

EUROPEAN AVIATION COMPETITIVENESS

The European Air Transport sector must continuously innovate to remain globally competitive against strong competition from North America as well as emerging economies. The shift of economic power to the East implies new markets for the European industry, but at the same time new competitors will emerge from Brazil, Russia, India, and China. Some of these states view aviation as a strategic sector, which implies strong governmental support for the respective companies. For Europe, a strong aviation sector is vital to compete effectively on a global scale.

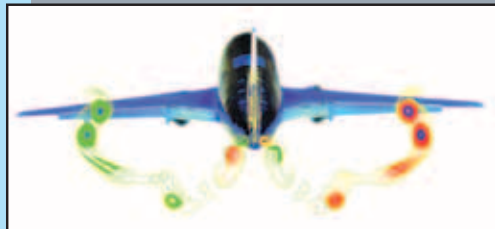
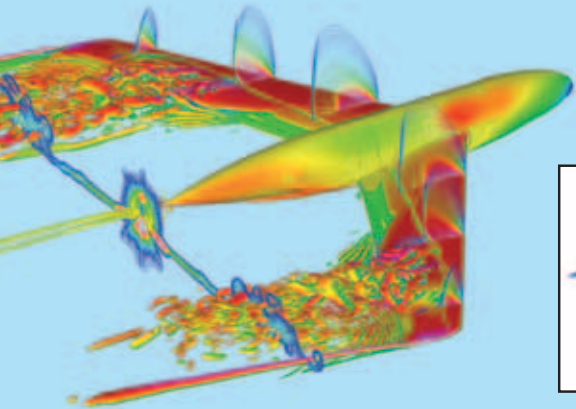
Managing the evolution of the supply chain of the future will be a key element in Europe's success. For the industry as a whole, a concentration on core competencies and high value-added activities will be key success factors.

There is an additional urgent need for a new commitment to global cooperation (e.g. with the US and with emerging new competitors) to help European industry address the technological challenges. Developing a strategy for clear "win-win situations" will help aviation better serve the needs of society.

The existing ACARE Vision 2020 and associated Strategic Research Agendas (SRAs) have successfully steered European aeronautics research in recent years. The ability of the European Air Transport industry to meet future challenges will only be possible with a strong commitment to the vigorous evolution of current technologies and achieving new breakthrough technologies. There is now a need to set new priorities for an extended timescale towards 2050.

R&T is an area where public and private authorities can combine their efforts most effectively at the European as well as national levels. This is especially relevant in the search for urgently needed technology breakthroughs. One way of dealing with this obstacle is to optimise the support processes for research. An appropriate share of funding should be allocated to R&T support, proving technological capability by demonstration, and then entering the (market financed) development process. This would shorten development times, reduce costs and risks, and implement more efficient solutions in the marketplace.

Europe needs an efficient, flexible and user-friendly support system for Research & Development with appropriate funding necessary to generate the required levels of innovation.



RECOMMENDATION

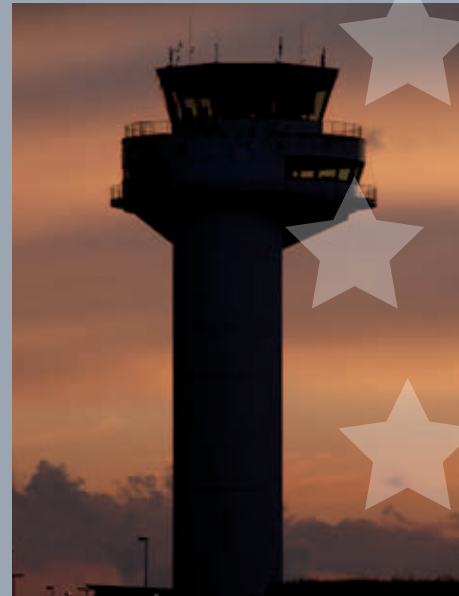
ACARE recommends that for Europe to remain at the heart of the global aviation sector, policymakers must build on the substantial results the sector has achieved since setting the 2020 Vision. In view of the changing landscape of challenges that faces Air Transport since 2000 and with the prospect of new and greater challenges emerging in future, the formulation of a timely new vision beyond 2020 for the horizon towards 2050 is essential.

The need for new knowledge and solutions has never been greater. Hence, a new European vision is vital if Europe is to play its part in helping to meet the needs of society and in order for Europe's Air Transport sector to maintain its lead in Aeronautics.

A new vision 'Towards 2050' is essential and must be established at the highest level within Europe to set a strategic direction for European Aeronautics and Air Transport on the revised horizon.

The background document will be available on the ACARE website as of April 2010.

www.acare4europe.org



Advisory Council for Aeronautics
Research in Europe
ACARE

AERONAUTICS AND AIR TRANSPORT

BEYOND VISION 2020 (TOWARDS 2050)

The Strategic Research Agenda supporting Vision 2020 has paved the way for significant improvements in sustainable, reliable, affordable and passenger-friendly aviation to reduce the environmental impact of air travel across the world.

However, since 2000, the perception and requirements of air transport have changed significantly. An ambitious high-level vision, beyond 2020, is now needed to focus available resources on European aeronautics and air transport research for the delivery of solutions to meet the challenges for the future.

This document is intended to act as a catalyst for high-level decision-makers to stimulate further analysis with the aim of building a challenging vision for European leadership in global aviation towards 2050, responding to the needs of Society and the citizens of Europe.

François QUENTIN and Joachim SZODRUCH,
ACARE co-Chairmen



Aviation has dramatically transformed society over the past 100 years. The economic and social benefits throughout the world have been immense in “shrinking the planet” with the efficient and fast transportation of people and goods. The growth of air traffic over the past 50 years has been spectacular, and will continue in the future, particularly in the growing markets of the Far East.

The European Air Transport sector, made up of civil Aeronautics and Air Transport, generates a turnover in excess of Euro 94 billion and represents a pinnacle of manufacturing which employs almost half a million highly skilled people directly and spinning-out technology to other sectors. About 2.6 million indirect jobs can be attributed to air transport related activities and a contribution of around Euro 240 billion to gross domestic product. The Aeronautics and the Air Transport sector is a key strategic economic domain for Europe.

A European Vision for Aeronautics and Air Transport in 2020 was launched by Commissioner Busquin in 2000. This established a vision to meet the needs of society, while maintaining European global leadership in aeronautics. This vision led to the formation of ACARE (the Advisory Council for Aeronautics Research in Europe) to define a Strategic Research Agenda (SRA) and make the vision a reality. The SRA provides strategic goals and Research & Technology (R&T) roadmaps for proposed solutions to achieve the objectives outlined in Vision 2020.

The SRA goals have had a clear influence on current aeronautical research. There is strong evidence of a vigorous programme of Aeronautics and Air Transport research, which is already delivering important initiatives and benefits for the aviation industry, including: EU collaborative research in Aeronautics and Air Transport (EC's Framework Programme research), the Clean Sky Joint Technology Initiative, the SESAR Joint Undertaking, national programmes in many Member States and research establishments as well as private company programmes.

ACARE has shown the combined strength of working together across the whole community of industry, research establishments, universities, governments, regulatory authorities, and the European Commission. This collaborative framework needs to be maintained to help develop an even more successful future Aeronautics and Air Transport System in Europe.

TOWARDS 2050 - NEW CHALLENGES

Since 2000, society's perception of Air Transport has changed following the dramatic events of 11th September 2001, growing environmental awareness, the rise of oil prices in 2008, and the recent financial crisis. In the future, aviation is likely to face even more radical challenges - with some arising from its own success.

ENVIRONMENT



Climate change is a major societal and political issue and is becoming more so with future emissions-related regulation expected to become more prevalent than today.

Tough challenges lie ahead. Globally civil aviation emitted 666 million tonnes of CO₂ into the atmosphere in 2008 representing some 2% of man made CO₂ emissions. Non-CO₂ emissions including oxides of nitrogen, and condensation trails which may lead to the formation of cirrus clouds, also have impacts but require better scientific understanding. In response to the likely volume of activity in the future, aviation must bring about step changes in technology and operational procedures on top of the currently available solutions, to improve its environmental performance by keeping total climate effects at sustainable levels. However, any reduction in absolute emissions from Air Transport will be difficult to accomplish and represents a major challenge.

Reducing disturbance around airports is also a challenge with the need to ensure that noise levels and air quality around airports remain acceptable.

Aviation is directly impacted by energy trends. As with other sectors, aviation is dependent on, and will have to deal with, energy availability in the coming

decades to continue as an important development factor in future societies. Aviation will have to develop long-term strategies for energy supply - including alternative fuels - that will be technically suitable and commercially scalable as well as environmentally sustainable.

Environmental trade-offs, including those between emissions and noise, will have to be balanced to find optimised solutions for the whole Air Transport System and its sub-systems of the future. A European interdependency modelling capability is needed for this task.

An effective way to respond to the environmental pressure would be to improve the environmental performance of aviation in the market place by redirecting resources generated through the aviation emissions trading scheme towards the development of Research & Technology and deployment of the most efficient technological innovations. In this regard, any aviation emissions trading schemes should be applied at a global level and prove their long-term economic and environmental viability.

With the aim of a global solution, International Civil Aviation Organisation (ICAO) is promoting effort in four key areas: improved technology, efficient operations, effective infrastructure and positive economic measures. Similarly, the International Air Transport Association (IATA) has declared a target to stabilise net CO₂ emissions (carbon neutral growth) by 2020 with a long-term aspirational goal to reduce aviation net carbon emissions by 50% in 2050 compared to 2005 level.

The Copenhagen Accord “noted” by the United Nations in December 2009, highlights that “...deep cuts in global emissions are required ...to hold the increase in global temperature below 2 degrees Celsius.” ICAO is seeking the mandate to implement the necessary actions for aviation.

Europe must play a major and leading role in the definition of global aviation's approach to sustainability.

A CHANGING WORLD

The role of Air Transport has never been more important to society, and it is vital that aviation is prepared to meet the challenges of a changing world.

With changing demographics and increased urbanisation, society towards 2050 will need more long-range transport to connect markets and people. Passenger travel will increase with growth in business and social-related mobility (dependent on the population being able to afford air travel). This continuing growth in demand will bring increased challenges for dealing with mass transportation and congestion of infrastructure.

Transport will increasingly become a place for work, commerce, leisure, and meeting others. Some travel needs may disappear because of teleconferencing and virtual access to knowledge, but Information and Communication Technology development will add to the opportunities for interaction and ultimately contribute to transport demand.

Global forecasts show a potential demand for some 25,000 new passenger and freight aircraft between 2008 and 2028 representing an orderbook value of Euro 3 trillion. This will be driven by the need for more fuel efficient and eco-efficient vehicles to handle additional capacity as well as for the replacement of older generation aircraft. Important changes in infrastructure and operations will also be needed.

Air Transport will have to find innovative ways to meet the future needs of society for mobility. This “new version” of aviation must be competitive and complementary with other transport modes.

Europe, with its unique infrastructure, is able to develop advanced multimodal transport solutions including an appropriate role for aviation in order to provide safe, affordable and sustainable transportation.

FINANCIAL PRESSURE

The world economy has been in a deep downturn. GDP growth rates in 2009 have been the lowest since the Second World War. However, there are good reasons to expect a recovery to normal growth rates of world GDP and air travel demand.

Aerospace is one of the most research-intensive sectors in Europe, and despite tough times, more than 12% of its turnover is dedicated to Research & Development. However, the scale of the challenge is such that securing financing for vital new programmes and technologies will be a major issue for the future, especially as capital markets will in all likelihood remain tight in the medium term.

The oil price peak of 2008 is not an isolated event. Increasing and volatile oil prices will shape the economy of the future and exert tremendous pressures on the industry, which will challenge existing airline business models.

Europe needs a suitable solution to overcome the economic crisis and ensure appropriate support for an efficient and sustainable Air Transport System.

