

BEIJING CAPITAL INTERNATIONAL AIRPORT

Subhead - Beijing Capital International Airport

Client Name: Beijing Capital International Airport
Date Started: August 2016 **Duration:** 20 Weeks **Date Completed:** April 2017

Abstract - Beijing, as the capital of the most economically fast-growing nation in the world, has seen tremendous growth in its demand for airport capacity servicing 95.8 million passengers in 2017 (70.14 Domestic / 25.64 International). While the passenger numbers alone are impressive, what's equally as impressive is that this was all done by carefully managing facilities that have a total design demand passenger capacity of 95.5 Million. All current facilities promise to be severely tested as this growth continues beyond 100% demand, while the Government and private companies execute new management strategies and technologies to maintain acceptable levels of service until the new Beijing Daxing International Airport opens in the fall of 2019. If projected passenger increases are realized this means that the Beijing Capital International Airport could be running at ~106% demand by the new airport's opening.

BCIA Executives and Management have been actively engaged in airport terminal and airport system/airspace simulations for well over a decade to support strategic decisions regarding changes to existing services or for the timing of new airport construction.

This most recent multi-phase simulation project performed by Transoft Solutions Inc. involved the modeling, simulation logic, and analysis of the complete terminal system, consisting of three terminal buildings, the last of which was designed and opened prior to the 2008 Olympics, held in the Beijing area.

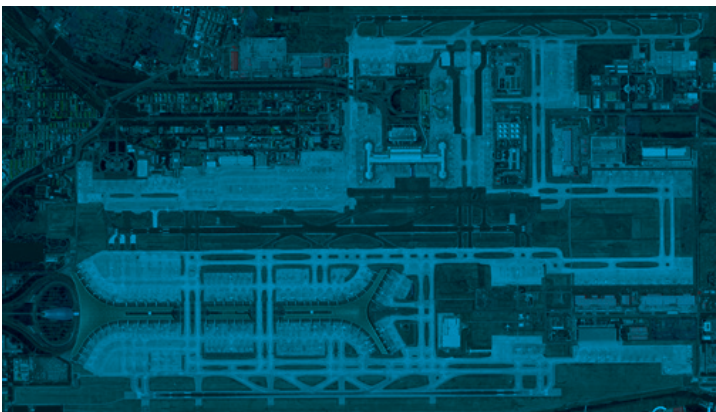
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Background - Beijing, as the capital of the most economically fast-growing nation in the world, has seen tremendous growth in its demand for airport capacity servicing 95.8 million passengers in 2017 (70.14 Domestic / 25.64 International). While the passenger numbers alone are impressive, what's equally as impressive is that this was all done by carefully managing facilities that have a total design demand passenger capacity of 95.5 Million. All current facilities promise to be severely tested as this growth continues beyond 100% demand, while the Government and private companies execute new management strategies and technologies to maintain acceptable levels of service until the new Beijing Daxing International Airport opens in the fall of 2019. If projected passenger increases are realized this means that the Beijing Capital International Airport could be running at ~106% demand by the new airport's opening.

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Beijing Capital International Airport – Capacity and Performance Analysis



Beijing Capital International Airport



Beijing Capital International Airport – Terminal 3 Check-In Hall 07-2017
Source https://news.cgtn.com/news/3d45544f3059444e/share_p.html

After an initial phase of planning and data collection model inputs and performance metrics were established to determine Level of Service (LOS) and capacity of the following areas in all three terminals:

1. Passenger check-in / ticketing – both full-service and self-service options
2. Baggage-drop
3. Entrance to Security Area
4. Security Screening Checkpoints
5. Elevator/escalator/stair vertical floor change
6. Departure Lounges
7. Baggage claim
8. Customs
9. Transfer facilities
10. Greeter's Hall

PHASE 1 – Planning and Data Collection – August 2016 – 4 Weeks

Project Lead: Miguel Bono Tur **Team Size:** 12 people **Toolset:** Microsoft Excel, Microsoft PowerPoint

Transoft Solutions Inc. resources were directly involved in the initial 2-week project planning and in the training and task management of university students to collect current airport data for specific functional areas of the facility over a following 2-week period. Limiting unverified assumptions through the collection of quality data is essential for any project to support the development of histograms and empirical

distributions that can be applied to the simulation processing. While average times are often discussed in industry, distributions will produce results that most closely correlate simulation output to real world conditions for model calibration. Data was collected in the following 9 functional areas of the airport to support the listed modeling criteria:

Feature type							
Terminal Curbside	Arrival Time	Arline	Flight #	Destination	PAX Type	Group Size	
Check-in	Service Type/Time	Ticket Type	Checked Bag	Carry-On	Gender	Nationality	Accessibility
Security	Doc Check Time	Divest Time	Body Check Time	Probability Inspection	X-Ray Time	Items Collection Time	E-Gate Time
Emigration	Service Time						
Aircraft Unloading	Advance Boarding Call Time	Total process Time					
Aircraft Loading	Start Time after Arrival	Boarding Call Times	Boarding Sequence				
Immigration	Service Time (CHINESE)	Service Time (FOREIGNERS)	E-Gates Time (CHINESE)				
Bag Reclaim	Delivery Time after ATA						
Customs	Service Time	Probability Inspection					

PLANNING

Date	Organizer	Required resources	Descriptions
2019-04-22	PANSA		Delivery of procedures relevant for TMA/APP (see Section 3.1.1) and ACC/En-route (see Section 3.1.2)
2019-04-22	PANSA		Provision of point of contact for technical questions
2019-04-23	TRANSOFT	PANSA: ACC & TMA experts	FIR-1 Teleconference, 2 hours long
2019-04-29	TRANSOFT	PANSA: ACC & TMA experts	FIR-1 Teleconference, 2 hours long
2019-04-29	PANSA		Delivery of radar data (24hr long)
2019-05-06	TRANSOFT	PANSA: ACC & TMA experts	FIR-1 Teleconference, 2 hours long
2019-05-06	PANSA		Delivery of airside procedures (see Section 3.1.3)
2019-05-13	TRANSOFT	PANSA: TWR expert	FIR-1 Teleconference, 1 hour long
2019-05-20	TRANSOFT	PANSA: TWR expert	FIR-1 Teleconference, 1 hour long
2019-06-03	TRANSOFT	PANSA: TWR expert	FIR-1 Teleconference, 1 hour long