in Spain, Italy, Germany, and France from the OECD, as this covers a large proportion of IAG's domestic passengers and European residents, estimating an average behaviour of how European passengers consume when travelling within their own country. Now we will explain that this consumption is not fully attributed in the input-output tables (as intra-EU passengers).
 - To estimate the increased rate of the consumption level of a domestic passenger when travelling (compared when not travelling) we divide the daily average expenditure of a domestic passenger by the average daily expenditure of a domestic passenger minus 1.⁵⁹
 - From the OECD database, we obtain the amount that a European citizen consumes per day, in order to compare it with the daily spending of tourists (intra-EU and domestic).
- To estimate the catalytic impact we assign the total expenditure of domestic and international passengers to the 66 different sectors (obtained from Eurostat) in the Input - Output Table.

In the catalytic effect distribution by industry we include direct impact as we have to estimate the GVA generated by passengers expenditure. In sum, we get expenditure data from different databases to estimate GVA generated by that expenditure.



⁵⁹ PwC estimates that a domestic resident when travelling spends in consumption an additional 61% compared to the consumption when being at home using ONS (IPS) data

Appendix 2: Additional Data



Below are some additional results from that are not included in the main body of the report.

Figure 38: Iberia supported c.36,000 jobs, from supply chain and wage-induced spending, in the EU economy

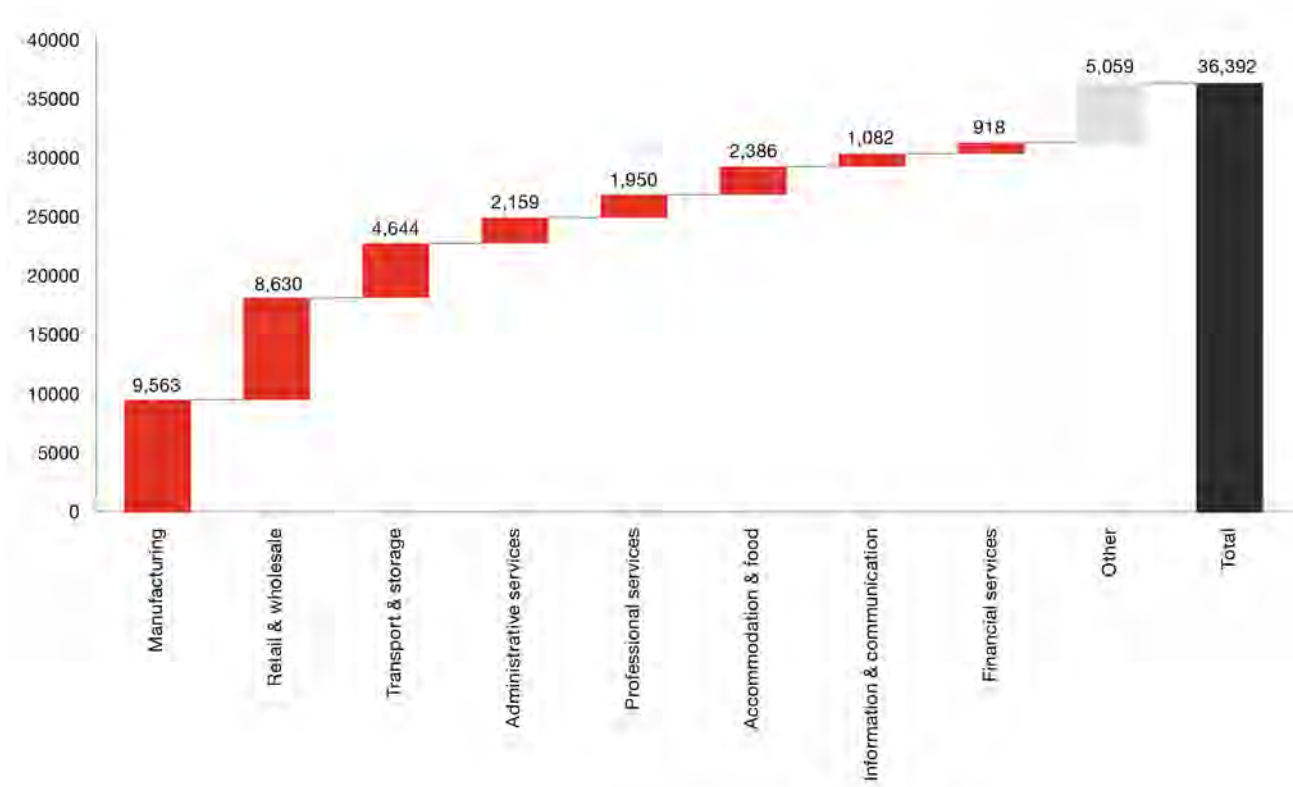


Figure 39: Vueling supported c.24,000 jobs, from supply chain and wage-induced spending, in the EU economy

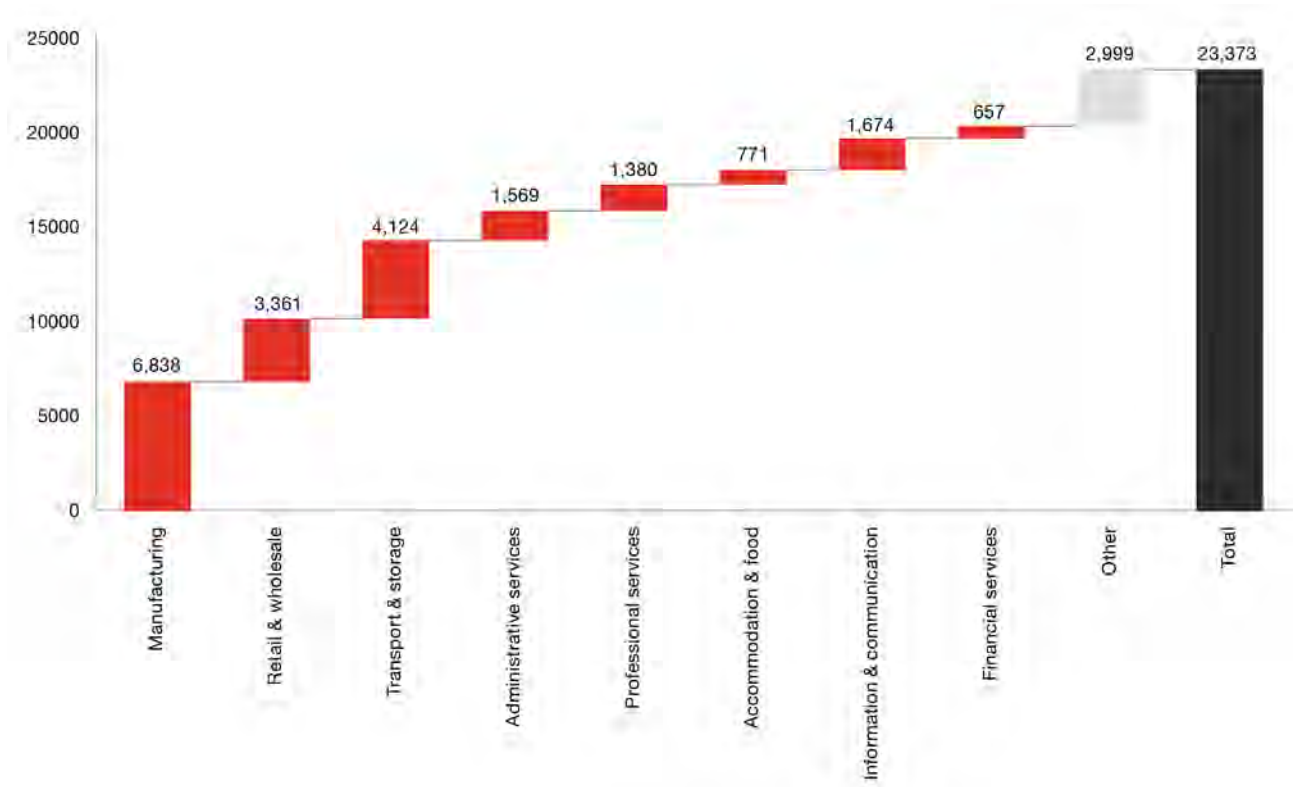


Figure 40: British Airways supported c.25,000 jobs, from supply chain and wage-induced spending, in the EU economy

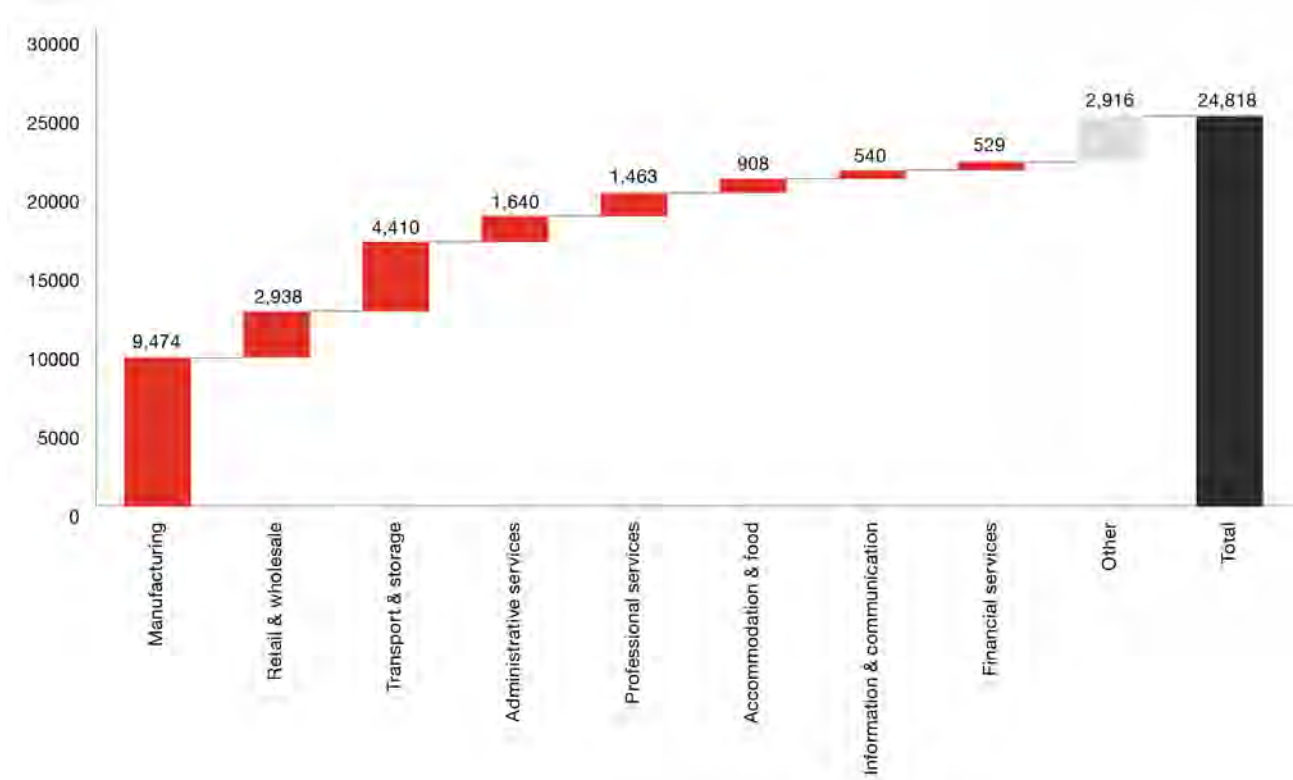


Figure 41: Aer Lingus supported c.11,300 jobs, from supply chain and wage-induced spending, in the EU economy

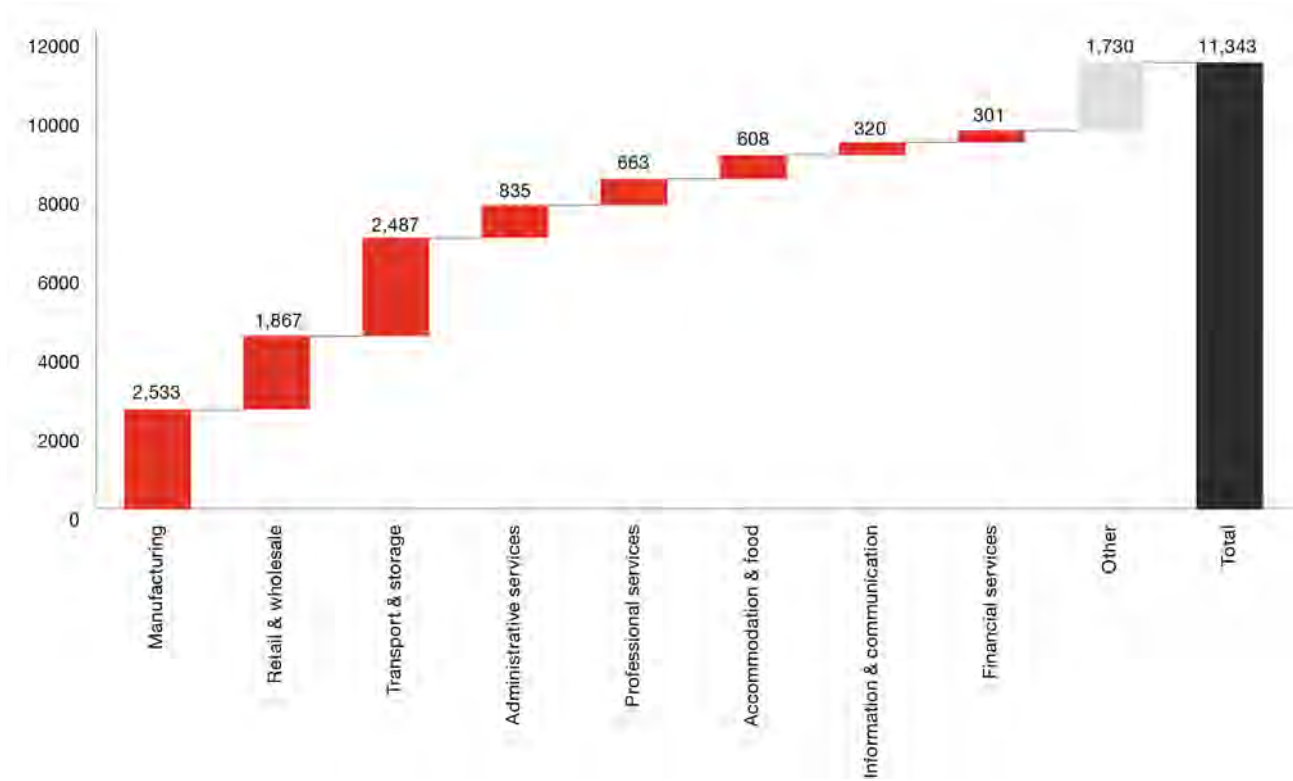


Figure 42: IAG Cargo supported c.1,400 jobs, from supply chain and wage-induced spending, in the EU economy

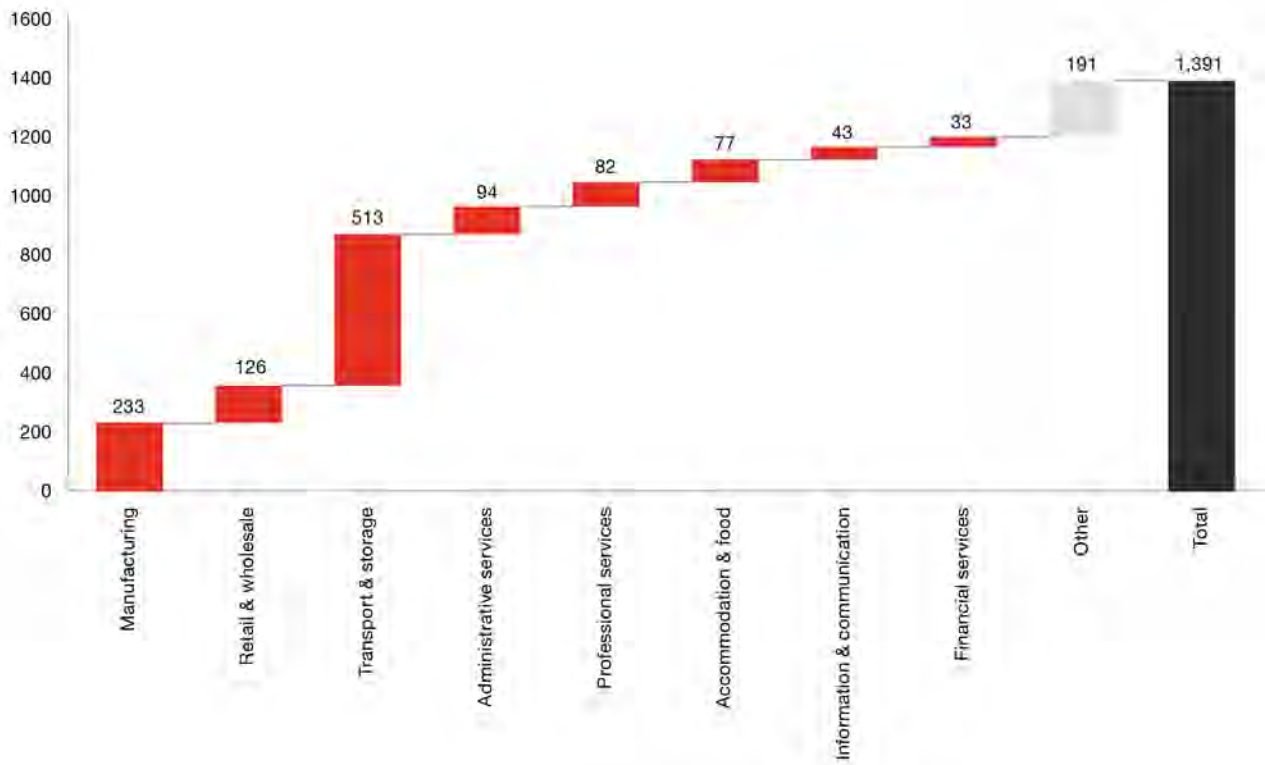
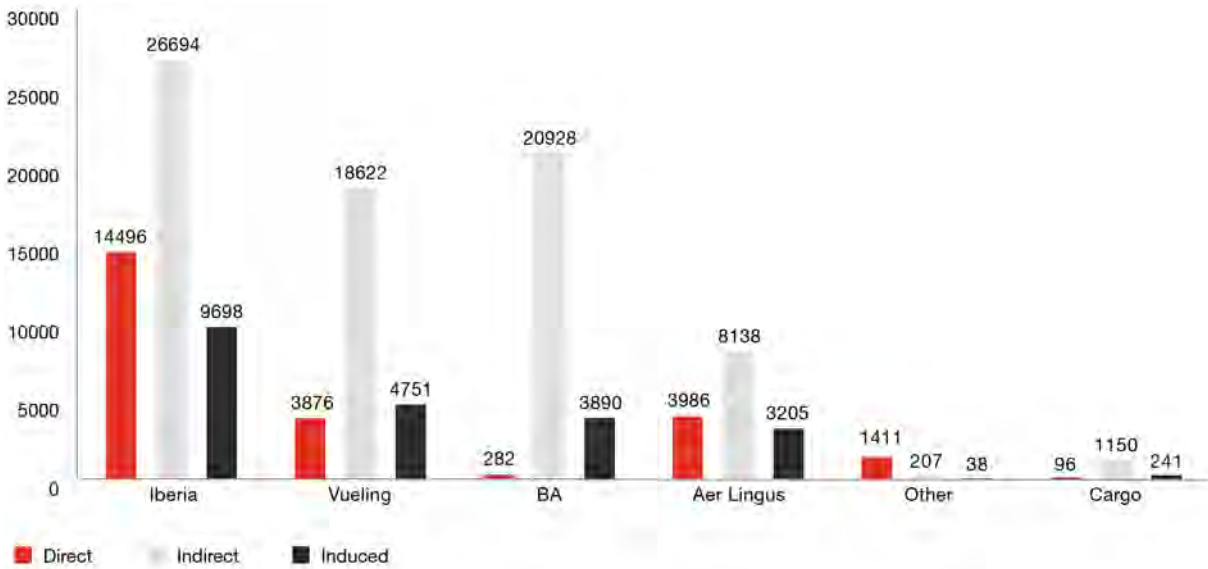


Figure 43: IAG supported a large number of full time equivalent employees (FTE) in the EU, across different channels of impact



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