



- DLR Position Paper -

Consultation on Aviation Strategy 2015



Introduction

Aviation as key driver for economic growth, jobs and trade is expecting to grow by 5% per year globally at least till 2020 and beyond. According to the European Vision for "Aviation Flightpath 2050" the aviation sector will be guided by the two top level goals:

- Serving societies' needs
- Maintaining global leadership

In the vision the top level goals are broken down into the following 5 challenges:

- Meeting Societal and Market Needs
- Maintaining and Extending Industrial Leadership
- Protecting the Environment and the Energy Supply
- Ensuring Safety and Security
- Prioritising Research, Testing Capabilities & Education

On that basis the Advisory Council for Aviation Research and Innovation (ACARE) composed by representatives of the entire aviation sector (airlines, airports, air navigation service providers, aeronautical manufacturing, research centers, academia, member states and European Commission) developed its Strategic Research and Innovation Agenda (SRIA) with detailed description of enablers, capabilities, metrics as well as research and innovation in order to achieve the goals and challenges set in the vision.

With respect to the planned EU aviation strategy and on the basis of the questionnaire published by the Commission, DLR would like to highlight some aspects on the basis of the vision and SRIA in more detail. These will tackle:

- Aviation capacity
- Environment
- European Leadership

Aviation Capacity

In order to cope with the expected growth of air transport the capacity in Europe will have to meet the expanding demand in the air and at airports through high utilisation levels, highly efficient operations, optimal routing, all-weather capabilities and through night operations enabled by ultra-quiet aircraft. In order to increase the capacity of the European air transport system two main topics need to be addressed:

- The European ATM System
 - Airport Capacities
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With respect to the European ATM system several measures have already been initiated. On political level the European Union decided to establish the Single European Sky (SES) to overcome fragmentation of European Air Space and its management. This political step is being supported technically by the Single European Sky ATM Research (SESAR) Initiative.

Whereas within SESAR new technologies are being developed and demonstrated, the implementation of these new technologies is hampered by the still not implemented Single European Sky on political level. A big step towards the Single European Sky would be the realisation and implementation of the also already decided Functional Airspace Blocks (FABs).

In order to increase the capacity of the European Airspace DLR recommends:

The European Union should ensure appropriate resources for research, innovation and deployment covering the entire research and innovation chain from new ideas, technology developments, technology and system demonstration. These key drivers are currently foreseen with SESAR 2020 and its three pillars (Exploratory research, Industrial research, Demonstration) funded by Horizon 2020 and the SESAR deployment funded out of the Connecting Europe Facility (CEF). Budget cuts in H2020 and CEF should therefore be avoided, as this will hamper the technological basis for the future single European Airspace system.

On the political side the realisation of the Single European Sky should have highest priority. European Commission and Member States need to work to realise the Functional Airspace Blocks, as on that basis also the SESAR deployment could be performed on a better harmonised European Air Traffic Control system.

With respect to the European Airport Capacity one has to acknowledge that the creation of new airports or even new runways in regions with already high air transport demand is challenging because of limited areas and social acceptance. Therefore it is important to improve the capacity of existing airports, for example by all-weather capabilities and through night operation. Such a 24/7 air transport system, as also described in the EREA Future Sky White Paper, can only be realised if the necessary new technologies will be available when needed. According to Flightpath 2050, the ACARE SRIA and the EREA Future Sky Initiative and complementary to the short and medium term oriented Clean Sky Initiative, long term research will have to be supported on European, national and regional level by all public and private stakeholders. Research fields are Aviation Safety, Aviation System Stability and Predictability Management under high load conditions and Aviation System Integration as well as mitigation of Aviation Noise and Emissions to save Energy and Environment.

Despite Security is a major part in Flightpath 2050 and the ACARE SRIA, one could detect a lack of coherent actions on European level, as security is handled within the European Commission by DG Home. As also on national level security issues are tackled by ministries different for those responsible for aviation technology and/or policy, DLR would welcome a better combination of the existing activities for aviation research and technology with aviation security related topics.

Apart from research and development the integration of the air transport mode into a global co-modal transport system is a further mean. The integration of air, rail and car transport as e.g. realised at Frankfurt airport with its direct links to the German High Speed Rail net and the German highway system together with Lufthansa's ticketing system covering high speed trains and flights are important co-modal mechanism to increase air transport capacity. Therefore the European Commission and Member States should work on appropriate political boundary conditions, in order to allow Member States and Regions to develop their airports to be able to offer their passengers a seamless full multi-modal travel experience.

Environment

As outlined in the already mentioned vision and strategy documents (Flightpath 2050, ACARE SRIA, EREA Future Sky) the future Air Transport System will have to be environmentally friendly and sustainable. Several measures are already in place, like the Clean Sky Joint Undertaking, which is focusing on close to market green aviation technologies. These close to market activities need to be supported by adequate long term precompetitive research and development in order to feed the Clean Sky Initiative also in the future with new technologies and

DLR therefore recommends

The European Union should ensure appropriate resources in Horizon 2020 for long term aviation research complementary to the Clean Sky Joint Undertaking, in order to cover the entire research and innovation chain from new ideas, technology development and demonstration up to system wide demonstration. Budget cuts on H2020, which will endanger the future technology basis, should therefore be avoided.

On the political side this could be supported by internationally applied market mechanisms (Emission trading, noise related fees, etc.) as currently discussed for emission trading at ICAO. Activities limited to only European stakeholders should only been set-up in order to better align with international standards. Disadvantages for European Stakeholders should be avoided.

European Leadership

As outlined by the European Commission in its background document, the global aviation landscape is changing. Apart from the increased demand for air travel in emerging economies, new and powerful competitors are entering the aviation market. The European Competitiveness and industrial leadership needs to be fostered by a comprehensive approach.

According to the already mentioned strategy documents (Flightpath 2050, ACARE SRIA, EREA Future Sky) the aviation sector needs a sound technological basis in order to maintain its global leadership. This can only be created and maintained if the entire research and innovation chain is supported continuously, as only such a permanent running system can provide new knowledge, technologies and processes for a competitive European industry.

With its big initiatives Clean Sky 2 and SESAR 2020 the European Union has created two flagships with mainly close to market research and innovation. Whereas SESAR 2020 is tackling technical arm of the Single European Sky, Clean Sky 2 is working and supporting the development and demonstration of aircraft technologies and thus a currently world leading European manufacturing industry. In order to ensure a continuous chain of new technologies for the next generations of aircraft these efforts will have to be complemented by adequate resources for long term research as outlined in the EREA Future Sky document within Horizon 2020 and other programmes.

DLR would therefore welcome dedicated support by H2020 for the EREA Future Sky initiative in order to ensure the long term technological basis for a competitive European aviation industry.

Conclusions

A major part of the envisaged EU aviation strategy has already been laid down in recent documents like Flightpath 2050 and ACARE SRIA by all European Aviation stakeholders. As DLR (together with its partners in EREA) is a major stakeholder in ACARE, DLR is committed to support the implementation of the ACARE SRIA in order to achieve the Flightpath 2050 goals, which should be also core parts of an EU aviation strategy.

Such an aviation strategy should include political goals (realisation of SES) and technological goals (Adequate resources for research and innovation on European scale) as outlined above.

DLR is willing to continue to further support the EU and the European stakeholder in order to create a sound technological basis for a competitive European aviation industry.

DLR at a glance

DLR is the national aeronautics and space research centre of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport and security is integrated into national and international cooperative ventures. In addition to its own research, as Germany's space agency, DLR has been given responsibility by the federal government for the planning and implementation of the German space programme. DLR is also the umbrella organisation for the nation's largest project management agency.

DLR has approximately 8000 employees at 16 locations in Germany: Cologne (headquarters), Augsburg, Berlin, Bonn, Braunschweig, Bremen, Goettingen, Hamburg, Juelich, Lampoldshausen, Neustrelitz, Oberpfaffenhofen, Stade, Stuttgart, Trauen, and Weilheim. DLR also has offices in Brussels, Paris, Tokyo and Washington D.C.

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Contact

Dr. Uwe Möller
Head Brussels Office

DLR German Aerospace Center
Brussels Office
Rue du Trône 98
1050 Brussels
Belgium
Email: uwe.moeller@dlr.de
Phone: +32 2 500-0842
Fax: +32 2 500-0840
