UTC Project Information

Project Title	MPC-666 – Autonomous Aircraft Logistics: Challenges and Opportunities
University	North Dakota State University
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Brief Description of Research Project	The rise of autonomous vehicles of all types has created a new landscape of autonomous logistics that is rather complex and filled with uncertainties. As carriers initiated partnerships with major retailers and restaurants to deliver groceries and food with autonomous road and sidewalk robotic vehicles, the global pandemic of 2019 has solidified and accelerated those trends. These developments resulted in a blossoming new field called autonomous logistics. This research focuses on the subfield of autonomous aircraft logistics. This proposal focuses on the subfield of autonomous aircraft cargo logistics (AACL) to directly contrast it with autonomous aircraft passenger logistics or flying taxis. AACL will potentially compete with trucks and other modes of ground transportation. The competition is likely to upend business models and change the landscape for logistics. The goal of this research is to understand the scope of AACL applications, prospects for adoption, deployment challenges, and the potential implications for planners and policymaking.

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The report offers valuable insights that can guide AAM stakeholders in making informed, data-driven decisions. The findings provide actionable insights for policy, investment, and operational decisions in AAM. The technology, planning, and regulations are still evolving, with deployments planned starting 2025.
Impacts/Benefits of Implementation (actual, not anticipated)	The research offers a roadmap for AAM adoption, pinpointing key economic and regulatory factors that could accelerate or impede its deployment. By identifying high-demand routes and commodity categories, it facilitates targeted investments and policymaking. The focus on transporting dangerous goods and pharmaceuticals showcases AAM's potential for enhancing safety and healthcare outcomes. These insights will significantly inform governmental and business decisions, shaping a more sustainable, efficient, and responsive transportation ecosystem.
Web Links • Reports • Project Website	- MPC Research Report – Autonomous Aircraft: Challenges and Opportunities - Journal Paper – Forecasting Market Opportunities for Urban and Regional Air Mobility - Journal Paper – Unlocking Drone Potential in the Pharma Supply Chain: A Hybrid Machine Learning and GIS Approach - Journal Paper – Data-Driven Deployment of Cargo Drones: A U.S. Case Study Identifying Key Markets and Routes - Journal Paper – Predicting Advanced Air Mobility Adoption by Machine Learning - Journal Paper – Reducing Risks by Transporting Dangerous Cargo in Drones