

ACRP Problem Statement: 387

Modernizing Air Cargo Operations in U.S. Airports

Recommended Allocation: \$350,000

Tags: Air-Cargo, Air-Service, Airport-Planning, Airside, Construction, Customer-Experience, Design, Landside, Operations, Security, Sustainability

Thought Leader Forum on Emerging Issues: N/A

Research Roadmaps: N/A

Staff Comments

The proposed research would build on ACRP Report 143: Guidebook for Air Cargo Facility Planning and Development that was published in 2016. While the overall need for the research is identified, the aspect related to recommending "how airlines should more efficiently operate their cargo operations," is outside the scope of ACRP, and should be limited to helping airports provide facilities that would enable airlines to operate efficiently. The proposed budget seems high compared to similar ACRP projects; recommend \$350,000.

AVERAGE INDUSTRY RATING BY AUDIENCE SEGMENT

Audience Segment	Average Rating	Number of Responses
Academics	2.67	3
Airline Representatives	N/A	0
Airport Employees	4.23	13
Consultants	3.62	8
Fed/State/Local Government Employees	4.00	4
Private Sector	5.00	1
Undefined	4.00	1
Overall Total	3.92	29

AOC Disposition

The average AOC rating among voting members was **3.1** on a scale of 1 to 5. The problem statement was brought up for discussion. The research would benefit airports of all sizes and is a propos given the rise of e-commerce. The research needs to avoid giving guidance to airlines. Approved and funded at \$350,000 as ACRP Project 03-63.

Modernizing Air Cargo Operations in U.S. Airports

Summary

Air cargo is vital part of supply chain for many companies and cities. Air cargo carries about 35% contribution in value terms of the world's cargo, only 1% in volume, yet many airports, especially in the USA, still do not have modern technology such as Cargo Community Systems, material handling systems in warehouses, and airports designed to move cargo, including e-commerce cargo, at the same speed and efficiency as baggage. Airports need to understand what are global best practices and build facilities, procedures and adapt technologies that can move air cargo operations into the modern era. Today, we still use paper airwaybills in many instances, when passenger got rid of paper tickets decades ago.

Background

Today, air cargo is very manually operated despite the challenges keeping trained workers as they often leave due to issues getting SIDA badges, and because the wages are low. Aviation developers still build warehouses with columns, small doors, and spaces not suited for efficient operations of cargo, and ground handlers and airlines still do not have cargo community systems to offer transparency in track and trace for cargo. The results are slow operations where despite paying premium freight and insurance fees for air cargo, the cargo still moves slow and often have staff not trained to deal with sophisticated cargo. Ultimate results are inefficiencies, high costs which ultimately get passed on to consumers, pollution and congestion from trucks, safety issues from ramps littered with FOD, and poor quality service.

Objective

The industry need a manual of best practice of the things they should be considering in developing new cargo buildings on airports, how airlines should more efficiently operate their cargo operations, and how GHA's should support cargo growth and efficiencies. It should be best practice, with an emphasis on the the future, not just U.S. practice, but what's happening globally in this sector of logistics. Another driver to consider is what is e-commerce motivating us to do to create more speed and efficiency. E-commerce today, is the ultimate best practice. How can we get all cargo to move in that direction?

Research Approach

The consultants will have to look at what's happening globally in this area in the most advanced airports and air cargo development facilities. They will also have to examine how these airports will be come adaptable to new technologies that will impact cargo in the next 20-30 years, e.g. drones, robotics, artificial intelligence, blockchain, cargo community systems, smart warehouses, sustainability, e-commerce companies like Amazon and Alibaba, and what will the new labor force look like.

Cost Estimate/Backup

\$500,000

Professional Fees: \$300,000

Travel: \$30,000

Admin support: \$70,000

Researchers: \$100,000

The company and subcontractors will need to visit at least 2-4 of the best facilities globally, and interview needs of companies like pharmaceutical, e-commerce, and a variety of B2B and B2C companies to determine best practice. They will then have to team up with the top schools in logistics such as Georgia Tech, Supply Chain and Logistics Management Institute, to determine what are the new technologies, new building materials that can be built fast and cost effective, and provide a guideline that airports looking to expand cargo can look at as a guideline.

Related Research

While there are some cargo related research, non so far touches on developing modern air cargo facilities.

Author: Elliott Paige, Director, Air Service Development, Hartsfield-Jackson Atlanta International Airport

INDIVIDUAL COMMENTS FROM THE INDUSTRY REVIEW

A worthy proposal. For the \$ amount requested, it seems high for the task proposed.

Agree that the industry needs a best practices manual and guidance on new technologies. Problem statement was short, sweet and to the point. And relevant!

Aircargo operations have changed very little over the years. With the advent of home shopping and JIT manufacturing, this project would be very germane. Should include a section on the integration of US Customs.

Airports are vital nodes for trade. Air cargo is used to move goods fast and safe, especially e-commerce. This is applicable to all airports that have any form of cargo. As e-commerce grows in importance, it will likely be vital for all airports. It's simple to understand and there and achievable with all the data present.

Airports need to get an handle on this to more efficiently address needs going forward. Especially with Amazon and others challenging the big two.

An interesting problem with important implications. Boeing did some work with RFID and cargo operations years ago and may be interested in being involved again.

Applicable, achievable, and implementable: Much needed study.

As shopping online for larger and larger items grows and as more businesses continue to grow, it is a must for cargo to modernize to keep up with the growth that is happening all around us. This is important research that all cargo operations should consider.

Having modernized air cargo operations is very important to the air transportation and other industries. This is something that has been worked on and is changing rapidly at this time. The idea is very applicable however the problem statement as written is not as clear with what is currently going on and how that would be improved. I believe there may have been ACRP research that was overlooked while doing the background research. I think further development of the problem statement is needed to ensure the project is a success.

I question how often airports are building cargo facilities on-airport, especially without coordination with the user, so how relevant is this research?

I see a need but I believe the ability for an airport to invest in the type of facilities the project hopes to define is limited to large non-airline revenue rich airports. It would not benefit the wider airport community

It is a changing industry.

Logistics will rapidly change due to COVID virus. Supply chain beginning with modes of transportation need to be improved.

Standards are lacking. I think this is achievable and a well define program.

The inclusion of UAS and UAM in this topic is key to helping the research address future needs.

The problem statement is relevant, especially in light of the shift and focus on air cargo, in recent months.

The timeliness of this project is spot on. This would essentially become an automated material handling guidebook for US cargo operations. Very achievable, very implementable. The objective is clear and this projects summary and background make it clear this is very applicable as well.

There are already efforts underway to modernize air cargo operations and research is being done to improve them. See <https://airlines.iata.org/analysis/the-cargo-facility-of-the-future>. There are also a list of airports both domestic and foreign that provide great examples of modern air cargo hubs: <https://cargo.finnair.com/en/cargo-news/best-air-cargo-terminals>

This seems like an issue for a synthesis to start, a smaller-size project involving interviews and a survey to produce case examples that help the conversation within TRB and at airports that can afford such improvements.

This topic may be more relevant now, due to COVID-19 shifting the focus to cargo operations from passenger operations (at least in the short-term).

*Would be valuable if *actionable* and provide roadmaps or steps to modernization that US airports could employ. Would be better if quantification of energy savings, VMT, and emission reductions from efficiency can be quantified.*

Idea Number: 387

Modernizing Air Cargo Operations in U.S. Airports

Input Provided by ACRP IdeaHub Community

The votes and comments below were provided by the IdeaHub community prior to the idea's submission as a problem statement.

Idea Link: <http://ideascale.com/t/UKsrZBi16>

Tags: Air-Cargo, Air-Service, Airport-Planning, Airside, Construction, Customer-Experience, Design, Landside, Operations, Security, Sustainability

Votes:

Votes	
Up	0
Down	0
Total	0

Comments:

I am looking for like-minded supporters from airports, air cargo-related sectors, airlines, ground handling companies, economists, consultants, and educational institutions with logistics and physical internet programs.