Air freight traffic forecasting using clusters: Air Canada proposal for the 2026 IPSW

Overview:

Air Canada Cargo is an award-winning provider of air cargo transportation services. We are Canada's largest air cargo provider as measured by cargo capacity, with a presence in over 50 countries and self-handled hubs in Montreal, Toronto, Vancouver, Chicago, London, and Frankfurt. We connect over 450 cities across six continents with direct flights and hundreds more routes through our interline and trucking partnerships.

Key investments in data and analytics, APIs, AI, and more, allow us to enhance our customer experience continually. In 2025, Air Canada Cargo generated more then $1B in revenue by using the belly space of the passenger aircraft and six (6) dedicated freighter aircraft.

Problem:

Every quarter, a budget and outlook must be produced to estimate the traffic (in kilograms) and revenue expected over the next 3 to 60 months. A central component of this process is forecasting the amount of cargo each flight will carry.

A defining characteristic of the air-cargo industry is that demand cannot be stimulated by adding capacity, unlike the passenger sector. The volume of goods requiring air transport is essentially fixed and does not increase in response to additional flights. As a result, forecasts must focus on accurately assessing this underlying production (in kilograms) accessible to Air Canada Cargo and distribute/constrain it using the flying schedule.

Goal:

The objective is to develop a model capable of identifying which stations (origins) can generate additional cargo volume when capacity is increased, and which stations will experience no impact or only a partial effect. This clustering would then be integrated with a forecasting model designed to estimate kilograms per frequency for each specific Origin–Destination–Aircraft Type–Month combination.

Data Available:

Data that will be provided is:

- Historical (36 months) and future (12 months) flying schedule.
- Historical (36 months) flown Kgs per frequency/aircraft type/month/Origin/Destination.
- Historical (36 months) market demand data (Kgs by origin/destination pair, month, AC vs. Other airlines).
- Historical (36 months) market share by Origins.
- Any further required data to be discussed.