

## Testing Alternatives at Check-in for YVR

### Client Profile

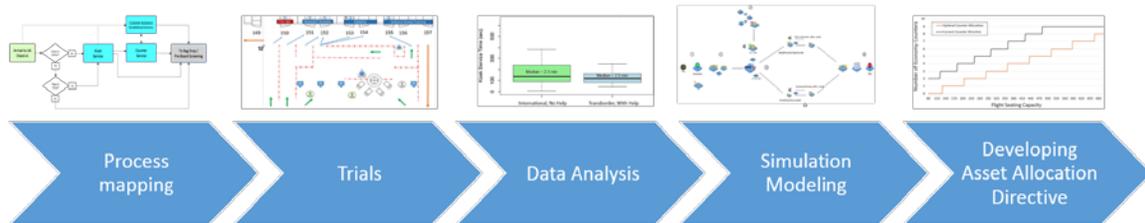
Vancouver International Airport (YVR) is Canada's second busiest airport, connecting over 22.3 million passengers annually to 125 non-stop destinations. Fifty-six airlines transport travelers and cargo to and from international, transborder and domestic locations daily. As demand for air travel grows, YVR's position as a major gateway between Asia and the Americas becomes more critical.



### Problem and Opportunity

The need to accommodate higher passenger volumes at YVR presents new operational challenges when it comes to scheduling shared check-in resources (kiosks and counters). YVR aimed to update its policies on resource usage to be leaner, thereby reducing the footprint check-in occupies. YVR's engineering planning team engaged the COE to investigate the question: *what opportunities are there for efficiency gains from using existing resources differently?* The key challenge was to satisfy different stakeholders' operational priorities. Hence, we set out to design and trial new service system configurations at check-in and to quantify how using existing resources differently leads to operational efficiency gains. Our data-backed findings would allow YVR to make better decisions about managing the trade-offs between increasing passenger throughput, maintaining acceptable service standards (i.e. wait times, queue lengths), and reducing the physical footprint check-in occupies.

### Approach and Solution



We first carried out observational studies to measure and quantify the efficiency of several airlines' check-in processes. After comparing the performance metrics across airlines and identifying areas for improvement, we designed alternative check-in service processes, emphasizing the use of kiosks to increase throughput and cut down on the number of counters needed. We then populated simulation models, with data collected from trials, to study the effect of varying the number of counters and kiosks has on maximum queue length and passenger flow time. From this output, we determined the least number of resources required, given the expected passenger volume, to meet reasonable performance metrics. Understanding how ideal resource quantities scaled proportionally with passenger volumes at check-in allowed us to select a more efficient combination of resources.

### Benefits to Client

Our project helped YVR quantify best practices at check-in, identify barriers to process improvement and leverage opportunities for efficiency gains. Our proposed approach to resource allocation demonstrates how YVR can scale back on counter resources, while maintaining acceptable service standards. YVR's operational decision makers have used our analysis to help make data-backed choices about allocating counter and kiosk resources. Our analysis will also help YVR make more informed facilities planning choices for future renovation projects.