

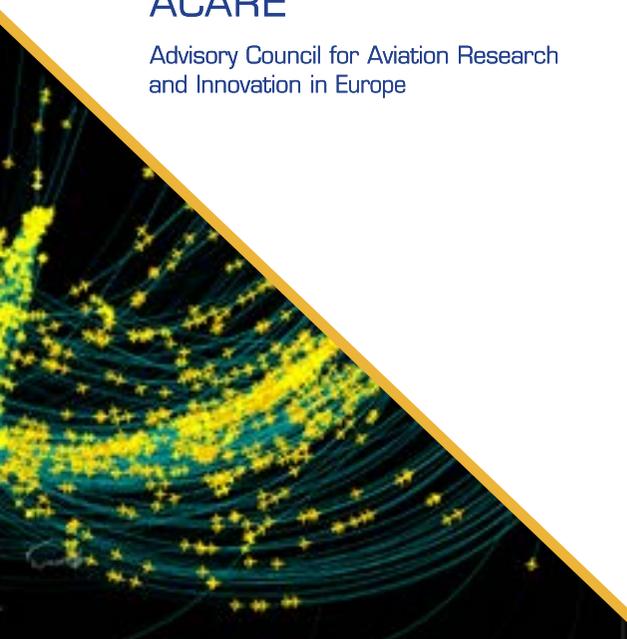
STRATEGIC RESEARCH & INNOVATION AGENDA

2017 UPDATE | EXECUTIVE SUMMARY



ACARE

Advisory Council for Aviation Research
and Innovation in Europe



DELIVERING EUROPE'S VISION FOR AVIATION

Strategic Research and Innovation Agenda – 2017 update Executive Summary

- ♦ Serving society's needs
- ♦ Maintaining global leadership

Advisory Council for Aviation Research and Innovation in Europe



FOREWORD

Aviation is recognised as one of the top advanced technology sectors in Europe and generates innovation that benefits society at large far beyond its direct operational sphere. It provides close to twelve million skilled jobs, directly and indirectly, and contributes over 700 billion euros to Europe's gross domestic product. Home to some 400 airlines and nearly 700 airports, European aviation plays a key role in serving society's needs for safe, secure and sustainable mobility in Europe and all over the world. Its impact on the wider European economy is significant and must be sustained.

European demand for air transport is anticipated to grow continuously until 2050 and beyond. Sustainable mobility is required to satisfy this growth and it is essential that travel remains safe, secure, fast, affordable and environmentally friendly. Industrial competition is fierce, not only from established world regions but also from new, strong challengers. In this context, there is more to be done in the regulatory field within and outside Europe to ensure a global level playing field in the sector.

In 2011 a European group of personalities set out a vision of European aviation with the publication of Flightpath 2050. In response to this, ACARE produced a Strategic Research and Innovation Agenda (SRIA) in 2012 that defined the path to reach these ambitious goals. Since then there have been many changes and developments that affect aviation directly and indirectly, and these justify the release of this new version which is updated and adapted to meet the new challenges.

We invite all public and private stakeholders in European aviation to consider the revised priorities set out in this document in their future research and innovation programmes.



Prof Rolf Henke
Board Member for Aeronautics, DLR
Chair ACARE

"Aviation sets the pace of a global community. The need for fast and safe transport, combined with challenging eco-environmental requirements, has advanced the European aviation sector towards world-leading technology in many fields. Representing all European stakeholders in aviation, ACARE has developed a roadmap towards the best system performance with minimum negative effects. Achieving these ambitious goals will require extensive research with long-term commitment. Only a combination of profound expertise, fresh insights and courage can yield the innovations we seek."



René de Groot
Managing Director & COO KLM
Vice-Chair ACARE

"Aviation makes a substantial contribution to our economies, connecting markets and people worldwide. Key and well considered policies and incentives will ensure that European air transport remains safe, clean and secure. Innovation is needed to be and remain competitive and deliver high quality services to the customers."



Michel Wachenheim
Policy Adviser to CEO, Airbus
Vice-Chair ACARE

"European aviation has a world lead in the manufacturing and services industry which is facing new challenges and ever increasing competition. Innovation will help preserve European capability, jobs and our valuable market share."

EXECUTIVE SUMMARY

Aviation: innovation for the benefit of society

ACARE has developed a strategic research and innovation agenda (SRIA) to meet the challenging goals set by Flightpath 2050. Research and innovation in aviation is the key to tomorrow's mobility and prosperity as well as environmental and energy challenges.

A customer-centric, integrated European transport system underpinned by common standards, innovative business models and smooth processes is essential for seamless, door-to-door journeys. Mobilising the diverse intellectual potential, resources and organisations within Europe is vital in developing the future state. Prioritising this advanced technology sector is critical to maintaining European competitiveness with developments in aviation frequently leading to spill-over applications in other sectors. Research and innovation excellence must be stimulated at the right time, which is now.

Commercial aviation has come a long way since the dawn of the jet age. Growth is anticipated to continue, particularly in developing economies, but also elsewhere: to improve connectivity for business and leisure, for visiting friends and relatives, and for high-value freight. It contributes to the geographical integration of Europe, hence supporting its economic and political integration. It is a unique industry which has a strong sense of working together across the globe, with common language, standards and practices.

In recent decades the sector has demonstrated significant achievements in the transport arena, with major improve-



ments in safety and security and impressive reductions in environmental impact, in particular emissions and noise. Advances directly benefit commercial aviation but improvements are also clear for other airspace users, search and rescue, emergency and public safety applications as well as the recreational market. This covers a diverse range of aircraft types including general aviation and rotorcraft.

Passenger numbers are expected to double in the next 20 years. Current aviation ground infrastructure will not be able to accommodate the coming traffic volumes. The demand for service to regional and urban areas has increased with the liberalisation of the European marketplace. A greater number of vehicle movements will require further developments in safety and security. Remotely-piloted aircraft

systems (RPAS) need to be integrated in the overall system. This means that tomorrow the sector will have a whole new set of requirements to fulfil. In this context, research and innovation is expected to lead to disruptive technologies across many fields including aircraft configurations, engines, equipment and systems, materials, alternative energies, infrastructure, electronics, digitalisation and IT systems as well as human-machine interfaces to name a few. Sustainable development is key.

In summary, the sector will need to develop solutions to support the Flightpath 2050 goals in order to satisfy mobility needs of European citizens in a sustainable manner, to strengthen the economy and to ensure that 'the industry lead in this advanced technology sector is maintained'.

A DYNAMIC STRATEGIC RESEARCH AND INNOVATION AGENDA

The ambitious goals of Flightpath 2050 remain valid to deliver two aims: firstly to serve society's needs for safe, more efficient and environmentally friendly air transport; and secondly, to maintain global leadership for Europe in this sector with a competitive supply chain and competitive operators. The roadmap to achieve these goals can be met by addressing the following key challenges:

- ◆ **Challenge 1:** Meeting societal and market needs
- ◆ **Challenge 2:** Maintaining and extending industrial leadership
- ◆ **Challenge 3:** Protecting the environment and the energy supply
- ◆ **Challenge 4:** Ensuring safety and security
- ◆ **Challenge 5:** Prioritising research, testing capability and education.

Since 2012 a number of external factors and boundary conditions have changed, and together with other developments have prompted ACARE to update the SRIA. Examples of these trigger factors are:

- ◆ Repercussions of events such as MH370, MH17, Germanwings 9525 where they may affect research and innovation or policy

- ◆ Cybersecurity threats, e.g. to aircraft equipment or ATM systems
- ◆ Developments in digitalisation and big data
- ◆ Future stringency in emissions standards for CO₂ and ultra-fine particles
- ◆ Increased importance of noise annoyance and health impacts
- ◆ New mobility system concepts, stakeholders, business models and vehicle types including RPAS (remotely-piloted aircraft systems)
- ◆ Increased competitiveness challenges for European air transport stakeholders
- ◆ New technologies, materials, manufacturing processes and system concepts vital for the European aviation sector
- ◆ Emerging hazardous substances legislation affecting certified aviation processes and products
- ◆ Availability of appropriate research and test infrastructure
- ◆ Availability of a capable work force

Furthermore, research undertaken since the first edition of the SRIA by European, national and regional programmes, both private and public, needs to be considered.

Innovation in aviation is complex, capital-intensive and takes time. Typically, fifteen years can elapse from the generation of a new idea to technology being fully developed for application on the next generation of air vehicles. A shift to more customer-centric and lower-carbon operations has to be achieved. Specific challenges arise from stringent certification requirements consistent with the paramount importance of safety in the sector. This requires many changes, including new operational concepts, alternative fuels fit for the future and so on. Infrastructure development is dependent on the availability of excellent research, testing and validation capabilities. Furthermore future aircraft and systems will require a paradigm shift in methodologies for certification and testing, platform integration and full-scale demonstration.



International cooperation

It is vital that new developments take into account the international nature of commercial aviation. This document contains many references to the importance of globally aligning policies, standards and practices to ensure seamless introduction of new technology and trouble-free operations.

Globalisation presents many opportunities for the European aviation sector. However, this requires a level play-

ing field so that all parts of the industry can compete fairly with the rest of the world, whether established organisations or new entrants that may benefit from specific support.

ACARE activities include the development of comprehensive and up-to-date strategies to manage international cooperation. This has identified key partners, as well as the potential for new alliances with selected third countries.

Fostering implementation

ACARE has developed a comprehensive roadmap to deliver the Flightpath 2050 goals, and as part of this it will continue to foster the need to monitor achievements and progress on the SRIA objectives.

As an example, in 2015 the ACARE working group on energy and environment estimated that we had secured an overall 38% reduction in CO₂ per passenger kilometre against a goal of 50% reduction goal for 2020. Similarly, technical solutions showed a potential reduction of 37% in perceived noise has been achieved against a goal of 50%, also by 2020. Whilst this represents significant progress, effort must be further strengthened to meet the even more challenging goals for CO₂, noise and NO_x emissions set for 2050.

Part of ACARE's brief is to monitor progress towards Flightpath 2050 goals, and a number of steps have been taken to do this. It is essential to have continued support from the EC, Clean Sky, SESAR Joint Undertaking, Coordination and Support Activities and other organisations to ensure a picture that is complete and up-to-date, and to enable identification of further gaps in research to be addressed. New generations of aircraft under development integrate many technologies that contribute very significantly to the ACARE goals: new aerodynamics, weight savings, new engines, computing capacity, air traffic management and operational benefits, and so on. Monitoring of progress in implementation is ongoing, and in the mid-term will continue to focus on technological developments, including RPAS (remotely-piloted aircraft systems), as well as broader collaboration with European Technology Platforms and other key organisations.



Supporting the needs of Europe and its member states

ACARE is working actively to promote inclusivity across European, national and regional levels. This can only be done taking into account differing socio-political and sustainability considerations, and needs to be supported by a comprehensive policy framework designed to enhance synergies and exploit complementarities.

ACARE provides a platform for dialogue between industry, research establishments, academia and other aviation stakeholders, member states and regions together with the European Commission with its various bodies (JU, JTI etc.). It is essential to harmonise and promote research,

technology and innovation thereby facilitating cooperation and collaboration. New trends must be detected and managed with strategic positioning and dissemination. The dialogue extends outward to other modes of transport and to research in different fields such as the digital economy and energy.

Recommendations and outcomes from this platform have been taken up by the different challenges and are incorporated throughout the SRIA. Future activities will continue to ensure a joined-up perspective that embraces all players for the benefit of European aviation.

The development of effective and efficient aviation policy and regulatory frameworks within Europe is necessary to address, in particular, governance, funding and financing issues. This is a prerequisite for delivering the Flightpath 2050 vision.

The precise timing for implementation of innovative solutions into new air vehicles, operations and services will be driven by the willingness of society to accept the change, the capacity of the market to afford the change and the capability of innovators to deliver it.

The previous SRIA document detailed a roadmap phased over three timescales: short-term (2020), medium-term (2035) and long-term (2050). This document develops this dynamic to present action areas covering these timescales and maintaining the overall objective to deliver the Flightpath 2050 goals.

The following sections provide a brief overview of the five challenges in which research must be conducted. The main SRIA document follows the Executive Summary and comprises Volume 1 which contains the full text with comprehensive descriptions of each of the action areas. Volume 2, which will have more specific details on research and innovation areas, will be published separately.



CHALLENGE 1

Meeting societal and market needs

Meeting societal and market needs is about true journey-wide customer-centric mobility for both passengers and freight.

This means that passengers, freight forwarders and shippers must be the clear focus of the transport sector in which aviation is a key player. This requires a paradigm shift from the current perspective, centred on the service provider, to one in which the customer comes first.

This must cover all segments of the door-to-door journey providing the highest possible level of performance and predictability. Core values in an advanced and innovative transport environment are collaboration, co-operation and data sharing giving customers access to reliable, timely and unbiased information. Society requires seamless connection across the different transport modes that make up a door-to-door journey.

The demand for both business and leisure travel continues to increase. At the same time, society and customers require mobility to be efficient and sustainable. In addition, air transport is expected to further support economic growth.

All these aspects must be facilitated by the design and implementation of a resilient, sustainable and customer-centric intermodal transport system that meets European mobility goals and regulatory demands.

The three key areas of Challenge 1 are: design of a customer-centric intermodal transport system; travel process management; and integrated air transport. These lead to the action areas for Challenge 1.

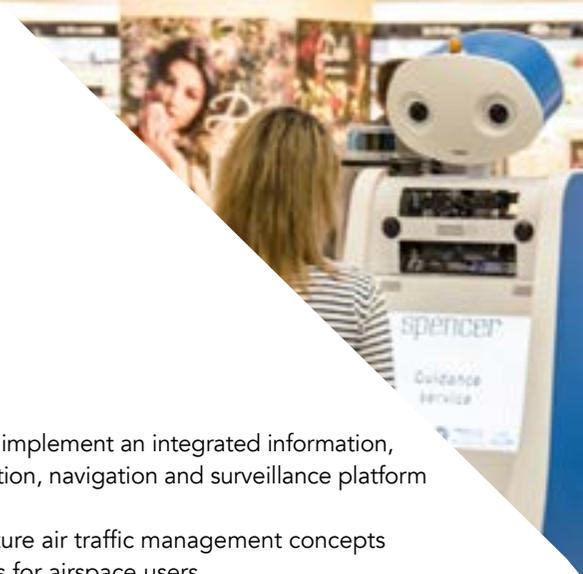
Action areas for Challenge 1

- 1.1 Understand customer, market and societal expectations and opportunities
- 1.2 Design and implement an integrated, intermodal transport system
- 1.3 Develop capabilities to evaluate mobility concepts, infrastructure and performance
- 1.4 Provide travel management tools for informed mobility choices
- 1.5 Deliver mobility intelligence: journey information, data and communication
- 1.6 Provide tools for system and journey resilience, for disruption avoidance and management
- 1.7 Evolve airports into integrated, efficient and sustainable air transport interface nodes

- 1.8 Design and implement an integrated information, communication, navigation and surveillance platform
- 1.9 Develop future air traffic management concepts and services for airspace users
- 1.10 Address cross-cutting issues: system intelligence, human factors and automation support, autonomy and resilience

Flightpath 2050 goals for Challenge 1

1. European citizens are able to make informed mobility choices.
2. 90% of travellers within Europe are able to complete their journey, door-to-door within 4 hours.
3. A coherent ground infrastructure is developed.
4. Flights arrive within 1 minute of the planned arrival time.
5. An air traffic management system is in place that provides a range of services to handle at least 25 million flights a year of all types of vehicle.



CHALLENGE 2

Maintaining and extending industrial leadership

The global aviation market is increasing in size and Europe must work to maintain its industrial competitiveness. Competition is increasing and now comes not only from established players but also from emerging challengers that receive national support. Substantial investment is required in innovation, research and technology with the appropriate, strong, positive supporting policies.

New business models are changing the ways in which new developments are funded. Costs of entry to the sector are reduced with greater use of digital and data-based business models. There are many opportunities for Europe to exploit its capabilities globally, also by building strong alliances with emerging partners. With regard to human resources, Europe must attract and retain the best talent for world-class innovation, research and technology development.

Leadership in innovation is a major competitive differentiator, notably in domains of energy and environmental performance. The market demands ever-shorter cycles for technology integration with, at the same time, aggressive pricing. Supporting policies must be developed to include emerging cross-sectorial enablers such as digitalisation, big data and new industrial paradigms.

The level of support and investment must match the aspirations of the aviation sector as a global leader, and ensure that it continues to generate a vast positive contribution to

the European economy. The mechanisms for this support must build on best current practice, target the full innovation value chain, and recognise the unique lead times of technology maturation, and the scale and complexity of future technologies. All must be done in the context of a level global playing field.

Action areas for Challenge 2

- 2.1 Increase competitiveness in product industrialisation
- 2.2 Develop high-value manufacturing technologies
- 2.3 Embed design-for-excellence in the product lifecycle
- 2.4 Secure continued and focused investment
- 2.5 Exploit the potential of operations and maintenance, repair and overhaul (MRO)
- 2.6 Develop innovative and optimised testing
- 2.7 Establish new business/enterprise models and initiatives
- 2.8 Lead the development of standards
- 2.9 Streamline certification

Flightpath 2050 goals for Challenge 2

1. The whole European aviation industry is strongly competitive, delivers the best products and services worldwide and has a share of more than 40% of its global market.
2. Europe will maintain leading-edge design, manufacturing and system integration capabilities and jobs supported by high profile, strategic, flagship projects and programmes which cover the whole innovation process from basic research to full-scale demonstrators.
3. Streamlined systems engineering, design, manufacturing, certification and upgrade processes have addressed complexity and significantly decreased development costs (including a 50% reduction in the cost of certification). A leading new generation of standards is created.

CHALLENGE 3

Protecting the environment and the energy supply

Environmental protection is, and will continue to be, a key driver for aviation. The environmental goals in Flightpath 2050 recognise the need for aviation to accelerate its efforts to reduce emissions that impact climate change, noise nuisance and air quality for the benefit of the citizens and to allow sustainable traffic growth.

The UN Framework Convention on Climate Change held in Paris in 2015 (COP 21) confirmed the aim to keep global temperature increase below 2°C compared with preindustrial levels. Aviation produces around 2% of all human-induced CO₂ emissions. This share may seem low but it risks increasing with traffic if insufficient measures are taken.

Aviation can reduce CO₂ emissions by improving the fuel efficiency of the entire system through technology, operations and infrastructure but also by developing sustainable low-carbon aviation fuels.

Additional climate impacts result from nitrogen oxide (NO_x) emissions and condensation trails that may lead to induced cirrus clouds.

Air quality, in particular regarding NO_x and particulate matter, is also of increasing concern in and around airports.

The 2050 noise reduction objective and negative effects of noise on human health require actions on vehicle and engine design, operational and infrastructure measures, and land-use planning. Better understanding of the effects of

noise on health is essential.

Production, assembly and maintenance operations consume energy and raw materials, which also gives rise to emissions and waste. Full life-cycle analysis, from concept to end-of-life using circular economy methodologies, is needed.

Securing a sustainable energy supply to match the expansion of air transport will require joint efforts by the aviation and energy sectors.

ACARE's response to Challenge 3 is covered by nine action areas:

Action areas for Challenge 3

- 3.1 Develop air vehicles of the future: evolutionary steps
- 3.2 Develop air vehicles of the future: revolutionary steps
- 3.3 Increase resource use efficiency and recycling
- 3.4 Improve the environmental performance of air operations and traffic management
- 3.5 Improve the airport environment
- 3.6 Provide the necessary quantity of affordable alternative energy

3.7 Understand aviation's climate impact

3.8 Adapt to climate change

3.9 Develop incentives and regulations

Flightpath 2050 goals for Challenge 3

1. CO₂ emissions per passenger kilometre have been reduced by 75%, NO_x by 90% and perceived noise by 65% all relative to the year 2000.
2. Aircraft movements are emission-free when taxiing.
3. Air vehicles are designed and manufactured to be recyclable.
4. Europe is established as a centre of excellence on sustainable alternative fuels, including those for aviation, based on a strong European energy policy.
5. Europe is at the forefront of atmospheric research and takes the lead in the formulation of a prioritised environmental action plan and establishment of global environmental standards.

CHALLENGE 4

Ensuring safety and security

Responding to the demand for new and improved products and services requires a continuous stream of innovation. This will involve high levels of automation, new materials, clean propulsion fuels, and information sources that are increasingly open and shared.

Such developments bring new challenges, and if aviation is to remain the safest and most secure mode of transport fundamental shifts in thinking are needed. Moreover there is potentially much to be gained by common approaches to safety and security, so in the mid-term these areas should merge, or at least align significantly. The main actions for research and innovation in safety and security are therefore similar.

Safety strategy needs to change from being an aggregation of individual contributions to one that is holistic and multi-stakeholder. Core supporting principles for this are collaborative governance, optimised human-system interactions, better information, and systems designed and certified for safety in all conditions.

In recent years security has arguably become more of a preoccupation than safety. Although approaches for tackling security may often be similar to those for safety, there are some differences. In particular, security management structures are today weak, diverse and tend not to take a system-wide view. Moreover, mechanisms for sharing security intelligence are inadequate.

Despite the current differences between safety and security, the same five supporting principles outlined above for safety apply equally to security. Developments in both domains are similar enough to justify a collaborative approach.

Action areas for Challenge 4

- 4.1 Collaborate for safety
- 4.2 Optimise human and organisational factors for safety
- 4.3 Build and exploit safety intelligence
- 4.4 Ensure operational safety
- 4.5 Design, manufacture and certify for safety
- 4.6 Collaborate for security
- 4.7 Engage aviation personnel and society for security
- 4.8 Build and exploit security intelligence
- 4.9 Ensure operational security
- 4.10 Design, manufacture and certify for security

Flightpath 2050 goals for Challenge 4

1. Overall the European air transport system has less than one accident per ten million commercial aircraft flights.
2. Weather and other hazards from the environment are precisely evaluated and risks are properly mitigated.
3. The European air transport system operates seamlessly through fully interoperable and networked systems allowing manned and unmanned vehicles to safely operate in the same airspace.
4. Efficient boarding and security checks allow seamless security for global travel. Passengers and cargo pass through security screening without intrusion.
5. Air vehicles are resilient by design to current and predicted on-board and on-the-ground security threat evolution, internally and externally to the aircraft.
6. The air transport system has a fully secured global high bandwidth data network, hardened and resilient by design to cyber-attacks.

CHALLENGE 5

Prioritising research, testing capability and education



Aviation is a high-technology sector which combines extraordinary demands on research and innovation with long lead times. Decisions on research and technology development may have consequences on the future of the sector decades after they have been made. To maintain its world-leading position and competitiveness in the dynamic global market, Europe's aviation must be underpinned by world class capabilities and facilities in research, development, test and validation, and should provide to the current and future employees of the sector a top-level education that is adapted to its needs.

The majority of the actions described in this challenge are foundational for European aviation. This means that work needs to start immediately, defining schemes to make sure we do the right research, developing a coherent set of test capabilities and, maybe above all, providing world class education.

Action areas for Challenge 5

- 5.1 Maintain awareness with an effective technology watchtower
- 5.2 Develop an inclusive research strategy covering the entire innovation chain
- 5.3 Make the right investment choices with robust selection processes
- 5.4 Develop and maintain state-of-the art test infrastructure
- 5.5 Establish a sustainable network of operators for test infrastructure
- 5.6 Provide world-leading education in aviation
- 5.7 Stimulate the involvement of stakeholders in education
- 5.8 Make aviation attractive to ensure inflow into educational programs

Flightpath 2050 goals for Challenge 5

1. European research and innovation strategies are jointly defined by all stakeholders, public and private, and implemented in a coordinated way with individual responsibility. The complete innovation chain from blue sky research up to demonstration and innovation is covered.
2. Creation of a network of multidisciplinary technology clusters based on collaboration between industry, universities and research institutes.
3. Identification, maintenance and on-going development of strategic European aerospace test, simulation and development facilities. The ground and airborne validation and certification processes are integrated where appropriate.
4. Students are attracted to careers in aviation. Courses offered by European Universities closely match the needs of the aviation Industry, its research establishments and administrations and evolve continuously as those needs develop. Lifelong and continuous education in aviation is the norm.

RECOMMENDATIONS

In 2012 ACARE identified the following recommendations in order to achieve the Flightpath 2050 goals for European aviation:

- ◆ Lead the development of an integrated resilient European air transport system that will meet the mobility needs of European citizens as well as the market needs.
- ◆ Maintain global leadership for a sector that is highly advanced and anticipated to grow.
- ◆ Establish efficient and effective policy and regulatory frameworks which ensure a global level playing field and allow European industry to prosper and compete fairly under market conditions in order to stimulate research, technology and innovation.
- ◆ Put in place incentives which are accompanied by long-term programmes with continuity across research and technology efforts over many years. This requires developing mechanisms that provide public sector investment both at European and national level, complemented by public/private partnerships.
- ◆ Champion sustainable growth so that noise and greenhouse gas emissions can be further reduced and innovative, affordable, alternative energy sources can be developed.
- ◆ Maintain the sector's safety track record and enable solutions to increasing security risks to be 'built-in' to future designs.

- ◆ Provide long term thinking to develop state of the art infrastructure, integrated platforms for full-scale demonstration and meet the critical need for a qualified and skilled workforce for today and the future.

Whilst the above still remain valid, the action areas detailed in this document identify the following additional recommendations:

- ◆ Enable integration of RPAS (remotely-piloted aircraft systems) ensuring that safety and security risks are addressed
- ◆ Develop and exploit advanced manufacturing technologies with new industrial paradigms
- ◆ Harness the deployment of advanced IT capability and big data taking into account security challenges
- ◆ Ensure that the entire research and innovation chain is covered and supported by appropriate measures, financial, policy, regulatory, environmental and so on.

The challenging goals of Flightpath 2050 can only be delivered if all ACARE stakeholders work together to ensure that research and innovation through collaborative programmes is undertaken on both European and national levels.

ACARE has demonstrated the strength of working closely together across the whole aviation community including air transport, the manufacturing industry, research establishments, universities, regulatory authorities, member states

and the European Commission. These stakeholders are committed to playing a pivotal role in collaboration and cooperation at European and global levels.

Today Europe is a world leader in aviation: The SRIA represents a vital contribution to maintaining and expanding this excellence in the future and provides guidance on the research, development and innovation needed to deliver the Flightpath 2050 vision.

BACKGROUND

The Advisory Council for Aviation Research and Innovation in Europe (ACARE) was formed following the launch of 'Vision 2020' for European aviation in 2001 by the European Commission with the help of a group of personalities. Since then significant progress has been made in European air transport and close collaboration by ACARE stakeholders has enabled the development of successive releases of the Strategic Research Agenda (in 2002, 2004 and 2008) which has served as guidelines for European research.

As a result of global changes in the first decade of this millennium, including better understanding in environmental science, advancing IT and economic downturn, more challenging goals were established by Flightpath 2050 in 2011. In response, ACARE developed a new Strategic Research and Innovation Agenda (SRIA) in 2012 to enable the new vision to be realised.

The first edition of the SRIA underlines the need for further emissions reductions, recommends maintaining and extending Europe's leadership, enhancing safety and security as air transport needs grow as well as developing excellent research infrastructure and education for the sector. However, even more significant changes have occurred in key parameters over the last five years. This has prompted ACARE to update the SRIA once more to reflect these dynamics in the latest priorities for research in aviation in Europe.

ACARE stakeholders continue to provide leadership for the whole air transport and aeronautics community and this collaborative framework is essential in developing an even more successful air transport system for the future in Europe.

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