

Curriculum Vitae: Joakim Karlsson

Current Appointment Professor
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Date and place of birth April 14, 1966
Stockholm, Sweden

Citizenship Swedish

Education **B.S.E., Princeton University** (1988)
Mechanical and Aerospace Engineering, Magna Cum Laude
Senior Independent Work: *Preliminary Design for a Modern Equipment General Aviation Aircraft*

East Asian Studies Certificate, Princeton University (1988)

M.S., Massachusetts Institute of Technology (1990)
Aeronautics and Astronautics
Thesis: *The Integration of Automatic Speech Recognition into the Air Traffic Control System*

M.A., University of New Hampshire (2006)
Economics
Thesis: *Incidence of Ticket Taxes and Fees in U.S. Domestic Air Travel*

Licensing & Certifications **Private Pilot, Airplane Single Engine – Land**, Federal Aviation Administration
Aviation Safety Counselor, Federal Aviation Administration
Certified Member, American Association of Airport Executives

Languages Fluent English and Swedish; advanced German; intermediate French

Professional Training **Search and Rescue Management Seminar**, United States Air Force Rescue Coordination Center

Airport Inspector, Center for Aviation Research and Education, National Association of State Aviation Officials

Basic Law Enforcement for Aeronautical Inspectors, Division of Aeronautics, New Hampshire Department of Transportation

Supervisors Academy, New Hampshire Department of Transportation

- Academic Appointments*
- Professor, Aviation Policy and Management**, School of Aviation Sciences, Daniel Webster College, August 2008-current
 - Associate Professor**, Division of Aviation, Daniel Webster College, August 2003-May 2008
 - Assistant Professor**, Division of Aviation, Daniel Webster College, August 1999-May 2003
 - Adjunct Instructor**, Division of Aviation, Daniel Webster College, August 1996-May 1999
 - Research Affiliate**, Department of Aeronautics and Astronautics, Massachusetts Institute of Technology, October 2006-current
 - University Representative**, Transportation Research Board of the National Academies, November 2006-Current
 - Industry Studies Affiliate**, Alfred P. Sloan Foundation's Industry Studies Program, January 2009-Current
- Honors and Distinctions*
- John Marshall II Memorial Prize in Aerospace Engineering**, Princeton University, 1987
 - Phi Beta Kappa Society**, 1988
 - Society of Sigma Xi**, 1988
 - Tau Beta Pi National Engineering Society**, 1988
- Professional Societies*
- American Association of Airport Executives**, 1999-current
 - American Institute of Aeronautics and Astronautics**, 1985-1990
 - University Aviation Association**, 2002-2005
- Experience*
- Flight Transportation Associates, Inc.**, Cambridge, MA
 - Aviation Consultant**, December 1989-December 1992
 - **Civil Tiltrotor Feasibility Study**, Port Authority of New York and New Jersey
 - Developed forecasts of business passenger demand for civil tiltrotor service at the zip-code level for Manhattan.
 - Evaluated operational feasibility of potential Manhattan vertiports.
 - **Pease Air Force Base Redevelopment Plan**, Portsmouth, NH
 - Identified aviation components for reuse scenarios.
 - Prepared aviation activity forecasts for four reuse alternatives.
 - **Chiang Kai Shek International Airport**, Institute of Transportation, Ministry of Communications, Republic of China
 - Developed an econometric model for predicting passenger, freight, and operations forecasts for the Chiang Kai Shek International Airport Master Plan.
 - Conducted sensitivity analyses of aviation activity forecasts against variations in gross domestic product growth rates, increased peaking factors, and the potential failure of Kaoshiung International Airport to attract an increased share of demand.
 - **Chek Lap Kok International Airport**, Hong Kong
 - Developed preliminary layout of rescue coordination center.
 - Assisted in the evaluation of air traffic procedures for various proposed runway alignments and configurations.

- **Logan International Airport**, East Boston, MA
 - Updated the Boston Regional Airport System Study (BRASS) for incorporation into the Logan Growth Impact Control Study (LOGIC).
 - Provided technical assistance on aviation forecasting for inclusion into Logan's Draft Generic Environmental Impact Report (GEIR).
 - Managed development of the enhanced preferential runway advisory system (ENPRAS). This software application is used by air traffic control supervisors in the Boston terminal radar approach control facility. It aids Massport and the FAA in meeting annual runway utilization goals, while remaining within safety and operational constraints.
 - Documented noise impact analysis, prepared using the FAA Integrated Noise Model (INM) including contours for average day-night sound levels and time above thresholds. Provided specific data points for all Logan Noise Monitoring System locations as part of LOGIC.
 - Assisted Massport in a flight path analysis for the Town of Milton.
- **Changi International Airport**, Republic of Singapore
 - Prepared aviation activity forecasts.
 - Evaluated passenger demand in support of a proposed international terminal.
- **Second Major Airport Siting Study**, Massachusetts Aeronautics Commission
 - Determined operational feasibility of alternative airport sites.
 - Developed market catchment forecasts for twelve potential airport sites, applying a gravity demand model to the Logan Airport Demand Study.

Hoyle, Tanner & Associates, Inc., Bedford, NH

Senior Aviation Planner, December 1992-November 1994

- **Fulton County Airport Master Plan Update**, Johnstown, NY
 - Managed first airport master plan update since the construction of the airport
 - Coordinated master plan update with City Manager, local officials, and representatives of the public.
- **Skyhaven Airport Master Plan Update**, Rochester, NH
 - Managed a comprehensive update of the airport's master plan.
 - Developed airport layout and capital improvement plans within significant constraints of wetland areas.
- **Pease International Tradeport Airport Master Plan**, Portsmouth, NH
 - Managed the first airport master plan for the civilian reuse of Pease Air Force Base.
 - Conducted review of Air Carrier Access Act for passenger terminal.
- **Manchester Airport Security Program**, Manchester, NH
 - Reviewed and updated FAR Part 107 Security Program Amendment in conjunction with installation of new Lock and Key System (LAKS).
- **Worcester Municipal Airport**, Worcester, MA
 - Analyzed passenger and cargo demand for Massport white paper.
 - Prepared application for authority to use passenger facility charges.
- **New England Transportation Initiative**
 - Member of multi-modal, multi-state regional transportation planning team operating under the auspices of the New England Council.
 - Identified areas of possible interstate cooperation on air transportation issues.

- Responsible for airport planning issues for the development of a cooperative air transportation strategy for New England.
- Prepared findings for high level meetings of the New England Region of the Federal Aviation Administration, the six New England state aviation agencies, and the directors of the major airports in New England.
- **Loring Air Force Base Aviation Reuse Study**, Limestone, ME
 - Managed regional project for analyzing the impacts of potential civil aviation reuse of Loring Air Force Base.
 - Developed airport design standards for the preferred reuse scenario – development of Loring Air Force Base as an air cargo facility.
 - Authored technical memorandum analyzing the radar requirements for air transportation in Northern Maine, to be used by the Director of the Office of Public Transportation and the State of Maine delegation of the United States Congress.

New Hampshire Department of Transportation

Division of Aeronautics, Concord, NH

Chief of Airport Development, November 1994-July 1998

- **Airport planning, design, and construction**
 - Represented State of New Hampshire in all federally and State funded airport improvement projects.
 - Managed development of the New Hampshire Airport Information Management System.
 - Oversaw all capital improvement projects at the state-owned Skyhaven Airport, Rochester, NH.
 - Programmed funding and priorities for New Hampshire's airport improvement program.
 - Developed priorities for implementation of new Global Positioning System instrument approaches for New Hampshire airports.
- **Airport inspection and law enforcement**
 - Primary inspector of New Hampshire airports in support of the Federal Aviation Administration/National Association of State Aviation Officials airport inspection program.
 - Trained and supervised State of New Hampshire airport inspectors.
 - Responsible for inspection of parachute jump zones.
 - Investigated aircraft accidents and incidents.
 - Law enforcement officer under the New Hampshire Aeronautics Act.
- **Pavement management and maintenance**
 - Introduced Federal Aviation Administration funds for airport pavement maintenance in New Hampshire, as one of eight candidates in a federal pilot project.
 - Participated in General Accounting Office nationwide review documenting the benefits of using the federal Airport Improvement Program to fund airport pavement maintenance.
 - Managed development of the State of New Hampshire Pavement Management System.

- **Regional Aircraft Rescue and Fire Fighting Training Facility**
 - Managed development of a proposed regional aircraft rescue and fire fighting live-fire training facility with Index E capability at the New Hampshire Fire Academy, Concord, NH.
 - Oversaw selection process for civil/structural engineering and architectural services for the design of the regional training facility.

Hoyle, Tanner & Associates, Inc., Manchester, NH

Senior Aviation Planner, July 1998-August 1999 (part time through March 2009)

- **Airport Cooperative Research Program Synthesis Report: Airport Economic Impact Methods and Models**, Transportation Research Board of the National Academies
 - Prepared report documenting the state of practice in conducting airport economic impact reports
 - Supervised survey effort targeting nearly 70 organizations, to collect information on the extent and use of airport economic impact studies
- **Newport State Airport Master Plan Update**, Newport, VT
 - Prepared runway length analysis and facilities requirement study.
 - Directed survey of over 30 business users in the United States and Canada to assess aviation needs at the airport.
- **Waterbury-Oxford Airport Master Plan Update**, CT
 - Developed declared distance analysis to evaluate runway length alternatives.
 - Evaluated airport safety and noise impacts to assist Connecticut Department of Transportation in selecting a preferred runway length alternative.
- **Northern Aroostook Regional Airport**, Frenchville, ME
 - Project manager for airport master plan update.
 - Prepared inventory of non-standard airport conditions.
 - Evaluated performance of airport radio navigation aids.
- **Expansion and Renovation of Aircraft Storage Facility**, Maine Army National Guard, Bangor, ME
 - Responsible for coordination with Bangor International Airport for major expansion of Maine Army National Guard aviation facility.
 - Assessed compliance with FAA airport design standards.
- **Nashua Airport Master Plan Technical Supplement**, Nashua, NH
 - Project manager for airport master plan technical supplement for Boire Field.
 - Addressed community impacts using improved aircraft activity data and recent growth in business jet flights.
 - Conducted first ever count of jet operations at the airport, avoiding the need to rely on estimates with high levels of uncertainty.
 - Evaluated noise impacts for future airport development alternatives.
 - Organized and moderated public outreach effort, including a series of meetings with an advisory committee, public information meetings, and workshops.
- **Manchester Airport Land Use Plan**, Manchester, NH
 - Analyzed curbside requirements at the airport.
 - Evaluated impacts of the airport's ten-year development plan on ground access to the airport.

- **Barnstable Municipal Airport Master Plan Update**, Hyannis, MA
 - Developed forecasts for passenger enplanements and aircraft activity.
 - Modeled effects of unusually high seasonal variations.
- **Pease International Tradeport**, Portsmouth, NH
 - Developed airport layout alternatives for two additional fixed based operators in the general aviation terminal area.
 - Designed airport layout for new air cargo development on airport.
 - Supervised preparation of Airport Layout Plan update.
 - Prepared planning thresholds for future expansion of the international passenger terminal.
 - Created a mathematical model to adjust industry standard planning algorithms to emerging airport markets.
- **Caribou Municipal Airport Plan Update**, Caribou, ME
 - Program manager for airport master plan update.
 - Developed plan for removing obstructions and resolving land use problems on airport property.
 - Provided community assistance in developing policies for leases and airport management.
- **Laconia Municipal Airport Master Plan Update**, Guilford, NH
 - Inspected airport to evaluate current conditions and conformance to FAA standards.
 - Prepared forecasts of aviation activity for airport master plan update.
- **Lincoln Regional Airport Master Plan Update**, Lincoln, ME
 - Prepared forecasts, facility requirements, and alternatives analysis.
 - Evaluated FAA design standards for preparation of the airport layout plan.

Daniel Webster College, Nashua, NH

Adjunct Instructor, August 1996 –May 1999

Assistant Professor, August 1999-May 2003

Associate Professor, August 2003-May 2008

Professor, August 2008-current

- **Teaching activity: Undergraduate**
 - AE 205 Aircraft Operations
 - AE 306 Human Factors of Flight
 - AM 201 Aviation Law
 - AM 215 General Aviation Operations
 - AM 220 Airport Operations [on campus and as long distance directed study]
 - AM 340 Airport and Airspace Capacity Management
 - AM 360 Airport Planning and Management
 - AM 401 Airport Operations and Development
 - AM 404 Studies in International Aerospace
 - AM 406 National Internship – Aviation
 - AM 407 Internship in Aviation Management
 - AM 410 Trends and Current Problems in Aviation
 - AM 490 Airport Environmental Analysis [independent study]
 - AT 110 Fundamentals of Air Traffic Control

- **Teaching activity: Graduate**
 - AM 615 Economics of Air Transportation
 - AM 655 Global Aviation Management and Law
- **Research**
 - North Atlantic Fee Analysis Model (joint research project with MIT Global Airline Industry Program on behalf of ICAO North Atlantic Economic and Financial Group)
 - Cost of aviation infrastructure (joint research project with MIT Global Airline Industry Program and Air Transport Association)
 - Impact of air transportation ticket taxes and fees in U.S. and EU (joint research project with MIT Global Airline Industry Program)
 - Preliminary space planning for passenger terminals at developing airports
 - Dynamic strategic airport planning
 - Use of planning thresholds for passenger terminals
- **Curriculum and course material development**
 - Developed course descriptions for aviation concentration for new Bachelor of Science in Homeland Security
 - AM 615 Global Aviation Management and Law
 - AM 360 Airport Planning and Management
 - Integration of American Association of Airport Executive (AAAE) accreditation standards into airport management coursework
 - “Mathematical formulations of delay,” a tutorial on queuing theory
 - Curriculum for independent study in airport environmental analysis
 - Use of Blackboard courseware an interactive journaling tool for aviation interns to self-assess learning and developmental outcomes
- **Service to college**
 - *Ad Hoc* Homeland Security Committee
 - Aviation technology grant: ATC simulator upgrade
 - Board of Trustees Faculty Task Force
 - Vice President of Academic Senate
 - Secretary of Academic Assembly
 - General Education Committee
 - Professional Development Committee
 - Courseware Review Committee
 - Benefits Committee
 - Developed web site for the Academic Assembly
 - Faculty Advisor for the Daniel Webster College Chapter of AAAE
 - Faculty participant in open houses, Discovery Days, and similar events
 - Faculty coordinator for airport and air traffic control issues for 2000 SAFECON Regional Flight Competition (through AAAE)
 - ACE Camp Academic Instructor 2001
 - Participated in 1999/2000 and 2004/2005 CAA accreditation of aviation curriculum
 - Advising load of up to 30 students per semester
- **Service to peer institutions**
 - Member of Project Panel, Best Management Practices for Small and General Aviation Airports, Airport Cooperative Research Program, Transportation Research Board of the National Academies

- Participated in data collection for Middle Tennessee State University National Assessment of Dispatch Awareness
- Reviewed air transportation textbook prospectus for Iowa State University Press
- Served as faculty coordinator for 2003 Seminar on Establishing International Aviation Policy, hosted by the International Center for Aviation Management Education and Research at Concordia University, Montréal
- **Referee activity for peer reviewed publications**
 - *International Journal of Sustainable Transportation*
 - *International Journal of Transport Economics*
 - *Advances in Airline Economics: The Economics of Airline Institutions, Operations and Marketing* (Vol. 2)
- **Grants**
 - Aptima, Inc.: *Airport Function Allocation Reasoning (AFAR)*
 - Wolf Aviation Fund: *User Fees in the National Airspace System*
 - MIT Global Airline Industry Program grant: *New Air Navigation Service Fee Structure for North Atlantic Air Traffic*

Independent Consulting

- **Preliminary Aeronautical Site Evaluation**, Portsmouth, NH
 - Evaluated proposed commercial development in the vicinity of the Pease International Tradeport.
 - Verified FAA notification requirements for construction in the vicinity of an airport.
 - Analyzed potential for creating airport obstructions.
- **Preliminary Aeronautical Site Evaluation**, Nashua, NH
 - Evaluated proposed commercial mixed-use development adjacent to Boire Field for compatibility with local zoning regulations, FAA notification requirements for construction, land use, and safety issues.
 - Analyzed potential for creating airport obstructions.
 - Prepared a description of the airport's traffic patterns relative to the property's location.

Research Interests

Air transportation economics, especially taxation and fees
Airport master planning and forecasting
Airport environmental impacts and land use planning
Air transportation public policy
Public administration and financing of airports
Transfer of knowledge of best management practices for airport management
Air transportation issues in the European Union

Publications

Book Chapter

Karlsson, J., A. Odoni, C. Geslin, and S. Yamanaka. Airline ticket taxes and fees in the United States and European Union. In Lee, D. (ed.). (2007). *Advances in Airline Economics: Vol. 2. The Economics of Airline Institutions, Operations and Marketing* (pp. 255-274). Amsterdam: Elsevier.

Journal Articles

Karlsson, J. (2002). Preliminary space planning for passenger terminals at developing airports. *International Journal of Applied Aviation Studies*, 2, 41-54.

Karlsson, J., A. Odoni, and S. Yamanaka. (2004). The impact of infrastructure-related taxes and fees on domestic airline fares in the US. *Journal of Air Transport Management*, 10, 283-291.

Yamanaka, S., J. Karlsson, and A. Odoni. (2006). Aviation infrastructure taxes and fees in the United States and the European Union. *Airlines, Airports, and Airspace: Economic and Infrastructure Analysis* (Transportation Research Record No. 1951), 44-51.

Karlsson, J., A. Odoni, and M. B. Gaudet. (2008). Cost of aviation infrastructure in the United States. *Aviation 2008* (Transportation Research Record No. 2052), 28-36.

Proceedings of Meetings and Symposia

Karlsson, J. (1989). The modern equipment general aviation aircraft. *Joint University Program in Air Transportation Research: 1987, NASA Conference Paper 3028*, 97-113.

Karlsson, J. (1989). Automatic speech recognition in air traffic control: A human factors perspective. *Official Proceedings of Military and Government Speech Tech '89*. New York, NY: Media Dimensions, Inc.

Karlsson, J. (1990). Automatic speech recognition in air traffic control. *Joint University Program in Air Transportation Research: 1988-1989, NASA Conference Paper 3063*, 7-15.

Karlsson, J. (2003). Dynamic strategic planning in practice: Pease International Tradeport. *2003 Conference Proceedings: Aviation Management and Research Conference*. Montréal, Québec: Concordia University's International Aviation MBA Program and International Center for Aviation Management Education and Research.

Karlsson, J., A. Odoni, and S. Yamanaka. (2004). Air transportation taxes and fees. *Winds of Change: The Airline Industry in 2004*. Washington, D.C.: MIT Global Airline Industry Program.

Karlsson, J., A. Odoni, and S. Yamanaka. (2004). The impact of infrastructure-related taxes and fees on domestic airline fares. *Government, the Airline Industry and the Flying Public: A New Way of Doing Business*. Queenstown, MD: National Center of Excellence for Aviation Operations Research.

Karlsson, J., A. Odoni, and S. Yamanaka. (2004). Infrastructure-related taxes and fees in the U.S. and EU. *November 4, 2004 Meeting of the MIT Global Airline Industry Program Advisory Board*. Cambridge, MA: MIT Global Airline Industry Program.

Karlsson, J., A. Odoni, and C. Geslin. (2005). Infrastructure-related taxes and fees in the U.S. and EU. *November 4, 2005 Joint Meeting of the Industry Advisory Board/Airline Industry Consortium*. Cambridge, MA: MIT Global Airline Industry Program.

Yamanaka, S., J. Karlsson, and A. Odoni. (2005). Aviation infrastructure taxes and fees in the United States and the European Union. *85th Annual Meeting of the Transportation Research Board*. Washington, DC: Transportation Research Board of the National Academies.

Karlsson, J., A. Odoni, and M. Gaudet. (2007). The cost of aviation infrastructure in the United States. *87th Annual Meeting of the Transportation Research Board*. Washington, DC: Transportation Research Board of the National Academies.

Karlsson, J. (2008). Update: U.S. Domestic Aviation Ticket Taxes. (2008). *November 6, 2008 Joint Meeting of the Industry Advisory Board/Airline Industry Consortium*. Cambridge, MA: MIT Global Airline Industry Program.

Karlsson, J., A. Odoni, and N. Umang. (2008). North Atlantic Fee Analysis Model. *November 6, 2008 Joint Meeting of the Industry Advisory Board/Airline Industry Consortium*. Cambridge, MA: MIT Global Airline Industry Program.

Karlsson, J. (2008). A review of U.S. domestic ticket taxes and fees. *88th Annual Meeting of the Transportation Research Board*. Washington, DC: Transportation Research Board of the National Academies.

Karlsson, J. (2009). Update: Air transportation taxes and fees. *October 29, 2009 Joint Meeting of the Industry Advisory Board/Airline Industry Consortium*. Cambridge, MA: MIT Global Airline Industry Program.

Flouris, T., S. Phillips, and J. Karlsson. (2009). Global aviation education in an online environment: The Daniel Webster College experience. *23rd ICDE World Conference on Open Learning and Distance Education*. Maastricht, The Netherlands: International Council for Open and Distance Education.

Karlsson, J. (2010). Trends in aviation taxes and fees. *89th Annual Meeting of the Transportation Research Board*. Washington, DC: Transportation Research Board of the National Academies.

Technical and Research Reports

Karlsson, J. (1990). *The Integration of Automatic Speech Recognition into the Air Traffic Control System* (Report 90-1). Cambridge, MA: Massachusetts Institute of Technology, Flight Transportation Laboratory.

Flight Transportation Associates. (1992). *Chiang Kai Shek International Airport Demand Analysis 1990-2020*. Cambridge, Massachusetts: Author.

Hoyle, Tanner & Associates, Inc. (1993). *Fulton County Airport Master Plan Update*. Bedford, New Hampshire: Author.

Hoyle, Tanner & Associates, Inc. (1993). *Regional Aviation Impacts and Aviation Facility Reuse of Loring Air Force Base*. Bedford, New Hampshire: Author.

Hoyle, Tanner & Associates, Inc. (1993). *Northern Maine Radar Requirements Analysis*. Bedford, New Hampshire: Author.

Hoyle, Tanner & Associates, Inc. (1994). *Skyhaven Airport Master Plan Update*. Bedford, New Hampshire: Author.

Hoyle, Tanner & Associates, Inc., & SH&E, Inc. (1994). *Loring Air Force Base Air Cargo Development Feasibility Study*. Bedford, New Hampshire: Author.

Hoyle, Tanner & Associates, Inc. (2000). *Nashua Airport Master Plan Technical Supplement*. Manchester, New Hampshire: Author.

Hoyle, Tanner & Associates, Inc. (2001). Thresholds for air passenger terminal expansion. *Pease International Tradeport Airport Master Plan Supplement* (pp. 6-13). Manchester, New Hampshire: Author.

Hoyle, Tanner & Associates, Inc. (2001). Mathematical modeling of peak hour ratio. *Pease International Tradeport Airport Master Plan Supplement*. (pp. 39-41). Manchester, New Hampshire: Author.

Karlsson, J. (2002). *Preliminary Aeronautical Site Evaluation: 6 Townsend West. Nashua, New Hampshire*.

Karlsson, J. (2002). *Pease International Tradeport Airside Modeling (Technical Memorandum)*. Nashua, NH: Daniel Webster College.

Karlsson, J. (2004). *Preliminary Aeronautical Site Evaluation: Griffin Park Professional Building, Portsmouth, New Hampshire*

Karlsson, J., et al. (2008). *Airport Economic Impact Methods and Models: A Synthesis of Airport Practice*, Airport Cooperative Research Program Synthesis 7. Washington, DC: Transportation Research Board of the National Academies.

Letters to the Editor and Other Articles

Karlsson, J. (2002, April 15). Future of small airports at stake [Letter to the editor]. *Aviation Week & Space Technology*, p. 6.

Karlsson, J., A. Odoni, and S. Yamanaka. (2004). Research roundtable: Ongoing research – Impact of airport infrastructure and security taxes on airline fares. *Collegiate Aviation News*, p. 13

Karlsson, J. and A. Odoni. (2004, April 19). Ticket Taxes Not So High [Letter to the editor]. *Aviation Week & Space Technology*, p. 6.

Curricula and Course Material

Karlsson, J. (1999). *AM 360 Airport Planning and Management*. Syllabus, Daniel Webster College, Nashua, New Hampshire.

Karlsson, J. (2000). *Mathematical Formulation of Delay*. Tutorial, Daniel Webster College, Nashua, New Hampshire.

Karlsson, J. and T.G. Flouris. (2008). *AM 655 Global Aviation Management and Law*. Syllabus, Nashua, New Hampshire.