The Economic Impact of the European Aerospace and Defence Industry
Dear reader,

Europe’s Aerospace and Defence Industries support more than 3.5 million jobs across the continent and contribute over €240 billion to European GDP – which would place it at the median GDP level among EU/European countries. Using a robust and well-proven methodology, this report examines the economic impact of our sectors in detail and puts the figures in context.

In addition to their significant economic impact, our industries also play a key role in enabling a sustainable, technologically sovereign and resilient Europe. Constantly reinventing and pushing back the boundaries of technology, these highly strategic domains are important global drivers of innovation.

While flying has become a vital foundation of our globally connected economies and a normal part of our daily lives, few people are fully aware of the enormous resources required to develop and manufacture a state-of-the-art aircraft and its components. The same applies to the smooth and reliable management of air traffic, for which all parts of the process must work together perfectly to ensure the seamless operation of thousands of flights every day. The physical and digital products provided by our companies are indispensable prerequisites for the mobility of millions of people and goods worldwide.

On the defence side, our member companies are trusted partners to our Armed Forces, delivering and supporting the state-of-the-art equipment that enables them to keep us safe. These encompass a wide range of comprehensive solutions for a multitude of demanding missions – be it in the air, land, sea, space or cyber domain.

Whether for aviation or for defence, such sophisticated equipment is always the result of a long-term collective effort of the highly-skilled women and men working in our industries across Europe. This is reflected in the high average income of the workforce in our industries, which is 43% higher than the average across Europe.

On behalf of the Aerospace, Security and Defence Industries Association of Europe (ASD), representing more than 3000 companies, we are pleased to share this report, with findings from S&P Global Market Intelligence (SPGMI) that show the significant contributions our industries make to the European economy and jobs.

ASD President
Alessandro Profumo
ASD has been producing a Facts & Figures report for many years, based on direct industry data inputs from its members. This has given stakeholders a good understanding of the size of the European aerospace and defence industry, and the direct jobs supported by it. This new report seeks to complement the direct industry details by overlaying additional information on the wider economic impacts of the industry. These impacts are often overlooked and underestimated when assessing the important contribution the aerospace and defence industry makes to Europe’s prosperity. ASD commissioned the Economics and Country Risk group of S&P Global Market Intelligence (SPGMI) to quantify the contributions made by the aerospace and defence industries to four key economic metrics in Europe during 2021: employment; sales activity (turnover); contribution to gross domestic product (GDP); and wages. The contributions were quantified for their impact across the study's geography.¹

¹ EU27 plus Norway, Turkey and the United Kingdom.
The model

This report assesses how European Aerospace & Defence (A&D) industries stimulate three economic contribution cycles across Europe:

1. First, **direct economic contributions** occurring as a result of the production and sale of aerospace and defence equipment.

2. Second, **indirect economic contributions** triggered when members source goods and services from their extended supply chains across Europe.

3. Third, **induced economic contributions** resulting from the employees involved in the direct and indirect cycles spending some of their wages in their local economies.

The three levels of economic contributions were assessed against the following indicators:

- **Sales activity (turnover).** In the context of an economic contribution, turnover represents the value of sales that occur in the region’s national economies that are ultimately attributable to the A&D industry.

- **Employment.** To produce their goods and services, companies must hire and retain employees. This indicator measures the number of workers required to support a given level of sales activity within the region’s economy.

- **Contribution to Gross Domestic Product (value added).** Gross domestic product (GDP) is the sum of value added across the regional economy. GDP is generally considered the broadest measures of the health of an economy.

- **Wages.** A subcomponent of value added, wages captures the compensation paid to employees.
Direct economic contributions
From spending with local businesses

Sales activity
European Aerospace & Defence sales

Contribution to GDP
Value added activities contribute to the region’s GDP

Employment and Wages
A portion of value added is used to hire and pay employees

Indirect economic contributions
From follow-on supply chain activity

Spending with suppliers stimulates economic contributions throughout local supply chains

Induced economic contributions
From employees re-spending wages

Contributions due to direct and indirect employees spending some of their wages locally
The European A&D industry directly employed 942,000 people in the 30 reference countries in 2021.\(^2\)

The **total employment** level supported by the industry was **3.57 million people**, including direct, indirect and induced employment. Of these, indirect jobs amounted to 966,000 and induced jobs 1,662,000.\(^3/4\)

*In other words: Each direct job within the European A&D industry generates a further 2.8 supporting jobs.*

### Total employment

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>942,000</td>
<td>966,000</td>
<td>1,662,000</td>
<td>3,570,000</td>
</tr>
</tbody>
</table>

\(^2\) 46% of industry employment occurs within civil aeronautics and space with the remainder supporting defence activity.

\(^3\) The 3.57 million jobs supported by the European A&D industry in 2021 accounted for 1.3% of total employment across the region.

\(^4\) ASD represents more than 93% of the direct A&D jobs in the 30 countries in the region. This translates into a similar share of total employment impact.
The A&D Industries in the 30 reference countries had a direct turnover of €241bn.

The **total turnover** supported by the industry was **€578 bn**, including direct, indirect and induced turnover. Of this, indirect turnover amounted to €148bn; induced €189bn.\(^5\)

Every Euro of A&D industry turnover generates an additional €1.40 of supporting indirect and induced turnover.

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\(^5\) ASD represents more than 98% of turnover in the 30 countries. This translates into a similar share of the total turnover impact.
Gross Domestic Product (GDP)

The direct GDP generated by the A&D Industries in the 30 reference countries was €74bn.

The total GDP supported by the industry was €240 bn, including direct, indirect and induced GDP; with indirect GDP amounting to €68bn and induced to €98bn.\(^6\)

Every Euro in A&D turnover therefore generates €0.99 of GDP, a ratio that puts our industries among the higher value-adding sectors in the European economy.

\[^6\] ASD represents more than 98% of the GDP in the 30 countries. This translates into a similar share of the total GDP impact.
GDP in context

If the €240 bn in GDP contribution of the European A&D industry was a country in its own right, it would be larger than the economies of 14 countries within the reference region (€240bn accounts for 1.3% of the total GDP across the region).

<table>
<thead>
<tr>
<th>Rank</th>
<th>Geography</th>
<th>Concept</th>
<th>2021</th>
<th>Share of 30 countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Germany</td>
<td>Nominal GDP, euro bn</td>
<td>3.592,66</td>
<td>19,00%</td>
</tr>
<tr>
<td>2</td>
<td>United Kingdom</td>
<td>Nominal GDP, euro bn</td>
<td>2.694,78</td>
<td>14,30%</td>
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<td>3</td>
<td>France</td>
<td>Nominal GDP, euro bn</td>
<td>2.498,85</td>
<td>13,20%</td>
</tr>
<tr>
<td>4</td>
<td>Italy</td>
<td>Nominal GDP, euro bn</td>
<td>1.773,76</td>
<td>9,40%</td>
</tr>
<tr>
<td>5</td>
<td>Spain</td>
<td>Nominal GDP, euro bn</td>
<td>1.205,06</td>
<td>6,40%</td>
</tr>
<tr>
<td>6</td>
<td>Netherlands</td>
<td>Nominal GDP, euro bn</td>
<td>856,14</td>
<td>4,50%</td>
</tr>
<tr>
<td>7</td>
<td>Turkey</td>
<td>Nominal GDP, euro bn</td>
<td>691,53</td>
<td>3,70%</td>
</tr>
<tr>
<td>8</td>
<td>Poland</td>
<td>Nominal GDP, euro bn</td>
<td>573,18</td>
<td>3,00%</td>
</tr>
<tr>
<td>9</td>
<td>Sweden</td>
<td>Nominal GDP, euro bn</td>
<td>536,09</td>
<td>2,80%</td>
</tr>
<tr>
<td>10</td>
<td>Belgium</td>
<td>Nominal GDP, euro bn</td>
<td>506,21</td>
<td>2,70%</td>
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<tr>
<td>11</td>
<td>Ireland</td>
<td>Nominal GDP, euro bn</td>
<td>425,92</td>
<td>2,30%</td>
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<tr>
<td>12</td>
<td>Norway</td>
<td>Nominal GDP, euro bn</td>
<td>406,31</td>
<td>2,10%</td>
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<td>13</td>
<td>Austria</td>
<td>Nominal GDP, euro bn</td>
<td>402,93</td>
<td>2,10%</td>
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<tr>
<td>14</td>
<td>Denmark</td>
<td>Nominal GDP, euro bn</td>
<td>336,72</td>
<td>1,80%</td>
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<tr>
<td>15</td>
<td>Finland</td>
<td>Nominal GDP, euro bn</td>
<td>251,43</td>
<td>1,30%</td>
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<tr>
<td>16</td>
<td>Romania</td>
<td>Nominal GDP, euro bn</td>
<td>241,3</td>
<td>1,30%</td>
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<tr>
<td>17</td>
<td>Czechia</td>
<td>Nominal GDP, euro bn</td>
<td>238,14</td>
<td>1,30%</td>
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<tr>
<td>18</td>
<td>Portugal</td>
<td>Nominal GDP, euro bn</td>
<td>211,28</td>
<td>1,20%</td>
</tr>
<tr>
<td>19</td>
<td>Greece</td>
<td>Nominal GDP, euro bn</td>
<td>182,32</td>
<td>1,00%</td>
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<tr>
<td>20</td>
<td>Hungary</td>
<td>Nominal GDP, euro bn</td>
<td>154,1</td>
<td>0,80%</td>
</tr>
<tr>
<td>21</td>
<td>Slovakia</td>
<td>Nominal GDP, euro bn</td>
<td>97,12</td>
<td>0,50%</td>
</tr>
<tr>
<td>22</td>
<td>Luxembourg</td>
<td>Nominal GDP, euro bn</td>
<td>73,22</td>
<td>0,40%</td>
</tr>
<tr>
<td>23</td>
<td>Bulgaria</td>
<td>Nominal GDP, euro bn</td>
<td>67,86</td>
<td>0,40%</td>
</tr>
<tr>
<td>24</td>
<td>Croatia</td>
<td>Nominal GDP, euro bn</td>
<td>57,24</td>
<td>0,30%</td>
</tr>
<tr>
<td>25</td>
<td>Lithuania</td>
<td>Nominal GDP, euro bn</td>
<td>55,38</td>
<td>0,30%</td>
</tr>
<tr>
<td>26</td>
<td>Slovenia</td>
<td>Nominal GDP, euro bn</td>
<td>51,75</td>
<td>0,30%</td>
</tr>
<tr>
<td>27</td>
<td>Latvia</td>
<td>Nominal GDP, euro bn</td>
<td>32,74</td>
<td>0,20%</td>
</tr>
<tr>
<td>28</td>
<td>Estonia</td>
<td>Nominal GDP, euro bn</td>
<td>31,36</td>
<td>0,20%</td>
</tr>
<tr>
<td>29</td>
<td>Cyprus</td>
<td>Nominal GDP, euro bn</td>
<td>23,44</td>
<td>0,10%</td>
</tr>
<tr>
<td>30</td>
<td>Malta</td>
<td>Nominal GDP, euro bn</td>
<td>14,68</td>
<td>0,10%</td>
</tr>
</tbody>
</table>

Aerospace & Defence Industry Nominal GDP, euro bn 240,25 1,30%

30 Country Combined GDP Nominal GDP, euro bn 18,283,48
Wages

The wages of the people directly employed by the European A&D industry amounted to €49bn in the 30 reference countries.

The total wages generated by the industry were €141bn, including direct, indirect and induced wages; with indirect wages amounting to €42.6bn; and induced to €49.7bn.

Direct employees within the European A&D industry are generally highly-skilled and well compensated, with an average income in 2021 of €56,000. This is 43% higher than the average wage across Europe.
About ASD

ASD is the voice of the European Aerospace, Security and Defence Industries. Headquartered in Brussels, ASD actively supports the competitive development of its industries in Europe by advocating common positions and providing technical expertise to public institutions and member companies. In addition, ASD also advocates on behalf of the sector in important global institutions, thereby ensuring that European standards and values are taken into account.

ASD represents over 3,000 companies from 18 European countries. Our members form a unique, diverse and buoyant ecosystem that is of strategic importance for Europe. Our companies constantly work with cutting edge technologies and push the boundaries of what is possible. Integrating new technologies into complex systems, our members drive innovation and develop highly competitive products that are key enablers for mobility, security and defence.

Reference region for this Report

This Economic Impact Report looks at the European Union plus Norway, Turkey and the United Kingdom, providing a comprehensive perspective on the larger region. Taking this region as the reference, ASD accounted for 98% of the sector’s direct turnover and 93% of the sector’s direct employment.

About S&P Global Market Intelligence

The Economic Consultancy Services unit within SPGMI is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide. The company delivers next-generation information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions.

7 Status 2021.
**Direct footprint of the European Aerospace and Defence Industry**

In 2021, the Aerospace & Defence industry generated €241 bn in direct turnover and employed over 942,000 directly across the 30 European countries considered within this study. Civil air and space activity accounted for just over 50% of turnover in 2021, with the aeronautics sector making up the bulk of the activity. Within the military sector, land and naval activity contributed nearly 30% of all turnover, with military aeronautics producing 20% of total turnover.

The civilian sector supported 46% of all direct employment, with civil aeronautics contributing 41% of the jobs. Military employment made up nearly 54% of all employment, with the land and naval sectors providing 33% and aeronautics 20% of the total employment.

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8 ASD represents 98% of direct turnover and 93% of direct employment in these 30 countries. This translates into a similar share of the total turnover and employment impact, respectively.
### Contributions 2021

<table>
<thead>
<tr>
<th></th>
<th>2021 Turnover (€bn)</th>
<th>2021 Employment (thousand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASD EU</td>
<td>179.4</td>
<td>604.1</td>
</tr>
<tr>
<td>ASD NON-EU</td>
<td>58.1</td>
<td>275.2</td>
</tr>
<tr>
<td>ASD TOTAL</td>
<td>237.6</td>
<td>879.3</td>
</tr>
<tr>
<td>NON-ASD EU</td>
<td>3.9</td>
<td>63.2</td>
</tr>
<tr>
<td>TOTAL 30 COUNTRIES</td>
<td>241.5</td>
<td>942.5</td>
</tr>
<tr>
<td>ASD TOTAL percentage of Total 30 COUNTRIES</td>
<td>98%</td>
<td>93%</td>
</tr>
</tbody>
</table>

The data shown in this table is based on the geographical membership of ASD, encompassing the 18 countries where the national associations are ASD members. ASD geography (for 2021) includes the following EU and NON-EU Member States:

- **ASD EU**: Countries that are represented among the ASD membership and that at the same are EU Member States: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Italy, Poland, Portugal, Spain, Sweden, and The Netherlands.

- **ASD NON-EU**: Countries that are represented among the ASD membership and that are not EU Member States: Norway, Turkey, and the United Kingdom.

- **NON-ASD EU**: Countries that are not represented among the ASD membership but that are EU Member States: Croatia, Cyprus, Estonia, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Romania, Slovakia, and Slovenia.

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10 See also 2022 ASD Facts & Figures.
Methodology

For 2022, ASD partnered with S&P Global Market Intelligence (SPGMI) to develop and coordinate a new process for quantifying the size of the European Aerospace and Defence industry. These findings, also presented in the 2022 ASD Facts & Figures report, resulted in the direct employment and turnover impacts, which serve as the inputs to the full economic impact analysis presented within this study.

Historically the annual Facts & Figures document was constrained to the 18 European countries encompassed by the ASD membership. The SPGMI methodology enabled the expansion of the perimeter of this analysis to cover not just those 18 countries, but also the remaining countries within the EU27.

The definition of aeronautics includes civil and military aeronautics. The definition of defence combines all sectors, i.e. military aeronautics, space, land and naval. Each sector combines systems, platforms and components.

The direct turnover and employment shown in this report is a result of a mix of statistical methods and estimations that leverages the significant internal data compiled by SPGMI as well as relevant publicly available information.

The SPGMI internal assets include the following:

SPGMI Comparative Industry Service (CIS) covers a comprehensive and harmonized set of 105 industries for each of the countries/territories that sum up to the entire national GDP for that country/territory.

SPGMI Global Trade Analytics Suite (GTAS) platform combines three longstanding and established trade products: Global Trade Atlas macro trade statistics; PIERS Bill of Lading data, and GTA Forecasting.

The modelling and estimation process resulted in turnover and employment numbers for each of the 30 countries within the study region, with those results broken out into key industry segments that aligned with the impact model utilised within the report.

The model results were then aggregated to the totals shown within the report.

For more information on the details of the input/output modelling process, please contact SPGMI.

11 Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Italy, Norway, Poland, Portugal, Spain, Sweden, The Netherlands, Turkey, and the United Kingdom.
**Economic impact analysis**
A study that examines the direct, indirect and induced impacts of the independent operators’ production activities and supply chain spending.

**Employment**
This includes wages, salaries and self-employment jobs within the economy.

**Gross domestic product (GDP)**
The sum of value added across all products and services produced within a national economy.

**Input-output analysis**
The analysis utilises an input-output table that represents a particular economy and depicts the flows of related economic transactions that take place within the country. It also shows the economic interconnections that exist between different components of the economic system, i.e., production activities, the government and supplier enterprises.

**Labour income**
This captures all forms of employment income, including employee compensation (wages and benefits, employer-paid payroll taxes, unemployment taxes, etc.) and proprietor income (payments received by self-employed individuals and unincorporated businesses).

**Supply chain**
The combination of the direct and indirect suppliers.

**Value added**
The difference between the revenue received for a product or service and its non-labour input costs. It is also understood as the difference between the value of sale and the cost of its required non-labour inputs.