

# AVIAMIND CASE STUDY

## About AviaMind

AviaMind is an innovative consulting services company with deep roots in Air Cargo Logistics, Business and Commercial Aviation. We bring together the expertise of a top management consultancy with the creativity of an analytics agency.

## Air Cargo Logistics

Air Cargo has become one of the most effective and flexible shipment methods in the world due to its speed, round-the clock travel ability, and cost-effectiveness. AviaMind has successfully designed, tested, transitioned and implemented air cargo solutions for air carriers, courier companies and national mail services throughout the world to optimize their air cargo transportation businesses.

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## UNIT LOAD DEVICE (ULD) DENSITY OPTIMIZATION

## AIR CARGO LOGISTICS

### Executive Summary

It's impossible to tackle the challenge of efficiency without making the most of your assets. Carriers seeking competitive advantages are up against a constant struggle in today's air cargo market(s), and asset optimization is critical in achieving higher operational performance and delivering greater profitability. ULDs aren't consumables, they are capital assets and need to be effectively utilized. By closely considering product densities, types and sizes as a function of loading processes and carrier ULD inventory, a 9.8% efficiency gap was identified. A qualitative assessment and transient analysis was performed. New processes and standardized loading guidelines were developed. Implementation of recommendations yielded an average additional 348lb of incremental gain in carried cargo per container flown.

### Background

A North American based global air carrier with a mixed fleet of mid to large sized aircraft. The carrier's inventory consists of 9 ULD types totalling more than 2,500 pieces; including hard, soft and open faced variants. Product type is broad, resulting from multiple mission profiles throughout the carrier's history as well as corporate acquisitions. The focus of the engagement is centered around the parcel and mail product lines. Historically, macro density was recorded following consolidation across multiple origin-destination pairs, resulting in either an over-estimation or under-estimation of product density when evaluated by market segmentation. The benchmarks considered were: product density - 8lbs/ft<sup>3</sup>, ULD capacity - 500ft<sup>3</sup>.

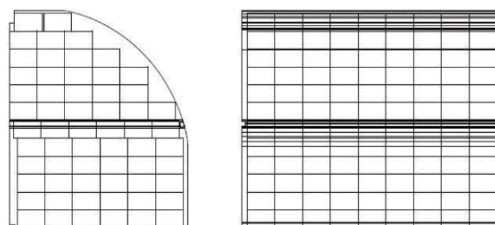


Figure 1 – A FEM CAD model depicting ideal loading of test ULD.

### Approach & Conclusions

Multi-site (operations) observations uncovered non-compliance to existing and outdated processes resulting in a need for an updated training program. A qualitative assessment of the loading methodologies by ULD and product type resulted in a redesign of the air highway layout at 3 hub locations and the need for re-assignment of existing, underutilized staff, to enforce the new recommendations. It is worth noting that this relatively simple adjustment was well received by both the union and management.



Figure 2 - {Left} Pre-Implementation, {Right} Post-Implementation of recommendations.

A transient analysis of the carrier's customer product base looked at a 5-year history of the macro density by origin and destination and re-compiled the available data to isolate product density by major customer, by product type and by market. These three criterion yielded intrinsic value in being able to optimize the product by ULD type and eventually by flight for the carrier. Subsequently, ULD build time and aircraft loading improved as staff were introduced to industry best practises and standardization. Moreover, by closely matching assets to demand, an average increase of 348lb of useful volume per container type was repatriated and made available for additional revenue.

Additionally, AviaMind presented an out of scope benefit through re-evaluating the pricing models. A tiered strategy was recommended followed by concessions or incentives should customer's meet density and weight targets. A subsequent engagement examining pricing strategy was accepted by the carrier.