TURKISH DEFENSE & AEROSPACE INDUSTRY

2022
1. Snapshot

2. Turkish Defense & Aerospace Industry

3. Turkish Civil Aviation
Turkish defense and aviation industry offers lucrative opportunities

**Defense Expenditures (2022)**
$10.6 Billion

**Turnover (2022)**
$12.2 Billion

**Exports (2022)**
$4.4 Billion

**Civil Aviation Turnover (2022)**
$35.8 Billion

**Airline Fleet (2022)**
631

**Aviation Hub**
Increasing connectivity with more than 300 international destinations (2022)

**Strong Support**
For joint ventures with international companies

**Clusters**
Defense and aerospace

**Air Passengers (2022)**
182.3 Million

**Defense & Aerospace Industry**

**Civil Aviation Industry**

**Turkish defense and aviation industry offers lucrative opportunities**
AGENDA

1. Snapshot

2. Turkish Defense & Aerospace Industry

3. Turkish Civil Aviation
Turkish defense industry has important advantages with a globally-competitive edge.

❖ Well-developed industrial and human resource ecosystem

❖ Globally-competitive national defense companies

❖ High number of strategic agreements with international partners, facilitating defense industry collaboration and trade

❖ Strong government support to joint ventures, international partnerships and defense cooperation

❖ Cost-competitive defense products vis-a-vis Western-manufactured equivalents, suiting budgets of the governments with financial constraints

❖ One of the largest defense budgets globally
Türkiye’s decisive policies have yielded significant results in transforming the defense industry.

Local content in Türkiye’s defense procurement is expected to reach 80% before 2025.

Source: SSB

Considering the ongoing tender processes, total contract value is anticipated to reach over $75 billion.
**Turkish defense industry has been undergoing a profound transformation from solely procurement to design and manufacture**

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Direct Procurement</strong></td>
<td><strong>Co-Production</strong></td>
<td><strong>Partial Design (Main Platforms)</strong></td>
<td><strong>Indigenous Design (Local Production)</strong></td>
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<tr>
<td><img src="image1" alt="Helicopter" /></td>
<td><img src="image2" alt="Helicopter" /></td>
<td><img src="image3" alt="Tank" /></td>
<td><img src="image4" alt="Helicopter" /></td>
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<tr>
<td>• Cobra AH-1 W (Attack helicopter)</td>
<td>• Armoured Combat Vehicle</td>
<td>• Altay (Tank)</td>
<td>• Gökbey (Utility Helicopter)</td>
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<tr>
<td>• AB-412 Helicopter</td>
<td>• Light Transport Aircraft</td>
<td>• T 129 Atak (Attack Helicopter)</td>
<td>• T 929 Atak II (Heavy Duty Attack Helicopter)</td>
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<tr>
<td>• MLRS (Rocket system)</td>
<td>• Basic Trainer Aircraft</td>
<td>• T 70 (Utility Helicopter)</td>
<td>• TF-X KAAN Fighter</td>
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<td>• Cougar Helicopter</td>
<td>• Milgem (Warship)</td>
<td>• Bayraktar Kızılelma (MİUS)</td>
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<td></td>
<td></td>
<td>• Anka (UAV-Male Class)</td>
<td>• Complete Localization</td>
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<td></td>
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<td>• Life Cycle Management (PLC)</td>
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| | | | • Performance-based Logistics (PBL)
Türkiye has introduced industrial participation (IP) / offset (O) policies in order to facilitate long-term cooperation with international partners in the field of defense, aerospace and homeland security.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Requirement</th>
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<tr>
<td>Threshold to Require Offset Offset</td>
<td>$5 Million</td>
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<tr>
<td>IP/O Commitment</td>
<td>At least 70% of the Contract Price</td>
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<tr>
<td>Subcontractor / SME Portion</td>
<td>30% of the Category-A IP&amp;O 15% of SME share</td>
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<tr>
<td>Crediting Basis</td>
<td>Domestic Net Added Value (DNAV)</td>
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<tr>
<td>Type of Agreement</td>
<td>Separate IP&amp;O Agreement with the Contractor</td>
</tr>
<tr>
<td>Bank Guarantee</td>
<td>6% of IP&amp;O Commitment</td>
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<tr>
<td>Period of Performance</td>
<td>Program Duration + 2 Years</td>
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<tr>
<td>Penalty</td>
<td>6% of Unfulfilled Commitment</td>
</tr>
<tr>
<td>Temporary Crediting</td>
<td>Allowed (Conditional)</td>
</tr>
<tr>
<td>Banking of Credits</td>
<td>Allowed (Valid for 5 Years)</td>
</tr>
<tr>
<td>Transfer of Excess Credits</td>
<td>Allowed (Causality)</td>
</tr>
</tbody>
</table>

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**Category A**

Direct Turkish Industrial Participation

**Category B**

Export of products/services in the areas of defense, aerospace and homeland security

**Category C**

- Acquire technology / capability
- New investment and cooperation in the areas of defense, homeland security, space and aerospace.

General Assessment Score ($S$) = $0.50 \times (T) + 0.40 \times (S) + 0.10 \times (E)$

IP / Offset Score ($S$) = $0.65 \times (P_A) + 0.20 \times (P_B) + 0.15 \times (P_C)$

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<table>
<thead>
<tr>
<th>Transaction</th>
<th>Multiplier</th>
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<tr>
<td>Design &amp; Engineering Works Performed by SMEs (Cat-A)</td>
<td>2</td>
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<tr>
<td>All other IP Works (Cat-A)</td>
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</tr>
<tr>
<td>Export of Platforms</td>
<td>4-5</td>
</tr>
<tr>
<td>Export of Systems / Subsystems</td>
<td>3</td>
</tr>
<tr>
<td>Export of Structural Parts</td>
<td>2</td>
</tr>
<tr>
<td>SME Portion in Export</td>
<td>1</td>
</tr>
<tr>
<td>Export to Prior Market</td>
<td>1</td>
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<tr>
<td>Technological Collaboration (Cat-C)</td>
<td>3-5</td>
</tr>
<tr>
<td>Enabling technology/ability that is requested particularly by SSB (Cat-C)</td>
<td>6-8</td>
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<tr>
<td>Foreign Direct Investment (Cat-C)</td>
<td>4</td>
</tr>
<tr>
<td>Transfer of Hardware / Software to University / Research Institute (Cat-C)</td>
<td>3</td>
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</tbody>
</table>

Source: SSB
Turkish defense expenditures have significantly increased over the past three decades despite the decrease for the third year in a row with the pandemic.

Equipment includes major equipment expenditures and R&D devoted to major equipment. Personnel includes military and civilian expenditure and pensions. Infrastructure includes NATO common infrastructure and national military construction. Other includes operations and maintenance expenditures, other R&D expenditures and expenditures not allocated among above-mentioned categories.

Source: SIPRI, NATO
Turkish defense & aviation industry turnover has almost tripled over the last decade.
Orders over years and the pandemic and post-pandemic change

In 2021, the level of foreign orders exceeded domestic orders for the first time. And the gap increased in 2022.
Türkiye’s growing and diversifying exports have explored new opportunities in US, EU, Middle East, Africa, Central Asia, and South America.

Compared to the previous year, the total increase in exports is around 37%. Since Türkiye has proved the global competitiveness of its products, it swiftly explores new destinations in global markets and increases its exports.
Although Türkiye has considerably increased its domestic capacity in the defense and aviation industry, civil aerospace products keep to occupy a significant place in imports.

**IMPORTS**

**$2.7 BILLION**

<table>
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<tr>
<th>Year</th>
<th>Imports ($ Billion)</th>
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<tr>
<td>2013</td>
<td>1.3</td>
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<tr>
<td>2014</td>
<td>1.4</td>
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<tr>
<td>2015</td>
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<td>2016</td>
<td>1.3</td>
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<td>2017</td>
<td>1.5</td>
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<tr>
<td>2018</td>
<td>2.4</td>
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<tr>
<td>2019</td>
<td>3.1</td>
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<tr>
<td>2020</td>
<td>2.2</td>
</tr>
<tr>
<td>2021</td>
<td>2.1</td>
</tr>
<tr>
<td>2022</td>
<td>2.7</td>
</tr>
</tbody>
</table>

**IMPORTS BREAKDOWN 2022**

- **US**: 26%
- **EU**: 23%
- **Other Countries**: 13%
- **MRO** ****: 5%
- **Other**: 5%
- **Products for Civil Aviation**: 40%
- **Air Platforms**: 29%
- **Land Platforms**: 22%
- **$1.072 BILLION**
- **$783**
- **$604**
- **$1.312**
- **$1.79**

Source: SASAD

* Weapons, Ammunition & Missiles
** Maintenance, Repair & Overhaul
TURKISH DEFENSE COMPANIES AMONG WORLD’S TOP 100

Source: DefenseNews, Annual rankings based on preceding years' financials.
A400M is the first program that enabled TAI to gain capability and responsibility of a whole life cycled aerospace product starting from concept design studies to after sale logistics support activities.

TAI’s workshare in A400M Program includes design and manufacture of structural components as Forward Center Fuselage with Emergency Exit Door, Section 17 Upper Shell with Rear Hatch Door, Paratroper Doors, Tailcone, Ailerons and Spoilers.

TAI has also manufacturing responsibility of all fuselage harnesses. TAI has first level design and procurement responsibility on lighting system (except cockpit) and water and waste system.

Developing a domestic competitive supply chain base has also integrated Turkish companies into the global value chain.

Source: TAI, Airbus Military
In addition to international partnerships, Turkish companies have developed strong domestic capabilities with cutting-edge technologies.

ANKA

ANKA, advanced MALE (Medium Altitude Long Endurance) class Unmanned Aerial System, performs day and night, all-weather reconnaissance, target detection/identification and intelligence missions with its EO/IR and SAR payloads, featuring autonomous flight capability including Automatic Take-off and Landing. ANKA incorporates a heavy-fuel engine and electro-expulsive ICE Protection System with an Advanced Ground Control Station and dual datalink allowing operational security and ease. The system is expandable with a Transportable Image Exploitation Station, Radio Relay, Remote Video Terminal and SATCOM.

Technical Specifications
- Wing Span: 17.3 m
- Length: 8 m
- Powerplant: 150 HP
- Payload Capacity: 200 kg
- Endurance: 24 hours
- Service ceiling: 30,000 ft
- Data range: 200 km
- Cruise Speed: 110 knots

Users
- Türkiye
- Tunusia
- Kazakstan

BAYRAKTAR TACTICAL UAS

Bayraktar Tactical UAS is a MALE (Medium Altitude Long Endurance) class system developed for tactical reconnaissance and surveillance missions. Prototype Development Phase started within 2007 based on competition model. Bayraktar Tactical UAS with its critical all subsystems - including Flight Control, INS-GPS, Automatic Take-Off-Landing systems developed in house demonstrated fully automatic taxi, take off, cruise, landing, parking phases - was selected as the winner of the program in 2009.

Technical Specifications
- Wing Span: 12 m
- Length: 6.5 m
- Powerplant: 100 HP
- Payload Capacity: >55 kg
- Endurance: >24 hours
- Service ceiling: 24,000 ft
- Data range: 150 km
- Cruise Speed: 70 knots

Users
- Türkiye
- Qatar
- Ukraine
- Azerbaycan
- Poland – NATO Member
- Marokko
- Kyrgyzstan
- 29 countries in total

KARAYEL TACTICAL UAV

KARAYEL Tactical UAV System is the first and only Tactical Unmanned Aerial Vehicle designed and produced according to NATO’s STANAG-4671 for reconnaissance and surveillance purposes. With its capable Payloads on board, KARAYEL can not only detect a target but also mark it with its laser designator. KARAYEL can take off, land and fly a designated mission fully autonomously without assistance from a pilot. Payload capacity and variations are available for both civil and military applications.

Technical Specifications
- Wing Span: 10.5 m
- Length: 6.5 m
- Powerplant: 97 HP
- Payload Capacity: 70 kg
- Endurance: 10 hours
- Service ceiling: 22,500 ft
- Data range: 150 km
- Cruise Speed: 60-80 knots

Users
- Türkiye
- S. Arabia
ANKA AKSUNGUR

AKSUNGUR is a Medium Altitude Long Endurance (MALE) class UAV System, capable to perform day and night Intelligence, Surveillance and Reconnaissance (ISR) and strike missions with EO/IR, SAR and SIGINT payloads, and a variety of air to ground weapons. ANKA-AKSUNGUR is powered by two PD-170 twin-turbocharged diesel engines enabling long endurance operations up to 40,000ft.

Technical Specifications
- Wing Span: 24.2 m
- Length: 12.5 m
- Powerplant: 2 x 170 HP Turbo Diesel
- Payload Capacity: 750+ kg
- Endurance: 50 hours
- Service ceiling: 40,000 ft
- Data range: 250+ km
- Cruise Speed: 135 knots

BAYRAKTAR AKINCI

AKINCI is an Unmanned Air Vehicle System designed to meet rigorous operational requirements. It is capable of conducting operations that are performed with fighter jets and carries a variety of payloads for reconnaissance, survey, intelligence, electronic warfare, designation and attack missions, and can fly extended hours at high altitudes. Advanced autonomy reduces operator burden. With an infrastructure allowing for integration of all nationally-developed air-to-air and air-to-ground munitions, the system reduces operational necessities and costs relative to manned systems with comparable capability. A robust satellite data link enables performing missions in regions with no communication infrastructure, and advanced navigation systems enable the aircraft to fly within electronic warfare environments. Akınçi has an augmented situational awareness and can sense the environment thanks to the Artificial Intelligence onboard.

Technical Specifications
- Wing Span: 20 m
- Length: 12.2 m
- Powerplant: 2 x 750 Hp or 2 x 450 Hp Turboprop
- Payload Capacity: 1,350kg
- Endurance: 24 hours
- Service ceiling: 40,000 ft
- Data range: LOS & BLOS
- Cruise Speed: 150 knots
ANKA 3

ANKA-3 is a semi-stealth unmanned fighter aircraft with a turbofan engine, in-body weapon system and high payload capacity. It has been designed and developed by TAI. ANKA 3 is the first delta form MALE class UAV of Turkish defense sector, which is less visible to the radar with its tailless structure, faster thanks to its jet engine and has a high payload carrying capacity.

As a new generation UAV system, ANKA-3 performs the tasks of reconnaissance, surveillance, intelligence, and attack with different air-ground and air-air munitions. It can also perform many different tasks such as neutralizing RF emitting radar and air defense systems, signal and communication, intelligence and other sorts of electronic warfare.

Technical Specifications
- Wingspan : 24.2 m
- Length : 12.5 m
- Powerplant : 2 x 170 HP Turbo Diesel
- Payload Capacity : 750+ kg
- Endurance : 50 hours
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BAYRAKTAR KIZILELMA

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- Data range : LOS & BLOS
- Cruise Speed : 150 knots
In order to meet Turkish Air Force (TurAF) requirements beyond 2030s, Türkiye has introduced an indigenous design and development program (TF-X) to rejuvenate the fighter jet fleet of TurAF.

**TFX Program**

Within the scope of TFX Program, Türkiye will become one of the few countries to possess the necessary technologies, engineering infrastructure and production capabilities, once the engineering activities on all the critical technologies are accomplished (e.g. increased situational awareness, sensor fusion, low observability, weapon bay, etc.), which are needed by a 5th generation (or beyond) jet fighter aircraft.

TFX aircraft is planned to be kept operational in the TurAF inventory until 2070s and will be interoperable with other critical assets of TurAF such as F-35As.

The TFX indigenous design and development program prime contract between the Presidency of Defense Industries (SSB) and Turkish Aerospace Industries Inc. (TAI) has been signed on 5th of August 2016.

The timing of this signature alone, is a key demonstrator of Türkiye’s determination of running mega-projects uninterruptedly, even under extraordinary conditions.

Currently, the prime contract covers the initial four (4) years (starting after signature of major subcontracts) which will end up with completion of preliminary design phase. Within this period beyond the design and development of TFX Aircraft, engineering capabilities, technology development activities (for key sensors like radar, electronic warfare etc.), test infrastructures establishment and certification processes will be performed and extensive capabilities for a new generation jet fighter design, development and production will be gained by Turkish industry. TFX aircraft will be a multi-role aircraft, it will be designed mainly for air-to-air role with a consideration to air-to-surface roles as well. Upon engineering analysis, TFX aircraft will be a multi-role aircraft, it will be designed mainly for air-to-air role with a consideration to air-to-surface roles as well. Upon engineering analysis, preliminary calculations, based on received information of suppliers of candidate engines, TFX aircraft is decided to be a twin engine configuration.

In this regard a Heads of Agreement (HoA) was signed between TAI and BAE Systems on 28th of January 2017, in the presence of the Prime Ministers of Türkiye and the United Kingdom. In addition, the Letter of Agreement (LOA) was signed during the IDEF 2017. The TAI-BAE Systems Collaboration Agreement was signed and entered into effect on 25th of August 2017.

One of the key ambition and consideration of SSB and TurAF, which is shared by the Turkish industry as well, is the exportability of TFX aircraft to key allies and friendly countries. In this regard, Türkiye also welcomes any opportunities for participation of interested countries in a win-win model.
Turkish defense industry has an attractive ecosystem supported by a qualified workforce, incentives and know-how.

**PRODUCT & TECHNOLOGY DEVELOPMENT EXPENDITURES ($ Million)**

- Technology Development: 1241 (2020), 1640 (2021), 2061 (2022)

**FINANCE OF P&T DEVELOPMENT EXPENDITURES ($Million)**

- Financed by Equity: 1067 (2020), 1425 (2021), 1688 (2022)

**Incentives Scheme**

<table>
<thead>
<tr>
<th>Main Incentive Tools</th>
<th>General Incentives</th>
<th>Regional Incentives</th>
<th>Incentives for Prioirty Investments</th>
<th>Incentives for Large Scale Investments</th>
<th>Incentives for Strategic Investments</th>
<th>Project-Based Incentives</th>
<th>R&amp;D Incentives</th>
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</table>

Source: SASAD, Higher Education Council, Ministry of Trade, Ministry of Science, Industry and Technology
Turkish defense and aerospace investments are eligible for a wide range of incentives offered by the government, lucrative incentives schemes boost project economics substantially.

MANUFACTURING INVESTMENTS IN DEFENSE AND AEROSPACE RECEIVE INCREMENTAL BENEFITS

- Corporate Tax deductions (up to 100%)
- Tax credits (up to %90)
- Land Allocation
- Project Financing Support
- Social Security Premium Exemptions
- VAT and Customs Duty Exemptions
- Training support

Lowering upfront costs, improving cash flow, and accelerating returns on investment

INVESTMENTS IN DEFENSE AND AEROSPACE ARE PRIORITY AREAS WITH STRATEGIC FOCUS

- Industry Participation / Offset
- Product based supports/loans
- Industry development programs
- Exemptions for duties

RESEARCH, DEVELOPMENT, AND DESIGN ACTIVITIES ARE BACKED BY GENEROUS SUPPORT PROGRAMS

- 100% deductible R&D expenditures
- Corporate Tax exemptions
- Income Tax exemption for R&D personnel
- VAT exemptions on final products
- Dedicated Technology Development Zones
- Early stage financing for start-ups
- Export support

Grants, incentives, and supports are available at all stages of new product development life cycle
Turkish defense industry has an attractive ecosystem supported by a qualified workforce, incentives and know-how

Source: SASAD, IMD, IMD World Competitiveness Executive Opinion Survey based on an index from 0 to 10
As the industry developed, important defense & aerospace clusters have emerged across Türkiye.
FNSS, a joint venture owned 51% by Nurol Holding and 49% by BAE Systems, is a leading manufacturer and supplier of tracked and wheeled armored vehicles and weapon systems for the Turkish and Allied Armed Forces.

Kale Pratt & Whitney, a joint venture owned 51% by Kale Group and 49% by Pratt & Whitney, use state-of-the-art technologies critical to the production of the F135 engine powering the F-35 Lightning II fighter aircraft.

BMC, which is a Turkish-Qatari partnership, manufactures tactical armored vehicles for the defense industry, in addition to buses for public transportation, light and heavy weight trucks for transportation and logistics industry.

BAE Systems and TAI signed an agreement, worth £100m, to collaborate on the first development phase of an indigenous fifth-generation fighter jet for the Turkish Air Force – TF-X.

Rolls-Royce and Kale Group, established a joint venture company owned 51% by Kale and 49% by Rolls-Royce 49%, to develop aircraft engines for Türkiye, initially targeting the TF-X National Fighter Jet Project.
Türkiye hosts important events with significant international participation

- **TEKNOFEST**
  - Aerospace and Technology Festival
  - Aug 30 – Sep 4, 2022

- **SAHA EXPO**
  - Defence & Aerospace Exhibition
  - Oct 25-28, 2022

- **IDEF'23**
  - 16th International Defence Industry Fair
  - July 25-28, 2023

- **EURASIA AIRSHOW**
  - April 13-17, 2022

- **ISTANBUL AIRSHOW**
  - Oct 6-8, 2022
  - Ataturk Airport

- **expo tech**
  - Innovation Industry and Technology Fair
  - Nov 1-3, 2023
**PRESIDENCY OF DEFENSE INDUSTRIES (SSB)**

SSB was established in 1985 with a mandate to develop policies establishing a modern defense industry infrastructure in Türkiye and has the authority and responsibility to implement these policies. As per its mandate, SSB carries out major systems procurement, industry policymaking, localization strategy, R&D and international industry relations. SSB is responsible for reorganizing and integrating the existing national industry in line with defense industry requirements; supporting new enterprises; exploring the opportunities with foreign investment and technology contributions; supporting enterprises to partner with foreign investors.

**DEFENSE & AEROSPACE INDUSTRY MANUFACTURERS ASSOCIATION (SaSaD)**

SaSaD was established in 1990 with a mission to contribute to the development, strengthening, and competitiveness of the Turkish defense and aerospace industry. As the representative of the Turkish defense and aerospace industry, both in Türkiye and international platforms, SaSad aims to facilitate the business environment for the industry players in coordination with the procurement authorities and contractors. Having started the business with 12 founding members at the beginning, SaSaD currently has 113 full members and 75 special members in the communication network as of 2017.

**DIRECTORATE GENERAL OF CIVIL AVIATION (DGCA)**

DGCA is in charge of regulating the civil aviation industry in accordance with the national and international regulations and standards in order to ensure flight safety and security of the civil aviation. Its main duties, among others, are: to issue relevant documentation and to register aircraft; to audit licenses of flight crew; to determine the licensing terms of personnel working in the civil aviation; to regulate the terms and conditions for the permissions to be granted to real or legal persons to perform air transportation activities in or out of Türkiye; to regulate and audit air navigation of commercial aircraft, as well as traffic communication services in Turkish airspace.

**GENERAL DIRECTORATE OF STATE AIRPORTS AUTHORITY (DHMİ)**

DHMİ is a state-owned enterprise in charge of the management of Turkish airports and controlling Turkish airspace. Its main activities are; management of airports, ground services at airports and air traffic control services, establishment and operation of air navigation systems and facilities and other related facilities and systems, and to maintain them at the level of modern aeronautics.
1. Snapshot

2. Turkish Defense & Aerospace Industry

3. Turkish Civil Aviation
BREAKDOWN OF AIR PASSENGERS IN TÜRKİYE OVER YEARS

Source: DGCA, DHMİ, Airports Council International (ACI)
Türkiye’s civil aviation has been growing

Source: DGCA

*Airline, air taxi, general aviation, business jets, aerial agriculture, balloon.
13 airline companies operate in Türkiye as of 2023

<table>
<thead>
<tr>
<th>Airline Companies</th>
<th>Passenger Aircraft</th>
<th>Cargo Aircraft</th>
<th>Total Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>TURKISH AIRLINES</td>
<td>398</td>
<td>24</td>
<td>422</td>
</tr>
<tr>
<td>PEGASUS AIRLINES</td>
<td>96</td>
<td>-</td>
<td>91</td>
</tr>
<tr>
<td>SunExpress</td>
<td>62</td>
<td>-</td>
<td>62</td>
</tr>
<tr>
<td>Corendon</td>
<td>20</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>MNG Airlines</td>
<td>-</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Freebird</td>
<td>10</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>ULS</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>AIR ACT</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Tailwind</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>MGA Airlines</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Southwind Airlines</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>AirAnka</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>BBN Airlines</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>13</strong></td>
<td><strong>39</strong></td>
<td><strong>642</strong></td>
</tr>
</tbody>
</table>

Source: Airline Companies
Türkiye is in the heart of the three regions kept their international mobility quite high.

% SHARE OF INTERNATIONAL-DOMESTIC PASSENGER TRAFFIC BY REGION
2020 VS 2019, BASED ON FROM/TO STATE

Source: ICAO
Türkiye’s convenient location and its significant investments in airport infrastructure make it an outstanding international aviation hub.

<table>
<thead>
<tr>
<th>Year</th>
<th>Countries</th>
<th>International Destinations</th>
<th>Domestic Hubs</th>
<th>Domestic Destinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>50</td>
<td>60</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>2022</td>
<td>130</td>
<td>342</td>
<td>10</td>
<td>57</td>
</tr>
</tbody>
</table>

Source: DGCA
**THE BUSIEST AIRPORTS IN EUROPE**
MILLIONS OF PASSENGERS (2022)

<table>
<thead>
<tr>
<th>Country</th>
<th>Code</th>
<th>Airport</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Türkiye</td>
<td>IST</td>
<td>İSTANBUL AIRPORT</td>
<td>64,48</td>
<td>37,17</td>
<td>23,40</td>
<td>52,00</td>
</tr>
<tr>
<td>UK</td>
<td>LHR</td>
<td>HEATHROW AIRPORT</td>
<td>61,59</td>
<td>22,10</td>
<td>22,10</td>
<td>80,88</td>
</tr>
<tr>
<td>France</td>
<td>CDG</td>
<td>CHARLES DE GAULLE</td>
<td>57,47</td>
<td>26,19</td>
<td>22,25</td>
<td>76,15</td>
</tr>
<tr>
<td>Netherlands</td>
<td>AMS</td>
<td>AMSTERDAM SCHIPHOL AIRPORT</td>
<td>52,47</td>
<td>25,49</td>
<td>20,88</td>
<td>71,70</td>
</tr>
<tr>
<td>Spain</td>
<td>MAD</td>
<td>A.S. MADRID-BARAJAS AIRPORT</td>
<td>50,63</td>
<td>16,38</td>
<td>16,38</td>
<td>28,25</td>
</tr>
<tr>
<td>Germany</td>
<td>FRA</td>
<td>FRANFURKT AM MEIN</td>
<td>48,91</td>
<td>18,76</td>
<td>18,76</td>
<td>70,55</td>
</tr>
<tr>
<td>Spain</td>
<td>BCN</td>
<td>J.T. BARCELONA-EL PRAD AIRPORT</td>
<td>41,63</td>
<td>12,73</td>
<td>12,73</td>
<td>52,68</td>
</tr>
<tr>
<td>UK</td>
<td>LGW</td>
<td>LONDON GATWICK</td>
<td>32,83</td>
<td>6,26</td>
<td>10,17</td>
<td>46,57</td>
</tr>
<tr>
<td>Germany</td>
<td>MUC</td>
<td>MUNICH AIRPORT</td>
<td>31,64</td>
<td>12,49</td>
<td>11,12</td>
<td>47,95</td>
</tr>
<tr>
<td>Italy</td>
<td>FCO</td>
<td>LEONARDO DA VINCI–FIUMICINO AIRPORT</td>
<td>29,36</td>
<td>11,66</td>
<td>9,83</td>
<td>43,53</td>
</tr>
</tbody>
</table>

Source: DHMI, Airports Council International (ACI) *Istanbul Ataturk Airport

Türkiye’s convenient location and its significant investments in airport infrastructure in last decade made it an outstanding aviation hub.

**THE BUSIEST AIRPORTS IN TÜRKİYE**
MILLIONS OF PASSENGERS (2022)

<table>
<thead>
<tr>
<th>Code</th>
<th>Airport</th>
<th>Domestic</th>
<th>International</th>
<th>Total (2022)</th>
<th>2021</th>
<th>2020</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST</td>
<td>İSTANBUL</td>
<td>15,94</td>
<td>48,56</td>
<td>64,51</td>
<td>37,18</td>
<td>23,41</td>
<td>52,00</td>
</tr>
<tr>
<td>AYT</td>
<td>ANTLAYA</td>
<td>5,84</td>
<td>25,26</td>
<td>31,10</td>
<td>22,01</td>
<td>9,71</td>
<td>35,67</td>
</tr>
<tr>
<td>SAW</td>
<td>SABİHA GÖKÇEN</td>
<td>15,23</td>
<td>15,49</td>
<td>30,73</td>
<td>24,90</td>
<td>16,95</td>
<td>35,56</td>
</tr>
<tr>
<td>ADB</td>
<td>İZMİR</td>
<td>6,07</td>
<td>3,76</td>
<td>9,83</td>
<td>7,56</td>
<td>5,46</td>
<td>12,36</td>
</tr>
<tr>
<td>ESB</td>
<td>ANKARA</td>
<td>6,75</td>
<td>1,92</td>
<td>8,67</td>
<td>7,03</td>
<td>5,16</td>
<td>13,74</td>
</tr>
<tr>
<td>DLM</td>
<td>MUĞLA DALAMAN</td>
<td>1,52</td>
<td>3,01</td>
<td>4,53</td>
<td>2,32</td>
<td>1,58</td>
<td>4,90</td>
</tr>
<tr>
<td>BJV</td>
<td>MUĞLA MILAS</td>
<td>2,04</td>
<td>1,85</td>
<td>3,89</td>
<td>2,90</td>
<td>1,48</td>
<td>4,33</td>
</tr>
<tr>
<td>ADA</td>
<td>ADANA</td>
<td>3,22</td>
<td>0,64</td>
<td>3,87</td>
<td>3,39</td>
<td>2,50</td>
<td>5,05</td>
</tr>
<tr>
<td>TZX</td>
<td>TRABZON</td>
<td>2,48</td>
<td>0,70</td>
<td>3,18</td>
<td>2,64</td>
<td>1,80</td>
<td>3,77</td>
</tr>
<tr>
<td>GZT</td>
<td>GAZIANTEP</td>
<td>2,02</td>
<td>0,30</td>
<td>2,32</td>
<td>1,85</td>
<td>1,39</td>
<td>2,52</td>
</tr>
</tbody>
</table>

Source: DHMI, Airports Council International (ACI) *Istanbul Ataturk Airport
IST AIRPORT

2\textsuperscript{nd} in Direct Connectivity
2\textsuperscript{nd} in Int. Passengers
6\textsuperscript{th} in Hub Connectivity in 2021

İstanbul has recovered 71\% of its pre-pandemic (2019) direct connectivity levels and 56\% of its hub connectivity levels in 2021—the best performance amongst European hubs.

According to ACI’s World Airport Traffic Forecast, Türkiye will be amongst the top 15 fastest growing countries in the upcoming period to 2040 with 4,6\% CAGR, though not a single other European country appears in this list.

Istanbul has rapidly developed into an international hub in last decade.

\textbf{Source:} Airports Council International (ACI) EUROPE Airport Industry Connectivity Report 2021

---

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
\textbf{2019} & \textbf{2021} & \textbf{2022} & \textbf{CODE} & \textbf{2022} \\
\hline
2 & 1 & 1 & AMS & 4296 \\
5 & 2 & 2 & IST & 4254 \\
4 & 7 & 3 & LHR & 4058 \\
1 & 3 & 4 & FRA & 4034 \\
3 & 4 & 5 & CDG & 3882 \\
7 & 6 & 6 & MAD & 3167 \\
6 & 10 & 7 & MUC & 3036 \\
9 & 8 & 8 & BCN & 2823 \\
11 & 34 & 9 & LGW & 2714 \\
14 & 11 & 10 & PMI & 2643 \\
10 & 19 & 11 & FCO & 2339 \\
19 & 13 & 12 & ATH & 2230 \\
16 & 17 & 13 & OSL & 2223 \\
20 & 26 & 14 & DUB & 2179 \\
17 & 18 & 15 & ORY & 2167 \\
21 & 9 & 16 & SAW & 2137 \\
12 & 15 & 17 & VIE & 2137 \\
13 & 20 & 18 & CPH & 2105 \\
23 & 21 & 19 & LIS & 2096 \\
15 & 22 & 20 & ZRH & 1962 \\
\hline
\end{tabular}
\end{table}
NEW ISTANBUL AIRPORT

200 Million Passenger Capacity
500 Airplane Parking Capacity
6 Runways

350 Destinations
2,000 Daily Landing & Departures
Operational Since 2018

«Best Airport in Europe»
«Accessible Airport»
«Turkish Airlines, the only legacy or hub carrier in the top 10 that's basically fully recovered.

While most low costs are close to or beyond their 2019 flight levels, that’s not the case with the majority of traditional legacy or hub carriers. Turkish Airlines is the top 10 exception, a carrier that continues to thrive, currently performing 1,187 daily arrivals/departures, 98% of 2019 traffic.

As Europe’s second busiest carrier, Turkish Airlines is massively focused on its home base Istanbul iGA, where almost 80% of all TK flights depart or land from. With 456 daily departures over the last 7 days, 102% of 2019, iGA traffic for Turkish far exceeds the second-busiest airport for the airline, Istanbul's Sabiha Gökçen with 82 daily departures (98% of 2019), or third-busiest Ankara with 59 daily departures (81% of 2019).» Eurocontrol

---

### Top 10 States

**Departures and arrivals**

<table>
<thead>
<tr>
<th>No.</th>
<th>Country</th>
<th>Average daily flights</th>
<th>% prev week</th>
<th>% prev year</th>
<th>% 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>United Kingdom</td>
<td>6,122</td>
<td>+1%</td>
<td>S</td>
<td>+7%</td>
</tr>
<tr>
<td>2.</td>
<td>Spain</td>
<td>5,437</td>
<td>+2%</td>
<td>S</td>
<td>+5%</td>
</tr>
<tr>
<td>3.</td>
<td>Germany</td>
<td>5,245</td>
<td>+1%</td>
<td>S</td>
<td>+5%</td>
</tr>
<tr>
<td>4.</td>
<td>France</td>
<td>4,793</td>
<td>+2%</td>
<td>S</td>
<td>+5%</td>
</tr>
<tr>
<td>5.</td>
<td>Italy</td>
<td>4,345</td>
<td>+3%</td>
<td>S</td>
<td>+8%</td>
</tr>
<tr>
<td>6.</td>
<td>Türkiye</td>
<td>3,892</td>
<td>+3%</td>
<td>S</td>
<td>+13%</td>
</tr>
<tr>
<td>7.</td>
<td>Greece</td>
<td>2,358</td>
<td>+8%</td>
<td>S</td>
<td>+6%</td>
</tr>
<tr>
<td>8.</td>
<td>Netherlands</td>
<td>1,670</td>
<td>+1%</td>
<td>S</td>
<td>+4%</td>
</tr>
<tr>
<td>9.</td>
<td>Norway</td>
<td>1,419</td>
<td>-4%</td>
<td>S</td>
<td>+6%</td>
</tr>
<tr>
<td>10.</td>
<td>Portugal</td>
<td>1,407</td>
<td>+2%</td>
<td>S</td>
<td>+8%</td>
</tr>
</tbody>
</table>

---

### Top 10 aircraft operators

**Week 26 Jun - 02 Jul 2023 (average daily flights)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Aircraft operator</th>
<th>Average daily flights</th>
<th>% prev week</th>
<th>% prev year</th>
<th>% 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ryanair Group</td>
<td>3,273</td>
<td>+0%</td>
<td>S</td>
<td>+10%</td>
</tr>
<tr>
<td>2.</td>
<td>easyJet Group</td>
<td>1,732</td>
<td>+2%</td>
<td>S</td>
<td>+10%</td>
</tr>
<tr>
<td>3.</td>
<td>Turkish Airlines</td>
<td>1,685</td>
<td>+3%</td>
<td>S</td>
<td>+12%</td>
</tr>
<tr>
<td>4.</td>
<td>Lufthansa Airlines</td>
<td>1,247</td>
<td>+4%</td>
<td>S</td>
<td>+8%</td>
</tr>
<tr>
<td>5.</td>
<td>Air France Group</td>
<td>1,102</td>
<td>+3%</td>
<td>S</td>
<td>+4%</td>
</tr>
<tr>
<td>6.</td>
<td>Wizz Air Group</td>
<td>900</td>
<td>+3%</td>
<td>S</td>
<td>+10%</td>
</tr>
<tr>
<td>7.</td>
<td>KLM Group</td>
<td>875</td>
<td>+2%</td>
<td>S</td>
<td>+16%</td>
</tr>
<tr>
<td>8.</td>
<td>British Airways Group</td>
<td>839</td>
<td>+3%</td>
<td>S</td>
<td>+20%</td>
</tr>
<tr>
<td>9.</td>
<td>Vueling</td>
<td>684</td>
<td>+1%</td>
<td>W</td>
<td>-2%</td>
</tr>
<tr>
<td>10.</td>
<td>SAS Group</td>
<td>683</td>
<td>-2%</td>
<td>S</td>
<td>+25%</td>
</tr>
</tbody>
</table>

---

**Source:** Eurocontrol European Aviation Overview, Jan-Jul 2023

---

**Airport ranking**

**Week 26 Jun - 02 Jul 2023 (vs 2019)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Airport</th>
<th>Avg. daily dep/arr flights</th>
<th>vs 2022</th>
<th>vs 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>iGA Istanbul</td>
<td>1,525</td>
<td>S +14%</td>
<td>S +19%</td>
</tr>
<tr>
<td>2.</td>
<td>Amsterdam</td>
<td>1,370</td>
<td>S +9%</td>
<td>W -8%</td>
</tr>
<tr>
<td>3.</td>
<td>Paris Charles de Gaulle</td>
<td>1,351</td>
<td>S +11%</td>
<td>W -10%</td>
</tr>
<tr>
<td>4.</td>
<td>Frankfurt</td>
<td>1,314</td>
<td>S +14%</td>
<td>W -16%</td>
</tr>
<tr>
<td>5.</td>
<td>London Heathrow</td>
<td>1,306</td>
<td>S +14%</td>
<td>W -5%</td>
</tr>
<tr>
<td>6.</td>
<td>Madrid Barajas</td>
<td>1,103</td>
<td>S +5%</td>
<td>W -13%</td>
</tr>
<tr>
<td>7.</td>
<td>Antalya</td>
<td>1,008</td>
<td>S +14%</td>
<td>S +12%</td>
</tr>
<tr>
<td>8.</td>
<td>Barcelona</td>
<td>971</td>
<td>S +8%</td>
<td>W -10%</td>
</tr>
<tr>
<td>9.</td>
<td>Munich</td>
<td>919</td>
<td>S +7%</td>
<td>W -27%</td>
</tr>
<tr>
<td>10.</td>
<td>Palma de Mallorca</td>
<td>916</td>
<td>S +1%</td>
<td>S +2%</td>
</tr>
</tbody>
</table>
Total Flight Locations

129 Countries  337 Cities  342 Airports

2nd airline in Europe with 1,200 flights per day (2021)
Turkish Airlines has shown an incredible growth over the past decade, taking competition to a higher level.
### Competition and cooperation go hand in hand in the Turkish aerospace industry

<table>
<thead>
<tr>
<th>Company</th>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Turkish Engine Center</td>
<td>2009</td>
<td>A joint venture with Turkish Technic specializing in CFM56 and V2500 engine overhaul and repair. The Turkish Engine Center unites the long histories of engineering and maintenance excellence of its parent companies. Established in 2009, the facility is located at Istanbul’s Sabiha Gokcen Airport and has performed more than 400 engine overhauls.</td>
</tr>
<tr>
<td>SunExpress</td>
<td>1989</td>
<td>SunExpress was founded as a subsidiary of Turkish Airlines and Lufthansa. Today, SunExpress has a fleet of 70 aircrafts with 13,950 seats capacity, flying to more than 100 destinations. It carried around eight million passengers in 2016. With its 26 years of experience and thus the long-term commitment in the traffic between the home markets of Türkiye and Germany, the airline has acquired the reputation of the holiday specialist even beyond Türkiye.</td>
</tr>
<tr>
<td>Kale Pratt &amp; Whitney</td>
<td>2010</td>
<td>Kale Pratt &amp; Whitney Aircraft Motor Industry Inc. has been established in 2010 with the partnership of Kale Group with Pratt &amp; Whitney, which is part of United Technologies Corporation (UTC). Established with a 51% Kale Group and 49% Pratt &amp; Whitney partnership, the company’s main field of activity is the manufacture and assembly of engines and body parts for aircraft. The company started its production activities in its current factory in 2014.</td>
</tr>
<tr>
<td>Kale Pratt &amp; Whitney</td>
<td>2010</td>
<td>A joint venture owned 51% by Turkish Technic and 49% by TAI, the company manufactures galleys, and their inserts (like trolleys, std. containers etc.), crew rests, cabin dividers, wind screens, miscellaneous stowage, coatrooms, video control compartments, aircraft textile, leather, and most of other cabin interior parts except for the aircraft seats.</td>
</tr>
</tbody>
</table>
Established in 2008, acquired by HNA in 2010 myTECHNIC is World’s first lean greenfield MRO with a total closed area of 48,400 m² and one of its kind in the region with a 15,788 m² hangar area, 12,115 m² office area and 20,500 m² warehouse and shop area under one roof. Located in Sabiha Gökçen Airport, myTECHNIC has established business with 130+ customers in 10 regions.

Turkish Nacelle Center established in December 2010, upon signing of Joint Venture Agreement between Turkish Technic Inc. and Collins Aerospace (formerly UTC Aerospace Systems) Aerostructures Business Unit. Turkish Nacelle Center provides repair, maintenance, overhaul and modification of thrust reverser and nacelle systems for almost all types of engine platforms being used on commercial aircraft.

TUSAS Engine Industries Inc. (TEI) is an incorporated company established in 1985 as a joint venture owned 50,5% by Turkish Aerospace Industries Inc. (TAI), 46,2 % by General Electric (GE), 3,3 % Turkish Armed Forces Foundation (TAFF) and Turkish Aeronautical Association (TAA). TEI. The company has become an international manufacturer and a global design center today with the high quality products and services it offers to aviation industry.

TSI Aviation Seats was established as a joint venture owned 50% by Turkish Airlines and 50% by Assan Hanil, with the target of designing, producing, repairing and marketing all types of aircraft seats and supplying their spare parts. TSI conducts design, engineering, manufacturing and R&D activities in its new facilities in HABOM (Aviation Maintenance Repair and Overhaul Center).
WHAT CAN INVESTMENT OFFICE DO FOR YOU?

Investment Office will assist you before, during and after your entry to Türkiye.

https://www.invest.gov.tr

A governmental body attached to H.E. President

Private sector approach with public sector capabilities

Acting as your solution partner

<table>
<thead>
<tr>
<th>General &amp; customized business information &amp; sectoral analysis &amp; reports</th>
<th>Facilitating your investment at all stages</th>
<th>Aftersales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site selection support to find appropriate location/land for your investment</td>
<td>Matchmaking with local partners &amp; establishing business linkages</td>
<td>Facilitating your visit to Türkiye</td>
</tr>
<tr>
<td>Arrangements of meetings with governmental odies and other stakeholders</td>
<td>Project launch &amp; Press release Services</td>
<td></td>
</tr>
</tbody>
</table>