

Capacity Planning for Canada Post's International Mail Exchange

Partner Profile

Canada Post's Pacific Processing Centre (PPC) is the gateway for international mail coming from the USA and Asia-Pacific countries. A significant part of the PPC's responsibility is to receive, process, and deliver international mail items to domestic recipients. The Vancouver Exchange Office (VEO) within the facility operates as the main functional unit for inbound mail inspection and custom clearance. Sufficient capacity in the VEO is crucial to ensuring a high performance level for the entire end-to-end delivery service.

Problem and Opportunity

Mail volume growth stimulated by the increase in E-commerce volumes in Asia-Pacific and across Canada is straining the VEO's capacity limits for processing international mail and is causing backlogs of unprocessed mail. To provide Canada Post with a solution to manage this problem we set out to first develop a scientific methodology in forecasting mail volume. With reliable knowledge of future mail volume, we could then provide analysis of various capacity expansion options. Furthermore, Canada Post wanted a mail volume forecasting tool that would allow operations planners to tune, adjust, and populate volume forecasts as new insight emerges and new data is generated in the future.

Approach and Solution

The first step in the framework was to build accurate forecasting models for the mail volumes from three main regions: China, USA, and the rest of the world.

Recent policy changes significantly impacted the proportions of the mail product types of mail volume from China. Therefore, instead of trying to predict proportions, we considered different proportion scenarios. With our mail volume forecast scenarios, we then analyzed the feasible expansion options. These were evaluated based on outcome inventory levels and additional resource requirements such as machinery and labor shifts.

To provide ongoing decision support for the long-term, the application that we built incorporates an algorithm that continuously absorbs updated data from both mail volume and economic indicators to adapt its forecasts. Users are given the flexibility to customize future projections based on insights or what-if scenarios.

Benefits

The forecasts in the short-term helped Canada Post understand the impending challenge of the peak season of 2017. Along with the short-term forecasts, the capacity expansion options will prepare Canada Post to control inventory and ensure that they meet their service targets. Resource requirements for these expansion options were provided to support cost evaluation, budget planning, and process optimization. The application automates the forecasting process, making the analysis accessible to the users when new data becomes available in the future.



- Modelling
- Scenario analysis



- Expansion options
- Resource analysis



- Recommendation
- Customization

