



## *Overview of NEXTOR Status*

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## *Mission*

Research and development focused on enhancing the safety, efficiency and capacity of the nation's air transportation system and on advancing the state of the art.

Training a talented pool of professionals to lead tomorrow's aviation sector.

*Established in Fall 1996; 4 core universities, affiliated universities and industry partners*



## *University Participants To Date*

- ¥ 20+ participating faculty from 8 universities (U. of California at Berkeley, MIT, U. of Maryland, Virginia Poly. and State U., Embry-Riddle U., Texas Tech, U. of Rochester, U. of Illinois)
- ¥ More than 70 Master s and Ph.D. students
- ¥ Ph.D. Thesis awards: R. Hoffman (TS, 1998), W. Hall (INFORMS, TS, DOT, 1999)
- ¥ High public profile in addressing technical and policy issues



## *Industry Participants*

Q The following industry partners participated in 2000 in NEXTOR research projects:

- ¥ ATAC
- ¥ Caltrans
- ¥ FedEx
- ¥ Logistics Management Institute
- ¥ Massport
- ¥ San Francisco Airport
- ¥ TASC
- Boeing
- C. S. Draper Laboratory
- LA World Airports
- Metron
- Seagull



## *Research Projects*

- 23 research projects in 2000, sponsored by FAA, NASA, U.S. DOT and NEXTOR industry partners (Caltrans, Massport, FedEx, LA World Airports, San Francisco Airport, ATAC)
- More than 35 top-quality graduate students doing advanced thesis or other research in 2000 on air traffic management, airports and related aviation issues



## *Runway Incursions*

- ✚ Evaluate and quantify the growing risk of runway incursions and airport surface collisions resulting from increased airport traffic.
- ✚ Assist FAA in determining requirements for additional airport surface radars, training and procedures to reduce future risk of runway collisions.
- ✚ Analysis contributed to FAA decision to install ASDE-X at 25 additional airports.
- ✚ Article to be published in ATC Quarterly, Fall 2000.



## *Reusable Launch Vehicles*

- ⌘ Develop and explore alternative methods for separating normal air traffic from space vehicles (reusable launch vehicles) safely and efficiently.
- ⌘ Establish contingency procedures for maintaining safety in event of RLV malfunction.
- ⌘ Design protocols to reduce amount of airspace dedicated exclusively to operations of space vehicles.



## *Critical Current Issue: Congestion*

- Q What is the true extent and cost of delays?
- Q Where / what are the capacity constraints?
- Q Short- and long-term impacts on airlines?
- Q What are the prospects for capacity gains?
- Q What are the most viable approaches to airport demand management? [Congestion-pricing, slot limits, lotteries, auctions, etc.]





## *Some Cultural Difficulties*

- Q Long-term perspective is hard to sustain in FAA environment of pressure for short- and medium-term solutions
- Q Longer time scales for university projects
- Q Learning curve for students
- Q University focus on original contributions



## *Benefits of Partnership*

- Q Important contributions on critical issues
- Q Train leaders of the future
- Q Attract talented pool of students and faculty to air transport field
- Q Relationship with industry partners; new projects and programs (e.g., Global Airline Industry Study)
- Q Cost-effective