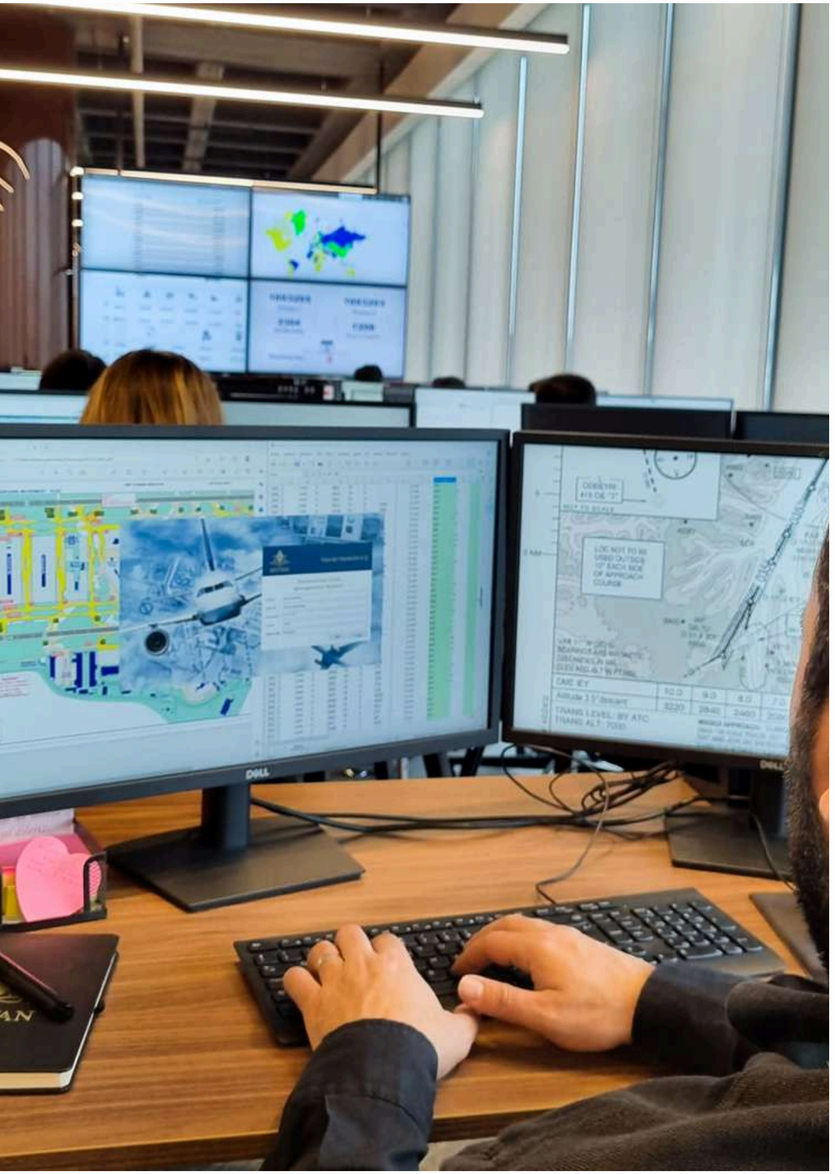
KEYVAN
AVIATION

AIRPORT PERFORMANCE MEASUREMENT & MANAGEMENT TOOLS (APMMT)





About Us

KEYVAN Aviation is a globally recognized provider of certified aeronautical navigation data and aviation intelligence solutions. With a mission to support safe and efficient flight operations, KEYVAN Aviation delivers high-quality, up-to-date navigation databases and aeronautical information services tailored for airlines, aircraft operators, OEMs, simulator companies, and airspace authorities.

As an EUROCAE ED-76A and ED-77 (RTCA DO-200B , DO-201) compliant data provider, KEYVAN Aviation is fully certified under EASA regulations (Type 1 DAT Provider : FAA LOA Type 1) and operates in accordance with EU Regulation 373/2017, ensuring that its data management and processing meet the highest international aviation standards. Our comprehensive quality management system is aligned with ISO 9001:2015, enabling precise control over every stage of the data lifecycle, from acquisition and validation to formatting and delivery.

Our navigation data is processed using advanced systems and rigorous validation procedures, including full compliance with the ARINC 424 standard, to ensure seamless integration with flight management systems and simulation platforms. Every dataset undergoes strict quality assurance checks, traceability audits, and integrity verification to guarantee consistency, accuracy, and regulatory compliance.

At KEYVAN Aviation, customer satisfaction is at the heart of everything we do. We work closely with our clients to understand their operational needs and deliver customized data solutions that enhance safety, performance, and decision-making. By combining innovation with robust regulatory compliance, KEYVAN Aviation stands as a trusted partner in today’s dynamic air navigation environment.

KEYVAN Aviation also holding ISO27001 , ISO15504 , and follow the DO-330 for the tools and software requirement .

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Board Members



MEHMET KEYVAN
Chairman of the Board & CEO

Mehmet Keyvan is the Founder, Chairman, and CEO of KEYVAN Aviation, an Istanbul-based aeronautical data company. Under his leadership, KEYVAN Aviation became the first company in Türkiye—and one of only four companies worldwide—to obtain EASA approved Type 1 DAT Provider certification for processing and delivering aeronautical and navigation data for use in aircraft avionics and navigation systems. Before founding KEYVAN Aviation, Mehmet built more than 25 years of experience as an avionics engineer and technical consultant. Throughout his career, he collaborated with leading aviation brands and aircraft manufacturers, contributing to the installation, integration, and development of advanced avionics systems.

Mehmet Keyvan is a member of GIYAD (Association Of Young Executives And Business People – Turkey) , TUSIAD (Turkish Industry and Business Association – the biggest and strongest Business Association in Turkey), TURKONFED (Turkish Enterprise and Business Confederation), and globally SC-217 (Aeronautical Databases committee , established 2008, is developing Standard for Processing Aeronautical Databases), SC-216 (Aeronautical Systems Security committee, established 2007, to develop airworthiness security methods and considerations), HIB (Services Exporters' Association), ACI (Airports Council International- Europe) and active member of ACI Technical, Operation & Safety Committee , ACI ECONOMICS Committee and Forbes Business Council.



HASAN KÜÇÜKAKYÜZ
Vice President of the Board

Hasan Küçükakyüz, Vice President of the Board at KEYVAN Aviation, is a retired Air Force General and former Commander of the Turkish Air Force.
Hasan Küçükakyüz is a distinguished commander and aviation leader, recognized for the senior responsibilities he assumed at the highest levels of Turkish military aviation and for his exceptional career spanning more than 44 years. After graduating from the Turkish Air Force Academy in 1978, Küçükakyüz served at various levels of the Turkish Air Force, undertaking significant responsibilities in piloting, squadron command, operations, training, inspection, and strategic management. Throughout his career, he held several critical positions, including Commander of the Air Training Command and Commander of the Combatant Air Force and Air Missile Defence Command. From 2017 to 2022, he served as the 32nd Commander of the Turkish Air Force. Over the course of his 44-year flying career, Küçükakyüz logged more than 5,529 flight hours across 29 different aircraft types.

He has been awarded the NATO Medal, the Turkish Armed Forces Distinguished Service Medal, the Turkish Armed Forces Medal of Honour, and Pakistan's Nishan-e-Imtiaz.



MUSTAFA HACIKERIMOĞLU
Vice President of the Board

Mustafa Hacıkerimoğlu, Vice President of the Board at KEYVAN Aviation.
Mustafa Hacıkerimoğlu is a distinguished and visionary Turkish business leader, recognized for his diversified investments and extensive experience across multiple industries. With a broad investment portfolio spanning aviation services, automotive, construction, energy, healthcare, insurance, and hospitality, he leads a dynamic and multi-sector business structure.
Driven by strategic insight, a strong entrepreneurial vision, and a management philosophy centered on sustainable growth, Hacıkerimoğlu has created lasting value through investments across different regions.

His business approach places particular emphasis on corporate development, innovative business models, long-term value creation, and meaningful contributions to employment, regional development, and the wider economy.

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QUALITY

Dedicated to aviation safety and never compromising on the quality ofthe services provided to its customers, KEYVAN Aviation continuously follows global standards and regulations. KEYVAN Aviation Quality System is based on ISO 9001 and all departments of the company are subject to regular internal and external audits to ensure the effectiveness of our quality system. The Aviation Database produced by KEYVAN Aviation is prepared in accordance with the requirements of EU Regulation 2017/373, Standard ED-76A (DO-200B) and ED-77 (DO-201B). KEYVAN Aviation has Quality Management System (ISO 9001), Information Security Management System (ISO 27001), Software Process Improvement and Capability dEtermination (SPICE) ISO 15504 certification, and EASA Approved Type 1 Aviation and Navigation Data Production (LOA TYPE 1 DAT Provider) certificates.



EASA Type 1 DAT Provider Certificate





ISO 9001 Certificate



ISO 27001 Certificate



ISO/IEC 15504 Spice Organizational Maturity Certificate



ISO/IEC/IEEE 12207 Software Life Cycle Certificate



Ministry of Industry and Technology of the Republic of Türkiye Public Information Authorization Certificate



Ministry of Industry and Technology of the Republic of Türkiye - Software Authorization Certificate



Ministry of National Defence – General Directorate of Military Factories – Approved Supplier Certificate



EYDEP Certificate – Industrial Competence and Capability Assessment Certificate

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Airport Performance Measurement And Management Tools (APMMT’s)

The main aim of the tool is to help decision-makers to design and implement better airport procedures and ground movement scenarios to help airlines and operators to reduce the waiting time in ground or in the air and by reducing the operation time, operational cost and reduce the carbon emission. Using the effective Approach procedure and nearest runway to the best potential gate will decrees the Airways to Gate travel time and definitely cost and CO2. System designed to monitor all arrival started from entering to any Approach procedure (exiting from Airways) up to Gate parking and form the Gate Parking to the first Airways point by capturing and monitoring the used SID procedure.



Airport Performance Measurement and Management Tools (APMMT) are software applications and systems designed to monitor, assess, and optimise the operational and service aspects of airports. These tools help airport authorities, management teams, and stakeholders track key performance indicators (KPIs) and metrics related to various airport operations, ultimately aiming to enhance efficiency, safety, passenger experience, and overall airport performance.

Airport Performance Measurement and Management Tools play a crucial role in helping airports operate smoothly, efficiently, and safely while also enhancing the passenger experience and promoting sustainability. The exact features and capabilities of these tools can vary based on the specific software chosen and the needs of the airport.

KEYVAN Aviation offers new Airport Performance Measurement & Management Tools (APMMT) to help airports and authority’s decision makers to manage the airports' procedures, including SID (Standard Instrument Departure) and Approach usage and effectiveness performance together with ground movement performance and time table including with Runways, Taxiways and Gates usage and occupation monitoring.

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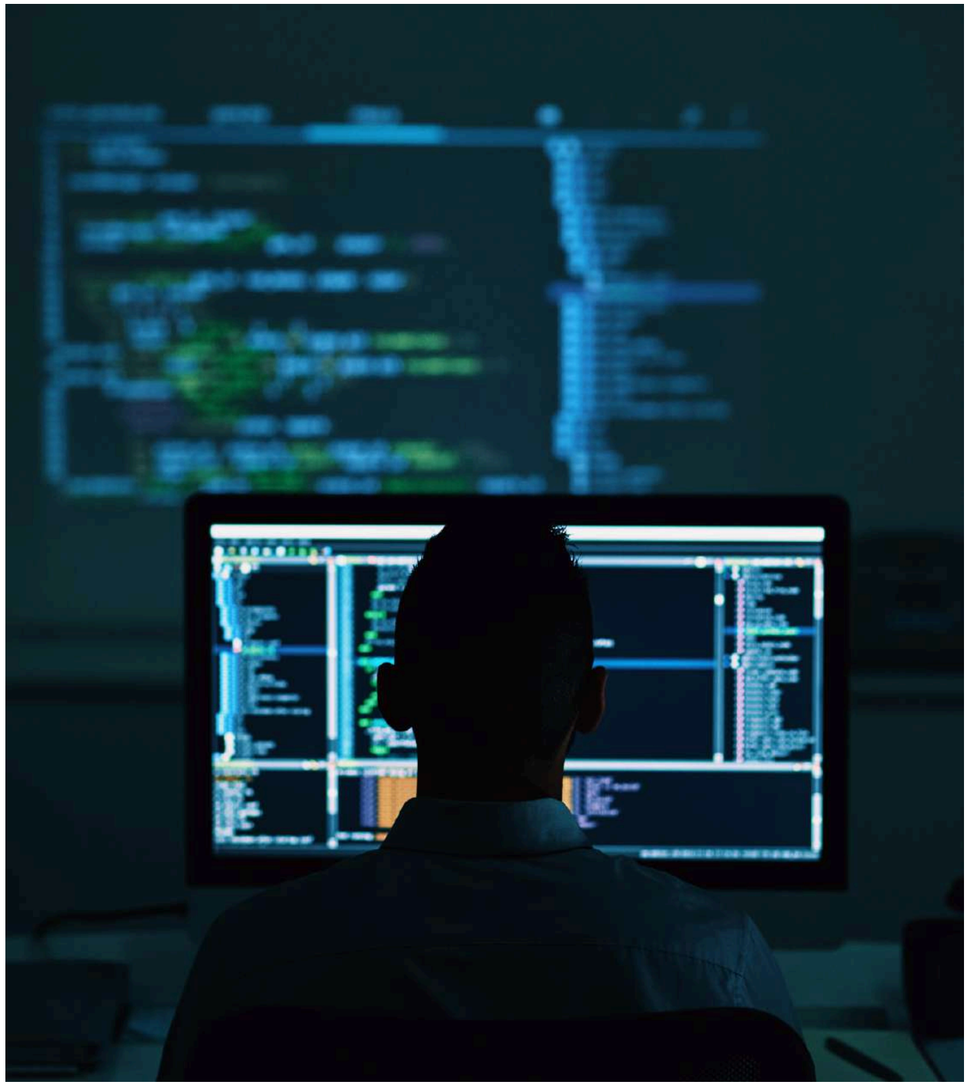
System Infrastructure

The main system is included with Software, databases and movement signals. APMMT is designed in Server and client-separated sections and panels together with a powerful data visualisation engine. The server panel helps administration users to manage the data entry , user management, signal matching and NOTAM manual entries as well as general purpose reporting.

The client panel is offering view mode for widescreen or control room video presentation of the airport map, including with/without procedures and ground movements in real-time by receiving the movement signals. Also, the operator may use client panel to monitor and generate the live required reports daily, weekly or for selected period of the time.

Aeronautical and navigation database used for APMMT is provided by KEYVAN Aviation’s aeronautical and navigation database team and updated every 28 days (13 AIRAC Cycle) with the most accurate and complete worldwide covered database.

The database automatically updated as a part of routine server data conversation and NOTAMs updated hourly bases from KEYVAN Aviation’s server. ADS-B , A-SMGCS or Radar data required to be analysed and presented as a part of APMMT live tracking map and the tools is capable to match with the different type of signals and data formats.



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The reports included with:

- SID / Approach occupancy rate,
- SID / Approach Usage rate / compare,
- Runway Occupancy rate,
- Runway Usage Rate,
- Landing performance report per fleet type / Airline,
- Taxiway usage,
- Taxiway waiting time,
- Gate usage rate,
- Gate occupancy rate,
- NOTAMs
- Gate to Airways timing per selected flight(s)
- Airways to Gate timing per selected flight(s)
- Taxi In time
- Taxi Out time



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Taxi-in and Taxi-out times with referanceto EUROCONTROLData Snapshot of March 10, 2023.



CONSUMPTION FACTS B777



Average duration of taxi-in times for intra-European flights: **6.1 min**

Average duration of taxi-out times for intra-European flights: **12.2 min**





This analysis reveals that the average additional taxi-out times increased significantly in 2022, as a result of the increased traffic, with Heathrow's rising from **2.7 minutes** (in 2021) to **6.0 minutes** and iGA Istanbul's rising from **3.1 to 4.0 minutes.**



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Importance of APMMTs

A look at some information provided by the ICAO above reveals that a typical **Boeing 777** spends **23.3 kg/min (or 6.15 gallons/min)** of fuel just during the taxiing time. With taxi times having an average of **15 minutes** for a **Taxi out**, this totals up to around **92 gallons of fuel spent** just taxiing out to the take-off point at the runway!

While different types of aircraft will have different consumption rates, optimising airport surface movement and reducing taxi times will allow airlines to save on some serious fuel costs, reduce **CO2 emissions**, and improve customer experience by reducing flight delays. For an airport with a **total daily movement (ARR/DEP) of 1000 flights, including 500 arrival flights** and **500 departure flights,** with an **average taxi time of 10 minutes** for **taxi in** and **15.5 minutes** for t**axi out** and considering **20 kg/min average fuel burn**, the **total taxi time fuel burn** would be some **around 255,000 kg fuel burn per day** in taxi movement.

With reference to the **ICAO Carbon Emissions Calculator,** for a flight with a **flight distance of 380 KM** and aircraft category of 319, 320, 321, 32B, 332, 333, 359, 73H, 73J, 77W, 789, the fuel burn calculated as **3341.2 kg per leg** and with above average calculation for the same aircraft category the taxi fuel burn will be **around %16** of the flight operation cost, while the **25.5 min spent at taxi** and its **around %35** of the **flight time.**



By using the APMMT, the Airport is able to perform the following:





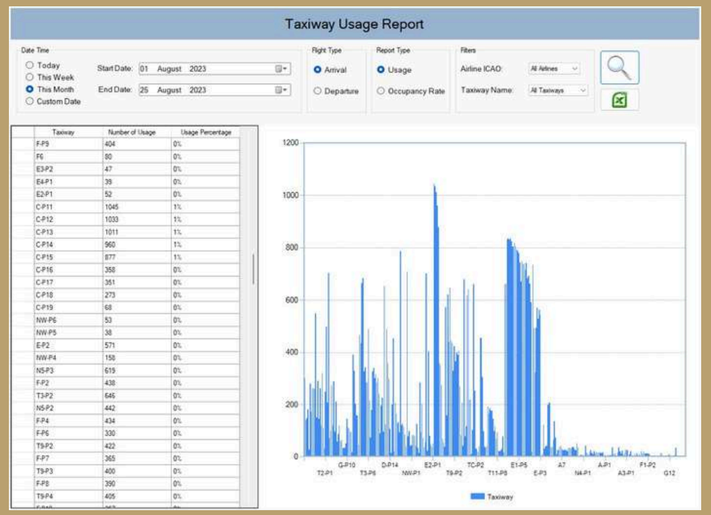


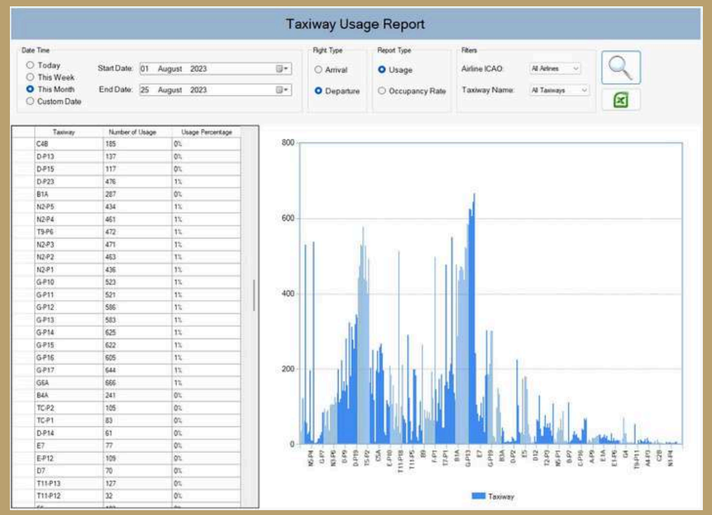


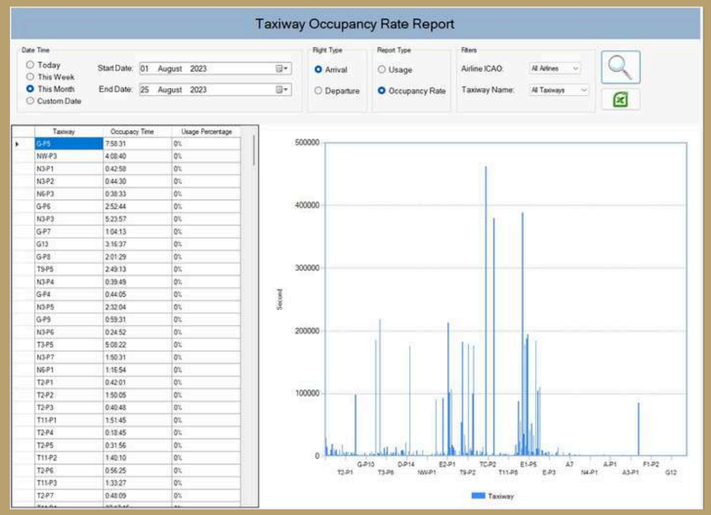
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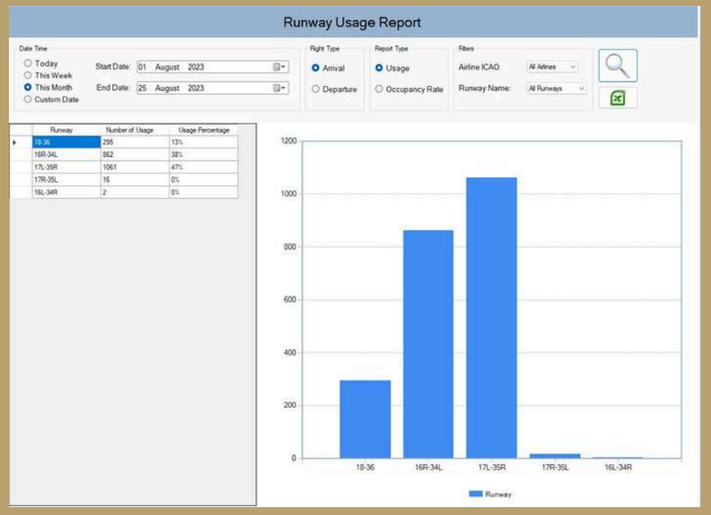
Software Visuals for the Basic Package

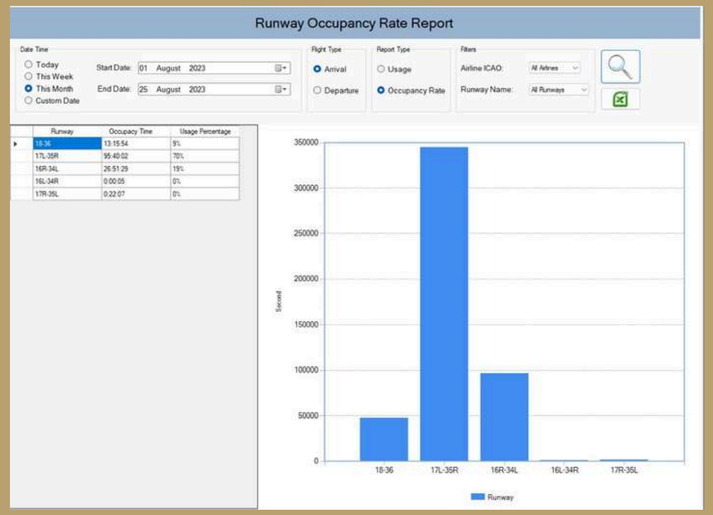
IST– Istanbul Airport

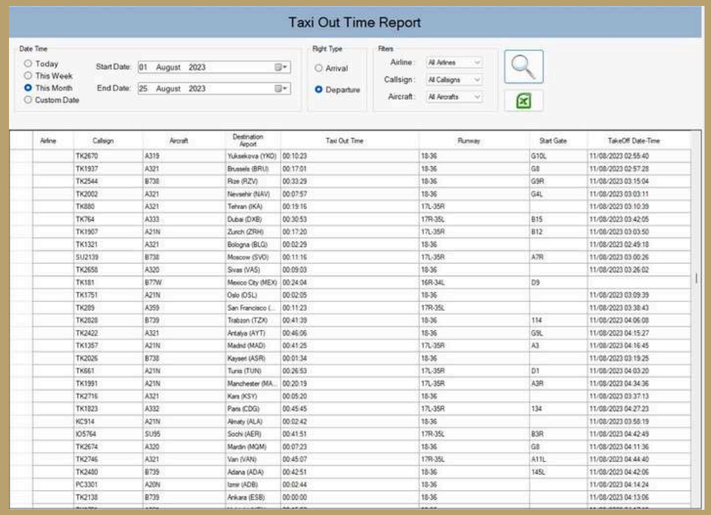








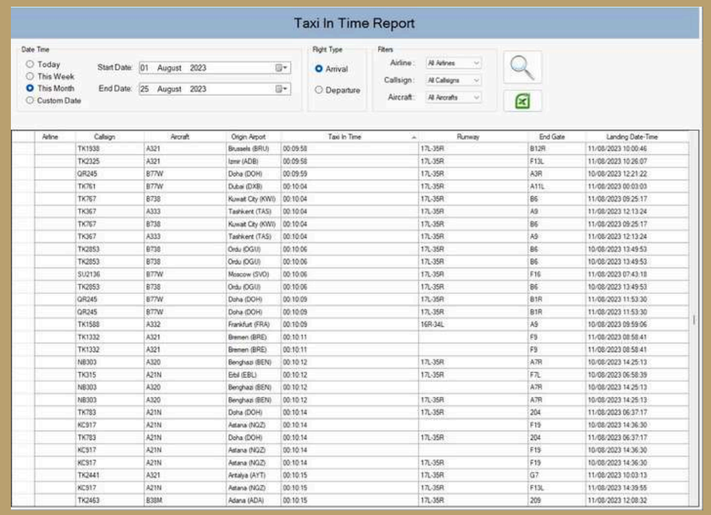


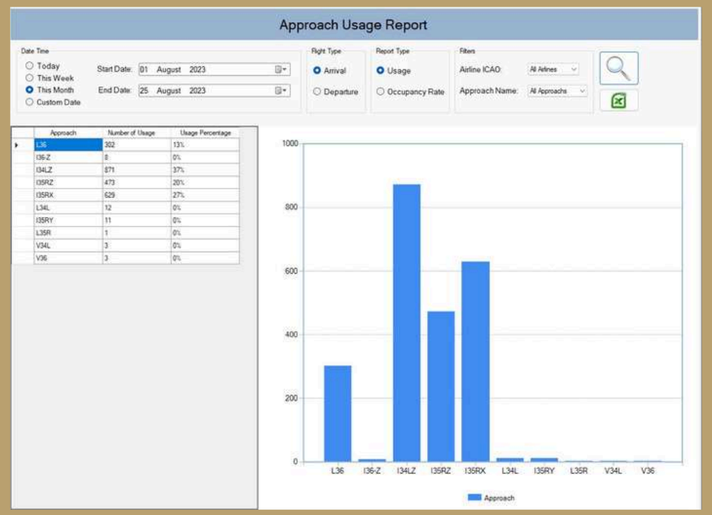


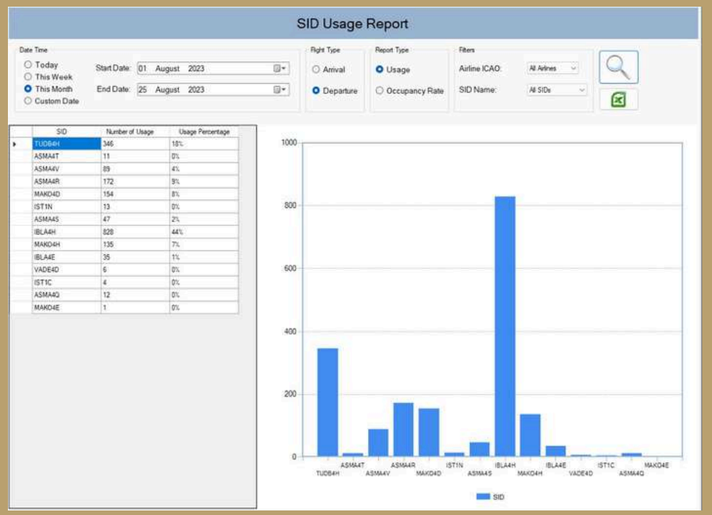
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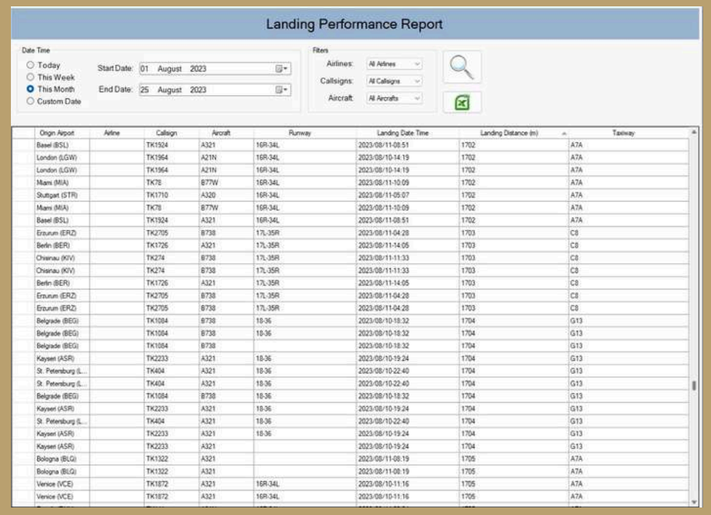
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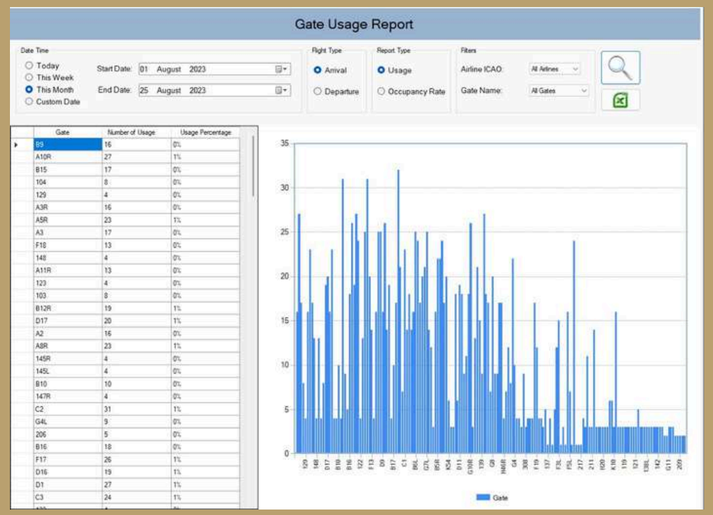
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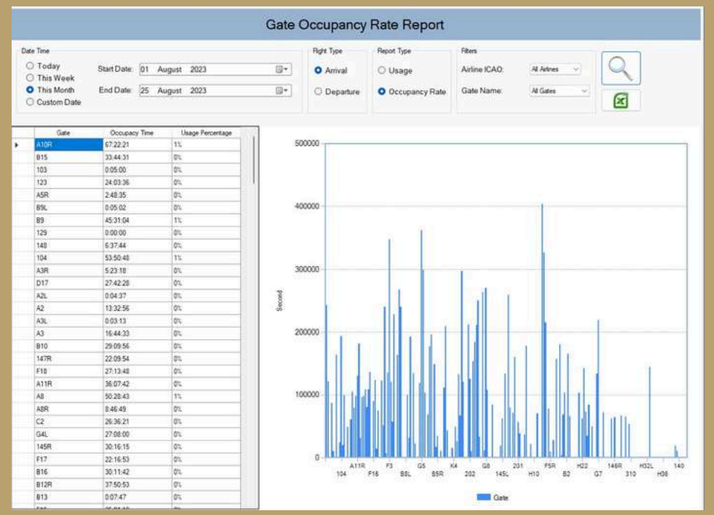










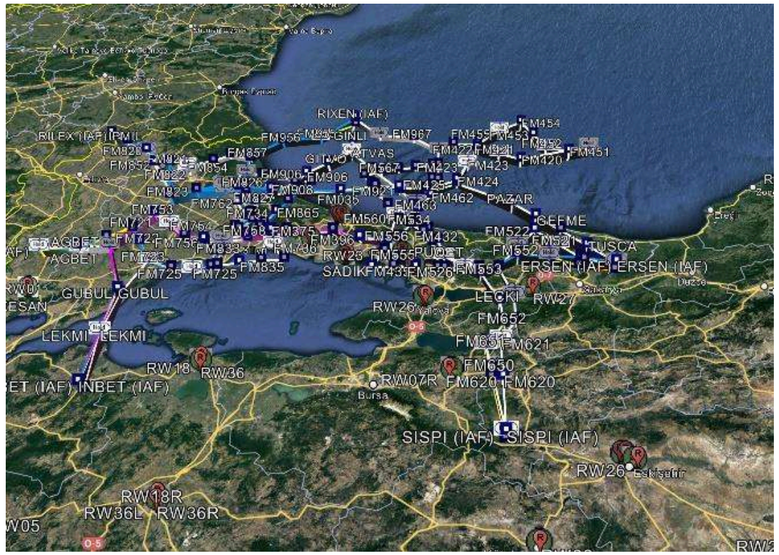


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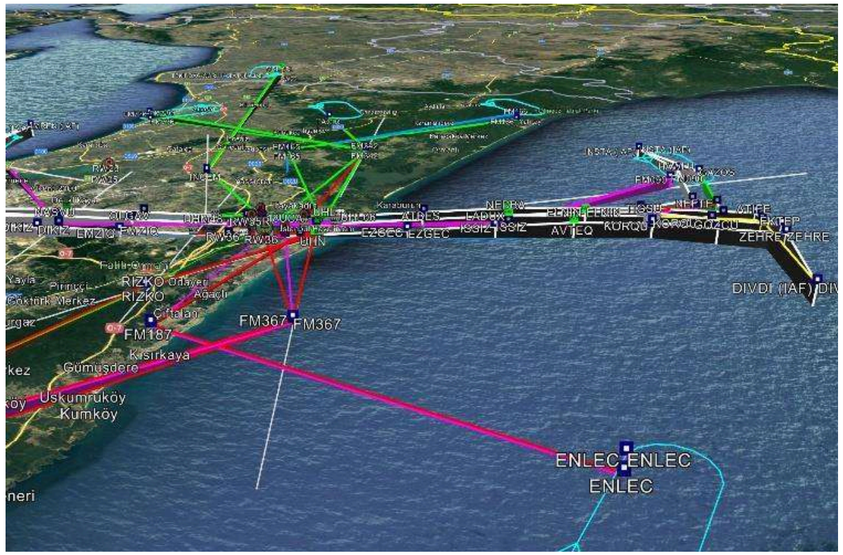
Powerful Aeronautical Data Visualization Engine

The APMMT is enabled to generate 2D and 3D maps by using the content of the Aeronautical and Navigation database for all records, including Airways, Procedures, Navaid location and data, Gates location and data, restricted and controlled airspace, holding patterns, the generated visuals will be presented on the original map of the software or exported to any outside GIS map capable tools.

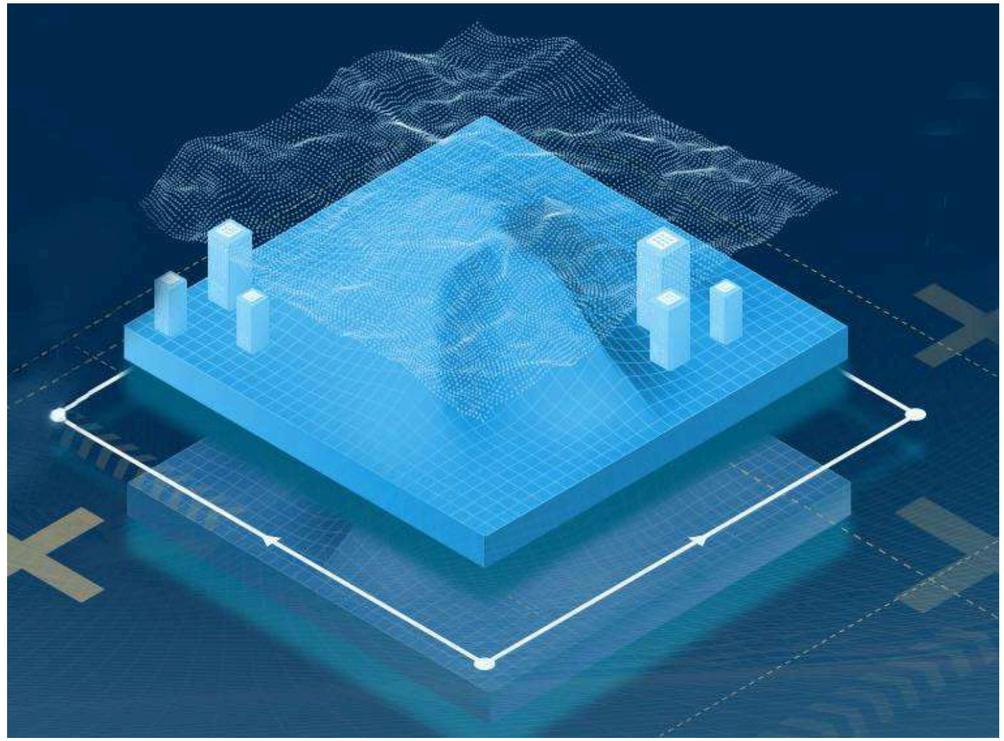
Each Gate location can include the required explanation and facilities details like Fuel, Power , air-conditioning and customer required data. The tool's ability to add NOTAMs to the visual map is the important feature.







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Simulation Capability :

APMMT canrecordandkeep the moving data belonging to many flights, including Arrivals and Departures, starting from the Last Airways point to the Gate and from the Gate to the first point of the Airways based on the storage device capacity.

The APMMT’s simulator tool can play any selected flight details/movements on the APMMT’s internal map for saved flights. This capability enables the operator and management team to review flight movements for measurements or quality check purposes for selected dates.

KEYVAN Aviation can customise the data layers per the customer requirements and plan and add selectable layers to the tool.

- The layer may beused to present live traffic movement in the airports, including but not limited to Aircraft, Trucks and official cars (Follow Me, Fire Trucks),
- Informational Layers: Gate, Taxiway, Runway
- Characteristics,
- Terrain & Obstacle Layer
- Navigation Facilities Details and locations
- NOTAM presentation
- Any customised layer

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Passenger Experience

The passenger experience in aviation plays a pivotal role in shaping individuals' perceptions of air travel. From the moment passengers enter an airport to when they disembark at their destination, every interaction and aspect of the journey contributes to this experience. Airlines and airports constantly strive to enhance the passenger experience, recognising its significance in customer satisfaction and loyalty.

The journey begins with check-in, where adopting online and mobile check-in options has streamlined the process, reducing waiting times and enhancing convenience. Once inside the airport, the ambience, cleanliness, and signage contribute to passengers' initial impressions. Security procedures, although crucial for safety, can also impact the experience. Efforts to expedite security checks through automated screening have been introduced to mitigate stress and delays.

Onboard, cabin design, seat comfort, entertainment options, and in-flight services significantly influence the passenger experience. Airlines are investing in modernised cabin interiors, offering ergonomic seats and ample legroom for greater comfort during long-haul flights. In-flight entertainment systems have evolved from shared screens to personalised, on-demand entertainment through seatback screens or personal devices. Access to Wi-Fi connectivity during flights has become an expectation, enabling passengers to stay connected and productive. Catering and service quality contribute to passengers' overall satisfaction. The shift towards healthier and more diverse meal options reflects changing consumer preferences. Moreover, the demeanour and attentiveness of the cabin crew influence the onboard atmosphere, making passengers feel valued and attended to. Restrooms, cleanliness, and access to amenities also factor into the perception of the flight experience.



Health and safety have recently gained prominence in the passenger experience, driven by the COVID-19 pandemic. Airlines and airports have implemented measures such as enhanced cleaning protocols, touchless check-in, and modified boarding procedures to ensure the well-being of travellers. In essence, the passenger experience in aviation encompasses a multitude of touchpoints that can influence perceptions and preferences.

Airlines and airports continue to innovate and adapt to evolving passenger expectations, recognising that a positive experience fosters customer loyalty and contributes to the broader reputation of the aviation industry as a whole.

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Enhancing Passenger Experience Through KEYVAN’s APMMT

Reduced Waiting Times:
The system's ability to monitor and optimise airport procedures, such as Standard Instrument Departure (SID) and Approach usage, as well as ground movement scenarios, can help reduce passenger waiting times. This means shorter queues, less time spent in aircraft holding patterns, and smoother transitions between different stages of the passenger journey.

Enhanced Predictability:
When airport operations are better managed and optimised, passengers can have more predictable travel experiences. Since their flights will likely depart and arrive on time, passengers can plan their journeys more effectively, reducing stress and uncertainty.

Minimised Delays:
By enhancing airport operations' efficiency and operational costs, the APMMT can contribute to minimising flight delays. Passengers will appreciate a more punctual travel experience with fewer unexpected wait times and disruptions.

Improved Comfort:
Shorter waiting times and optimised procedures provide a more comfortable travel experience. Passengers can spend less time waiting in crowded terminals, on aircraft waiting for take-off, or circling in holding patterns, leading to an overall more pleasant journey.

Efficient Gate Allocation:
The system's optimisation of gate allocation based on the nearest runway and effective approach procedure can help reduce the time it takes for passengers to disembark and reach the terminal. This can be particularly valuable for connecting flights, where efficient gate changes can make a significant difference in catching connecting flights.

Faster Turnaround Times:
The tool's optimisation of ground movement scenarios and gate allocation can lead to speedier aircraft turnaround times. This means that planes can spend less time on the ground between flights, resulting in more on-time departures and arrivals.



Seamless Connections:
When flights are on time and procedures are optimised, passengers with connecting flights are more likely to make their connections without stress. This can eliminate the anxiety of missing a connecting flight and the inconvenience of rebooking.

Eco-Friendly Travel:
The APMMT's focus on reducing operational time and carbon emissions aligns with increasing concerns about the environmental impact of air travel. Passengers are becoming more conscious of their carbon footprint, and knowing that efforts are being made to reduce emissions can enhance their perception of the airline and the airport.

Overall Satisfaction:
A combination of all these factors contributes to an overall improved passenger satisfaction. Satisfied passengers are more likely to have positive perceptions of the airline and the airport, leading to potential repeat business and positive word-of-mouth recommendations. The APMMT's ability to optimise airport procedures, reduce waiting times, minimise delays, and enhance operational efficiency all contribute to an improved passenger experience. By making air travel more predictable, comfortable, and eco-friendly, the system can positively impact passengers' perceptions of the airport and the airline, leading to higher satisfaction.

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Operational Efficiency & Sustainability Solutions

Operational Efficiency & Sustainability Analysis

KEYVAN Aviation provides data-driven insights to help airports and airlines enhance efficiency and sustainability. Our comprehensive analyses leverage advanced data analytics to identify areas for improvement, optimize operational strategies, and support long-term sustainability goals.To keep clients ahead of industry trends, we offer a subscription-based service, ensuring access to the latest operational data and actionable recommendations.



Airport Performance Measurement & Management Tools

Our innovative APMMT system enables airports to monitor and optimize Standard Instrument Departures(SID), Approach procedures, runway usage, taxiway movements, and gate assignments. By reducing ground delays, improving aircraft routing, and minimizing carbon emissions, APMMT helps streamline operations, cut operational costs, and enhance efficiency for both airports and airlines.

Airline Performance Measurement & Management Tools our agenda point

This powerful tool delivers a detailed analysis of an airline’s operational efficiency and sustainability efforts, aligning with global climate goals like NetZero 2050. Through real-time efficiency metrics,sustainability-focused case studies, and customized strategies, airlines can optimize flight scheduling, reduce fuel consumption, and improve overall performance while maintaining compliance with international regulations.



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The Advantages of Using Keyvan Aviation Data

EASA-Approved and Certified Data Analytics and Production
Rest assured; ourdata analytics and production processes have received the esteemed approval and certification of the European Union Aviation Safety Agency (EASA).

Comprehensive Solutions Requirements for Aeronautical and Navigation Data
Look no further for youraeronautical and navigation data needs. We proudly present an all-inclusive solution that caters to every aspect of your requirements.

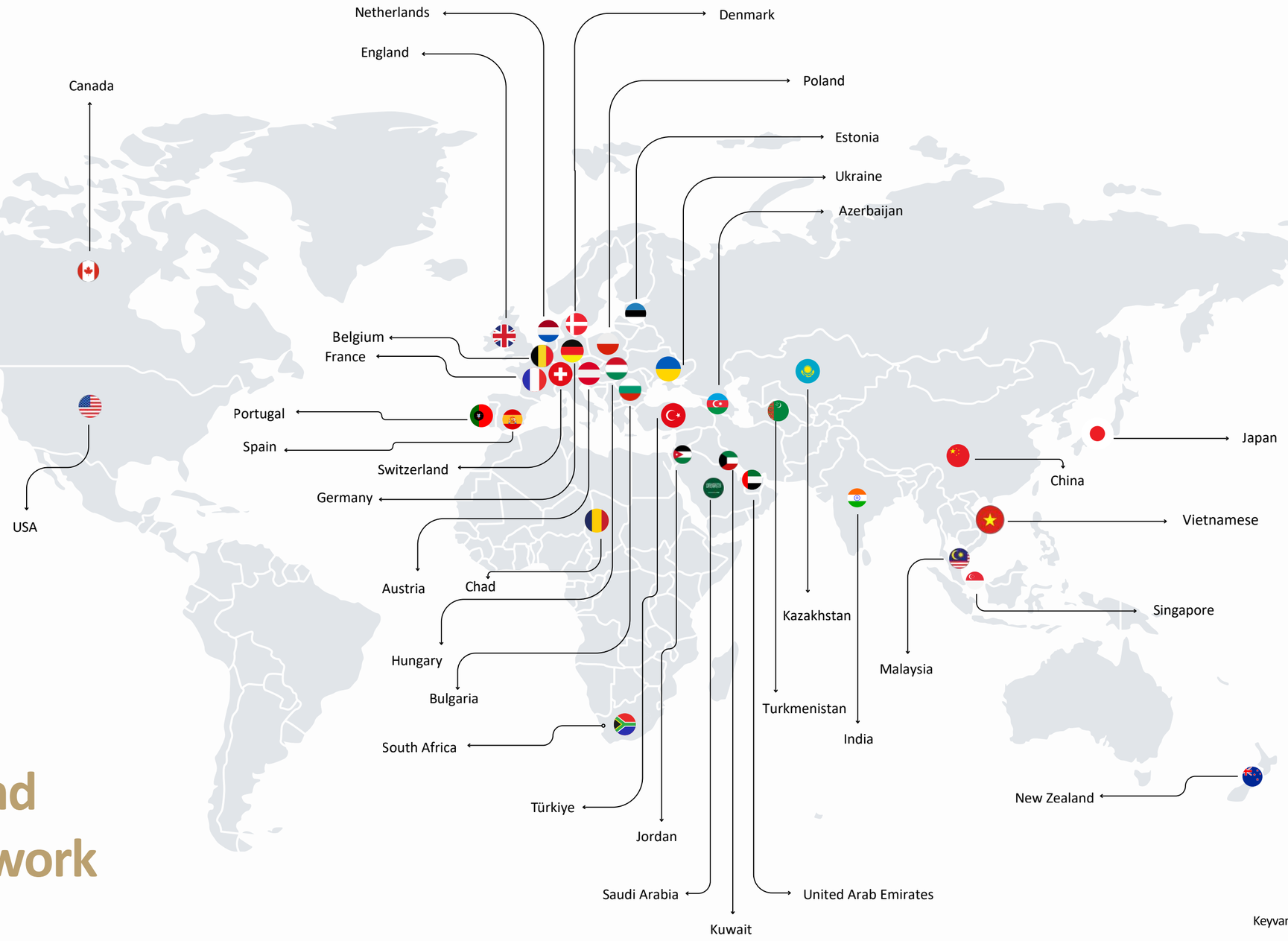
Crafted by a Globally Recognized Aviation Company
Our work is not just a product; it's a testament to our worldwide reputation. We are a company known and respected across the globe.

Around-the-Clock Customer Support
We understand the significance of your concerns and inquiries. That's why our dedicated customer support operates 24/7, ensuring your questions are promptly addressed.

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+30

Our Global Customers and Partners Network



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Collaborations



KEYVAN & GE Aerospace



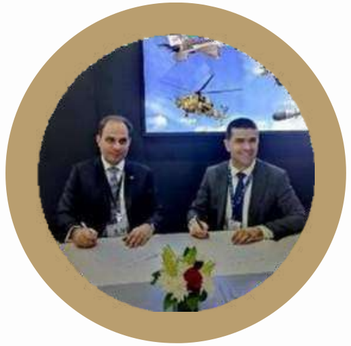
KEYVAN & TUSAŞ



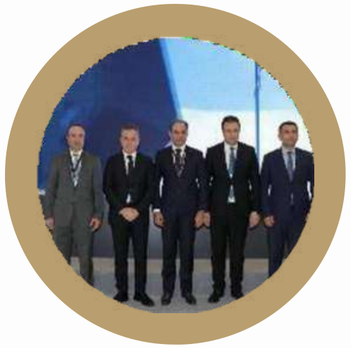
KEYVAN & ASFAT



KKEYVAN & COMAC



KEYVAN & BITES



KEYVAN & ASELSAN



KEYVAN & MAINLINE

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Memberships

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KEYVAN
AVIATION

THANK YOU

For any questions you may have,or clarifications you may require related to our Airport Performance Measurement & Management Tools, please kindly contact:

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/Keyvanaviation

