

NEXTOR

for Aviation Operations Research

Research

Knowledge Transfer

Education

Background

The Federal Aviation Administration (FAA) established The National Center of Excellence for Aviation Operations Research (NEXTOR) on June 26, 1996 as one of several Centers of Excellence in aviation research.

Vision and Strategic Goals

To lead the aviation community by advancing new ideas and paradigms for aviation operations, educating and training aviation professionals, and promoting knowledge exchange among industry, government, and academic leaders.

- Continue to build on our strong base of collaborative research and innovative thinking that will address critical needs in the NAS
- Increase the breadth of aviation operations research knowledge through short courses and degree programs at each of the NEXTOR universities
- Sponsor frequent conferences and seminars among senior leadership of the aviation industry, government, and academia

Benefits for the Aviation Community

- Government increases access to forward-looking aviation research from leading universities
- Universities enlarge their technical breadth and create greater academic opportunities for aviation
- Industry participates in the development of rapid technological innovations
- System users gain insights to improve their operational efficiency and profitability

Assets and Qualifications

- Focused core of faculty concentrating on aviation issues but with the flexibility to bring in ideas from other industries and fields of study
 - Brings together 10 core faculty members representing collectively over 150 person-years of aviation-related research
- Demonstrated willingness and ability to embrace real-world challenges in aviation analysis, mass decision making, and management

Research

NEXTOR works with the FAA and its industry partners to understand how the National Aerospace System (NAS) service providers and users will respond to alternative system architectures, operations environments, concepts, investment strategies, and finance mechanisms. The knowledge and capabilities gained from this research will assist decision makers in dealing with a host of issues, from near-term investment choices to long-term strategies for system renewal. The research focus includes:



- Aviation System Economics. Includes cost/benefit trade-offs and including the use of economic methods and policies to drive improved utilization of the NAS.
- Performance Metrics Development and Evaluation. Assessment of system and component performance in the NAS.
- Traffic Flow Management. Developing new ideas for air traffic operations to improve system efficiency, particularly during conditions of uncertainty (e.g. weather, unexpected maintenance).
- Human Factors in Aviation. Studies relating to human decision making in the NAS environment, and interaction between humans and automatic control systems.
- Aviation Safety. Analyzing policy measures and technologies aimed at enhancing aviation safety.



Knowledge Transfer

Through research and educational opportunities, NEXTOR gains a wealth of information that benefits the aviation community. That information is presented and discussed with the academic and industrial community through NEXTOR's conference and seminar series. The series offers two to three conferences per year, which have dealt with topics that include performance metrics, NAS capacity and the environment, resource allocation, strategies for dealing with airspace congestion, as well as numerous operational topics.



Education

More than 100 graduate students have participated in NEXTOR research programs since the organization's formation in 1996. UC Berkeley, Virginia Tech, MIT, Maryland, and George Mason also work with many university partners to provide students with numerous opportunities for research and higher education.



NEXTOR also co-sponsors short courses with the FAA that are open to any FAA, federal government, or industry affiliate employee interested in air transportation systems analysis. Short courses are designed for mid-senior level managers and decision makers and are taught by faculty members from NEXTOR universities.



Industry Partners

- Aerospace Manufacturers
- Aviation Industry Consultants
- State and Local Aviation Authorities
- Airlines
- Airports

Additional Information

For up-to-date information concerning NEXTOR's educational opportunities, short-courses, conference seminar series schedule, and more in-depth explanation of our programs, please visit our website at <http://www.nextor.org>.

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-Office of Aviation Research-

For additional information about FAA Air Transportation Centers of Excellence, see:
www.coe.faa.gov