The key objectives of the Single European Sky initiative are to:

- Restructure European airspace
- Create additional capacity; and
- Increase the overall efficiency of the air traffic management system

The major elements of this new institutional and organisational framework for Air Traffic Management in Europe consist of:

- Separating regulatory activities from service provision, and the possibility of cross-border Air Traffic Management services
- Reorganising European airspace so that it is no longer constrained by national borders
- Setting common rules and standards, covering a wide range of issues, such as flight data exchanges and telecommunications

For further information on the Single European Sky, visit the European Commission website.
Honeywell as a key ATM stakeholder

As a global aerospace technology leader, Honeywell has been applying our ATM thought leadership and development expertise to pioneer a number of technologies to support the modernisation of the world’s airports and air traffic system.

In the air, on the airfield or at the terminal, Honeywell’s technologies increase airport access and capacity, improve routing efficiency, reduce operating costs and maximise safety, making intelligent airports and aircraft a reality for the next generation ATM system.

The breadth of our technological expertise (refer to figure 1) covers the entire avionics spectrum with a strong position on integrated cockpits, flight management systems, airborne radios, satellite communication and navigation, data link communications and ADS-B, making Honeywell ideally positioned to provide an innovative industry vision for the future and lead development and deployment projects.
**The ATM EcoSystem by Honeywell**

- **SmartPath GBAS™** increases throughput and reduces fuel burn.
- **SmartTraffic™ Collision Avoidance and Traffic Situational Awareness**
- **SmartLanding®** warns the pilot of an unstabilised approach or long landing.
- **Integrated Airfield Lighting** mitigates runway and taxiway errors.
- **Ground Vehicle Tracking/Management** optimises safety, security and turnaround.
- **SmartRunway®** mitigates runway incursions and taxiway take-offs.
- **Visual Docking Guidance** avoids gate error and ramp mishaps.
- **EGTS (co-developed with Safran)** reduces fuel burn by ~4%.
- **The Enterprise Control Centre** enables terminal-wide systems management.
- **Integrated Security** assures swift detection, analysis and response.
- **Total Energy Management** optimises comfort, health and cost control.
- **Integrated Life Safety** expedites location-specific response.
- **Honeywell Life Safety products** protect ground personnel from head to toe.
- **Performance Based Navigation** increases operational efficiency through more direct routings.
- **Performance Based Navigation solutions** calculate and execute optimal airport approaches.
- **SmartPath GBAS™** increases throughput and reduces fuel burn.
- **SmartLanding®** warns the pilot of an unstabilised approach or long landing.
- **Integrated Airfield Lighting** mitigates runway and taxiway errors.
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Honeywell in SESAR

Honeywell is one of the fifteen founding members of the SESAR Joint Undertaking. We are currently developing next generation Air Traffic Management and Avionics technology in 28 different SESAR projects. Honeywell is leading a consortia of SESAR members in the following projects:

1. SESAR 9.19 SWIM Air Ground capacity – System Wide Information Management (SWIM) is a new communication concept which will facilitate data sharing throughout the ATM ecosystem with significant operational and security benefits.

2. SESAR 9.21 ADS-B higher performance study - to identify and evaluate potential solutions or mitigations to the 1090 MHz capacity issue in order to meet the required effective update rate, surveillance range, and data capacity (i.e. ability to transmit more bits) required by ASAS applications.

3. SESAR 9.22 Mid & Full range ADS-B capability – to develop and evaluate the high level functional, operational, system and performance requirements (integrity, accuracy, availability, continuity) of the next generation of ADS-B Out data link service to support future ATM services and applications.

4. SESAR 9.28 Enhanced Vision Solutions – to develop Enhanced Vision concepts to enable more efficient approach, landing and taxi operations in conditions of low visibility. This work has been successfully completed. A benefit study showed significant advantages for Air Traffic Capacity in bad weather conditions, including reductions in flight cancellations, diversions and delays.

5. SESAR 9.29 Enhanced and Synthetic Vision – to develop and validate Enhanced and Synthetic vision concepts to enable more efficient approach, landing and taxi operations in conditions of low visibility. This work follows on from project 9.28.

6. SESAR 9.47 TCAS evolution – to develop TCAS solutions to enable aircraft to operate in the future ATM environment while leveraging additional surveillance information (ADS-B).

7. SESAR 9.39 Continuous Climbing Cruise – to optimise fuel consumption through improved vertical trajectory management during cruise in oceanic and remote areas.

The SESAR Joint Undertaking

The SESAR initiative sees the involvement of a range of different groups and bodies, and significant financial resources and technical expertise. In light of this, a legal entity (pursuant to Article 171 of the Treaty) was established to oversee activities and ensure the appropriate management of funds assigned to the SESAR project during its Development Phase.
In addition Honeywell is also active in developing airborne solutions in close cooperation with Airbus, in particular:

1. Development and validation (flight test) of the Honeywell FMS prototype for Initial 4D (i4D) under SESAR 9.1. This Initial 4D concept has been successfully validated with a flight test in February 2012. Honeywell’s FMS was the world’s first to demonstrate this capability.

2. Develop the new Traffic Computer prototype to enable Interval Management. This concept was successfully validated during a flight test in November 2012.

Honeywell is also developing prototypes of GBAS Cat II/III airborne receiver (precision landing using augmented GPS and Galileo signals) and Multi GNSS receiver (GPS and Galileo signals). This technology provides airport surface alerts to increase safety on the runways and taxiways, developing core CPDLC data link services for departure clearance, and providing AIS and MET information to the crew and avionics systems during flight.

We are looking at 4D trajectory techniques which enables efficiency optimisation during all phases of flight, bringing our avionics expertise to help define 4D trajectory concepts of operation. We are developing leading-edge technologies for flexible communication avionics that will enable the future multilink concept, with SatCom, broadband, and terrestrial data link networks.

Honeywell also contributes in WP11.1, addressing Flight Operation Center services for business aircraft operators. Honeywell brings a unique and valuable perspective by defining and validating the introduction of ATM improvements in Business Aircraft cockpits.

Honeywell in Europe

Honeywell Aerospace has over 35,000 employees located at sites across Europe, with R&D facilities in the Czech Republic, France, Germany and the United Kingdom. A major portion of Honeywell’s advanced research and development in Europe is carried out by Honeywell Advanced Technology Europe (ATE).

Established 6 years ago ATE employs now almost 150 highly skilled engineers and scientists at sites in Toulouse, Prague and Brno. These teams are actively involved in SESAR related research work including: Flight Management Systems (FMS), multi GNSS receiver, 4D trajectory management, UAS, EFBs, Satcom, Air-Ground SWIM, AIS MET, ADS-B In/Out, Combined (Synthetic and Enhanced) Vision technology, Vehicle and Structure Health Management technologies, and a range of simulation tools.

Last but not least, we bring in our expertise to develop airborne architectures, avionics interoperability roadmaps, and maintain standardisation and regulatory roadmaps.

Honeywell has played a constructive role in building up the SJU team from the moment we have become a member. We have contributed to the program management plan, ATM Master Plan, and have achieved exemplary results in program management and quality of results.
Honeywell Aerospace

For more than 100 years, Honeywell has been a pioneer in aerospace innovation. Every minute of every day, aircraft with Honeywell technologies fly across our skies. In fact, our products can be found on virtually every type of commercial airliner, business and general aviation jet, military aircraft and space vehicle in operation today. From takeoff to landing, Honeywell solutions help make flying safer, more reliable, more efficient and more cost effective.

For more information on Honeywell Aerospace, visit us online at aerospace.honeywell.com

For more information on our ATM Solutions visit aerospace.honeywell.com/atm or email atmsolutions@honeywell.com