INNOVATION IN AIRPORTS

By
SHIVA VENKATRAMAN
FOUNDER & CEO
www.varidus.com
&
ADJUNCT FACULTY
HTTPS://ASIA.ERAU.Edu
ABOUT ME

• Founder & CEO of Varidus (New spin on venture capital)
• Worked for United Airlines and consulted with Cathay Pacific, Garuda, Malaysia Airlines, etc.
• Helped Founders in over 20 start-ups, worked for a few of them.
• Faculty at Embry Riddle Aeronautical University, SP Jain School of Management, Harvard, FDU, etc.
• Only Latin American Airports left on my bucket list.
MY 15 MIN FLIGHT ON INNOVATION…

• Case Studies of 4 Innovative Airports

• Digital Innovation Framework for Airports

• Defining your Innovation Eco-System

• Questions: Please hold at 10,000 feet!!
CASE STUDY DUBAI AIRPORT

BUSINESS GOALS

- Increase airport capacity
- Without additional terminal space
- 95% of passengers > security < 5 mins
- Accurately predict baggage load
- Efficient cleaning and maintenance of bathrooms
- Improve security and service

DATA SOURCES

- Flight Schedules
- Wi-fi Network
- Metal Detector Data
- Baggage System
- Sensor Data (Toilet doors, faucets)
- Queue Measurement Data

BIG AIRPORT, BIG DATA

Airports are increasingly turning to big data to boost efficiency, installing sensors that collect information on everything from line lengths to how often toilet taps are turned on. WIRED crunched the numbers on the info collected by Dubai International Airport in just 24 hours.

35 terabytes
Data handled by airport’s passenger IT systems

351,000
Passengers detected by 1,000 sensors

150,000
Devices connected to the firm’s wifi

60,000
Faces scanned at e-gates

16,000
Number of pieces of luggage per hour Terminal 3 can handle in ‘virtual bag’ tests

200
Approximate number of data points per bag

48 million
Data points collected by baggage system

150 million
Number of data points collected

* Six-month average, based on airport operations, excluding IT systems.
CASE STUDY: HONG KONG AIRPORT

BUSINESS GOALS
- Joyful customer experience
- Smartification for People, Business & Operations
- Mindset Change
- Creative Thinking
- Effective use of infrastructure

DATA SOURCES
- Check-in Kiosks
- Self-Bag Drop Kiosks
- E-Gates
- Passenger Biometrics
- CCTV
- Passenger Apps
- Chatbots
- Robots
CASE STUDY: HOUSTON AIRPORT

BUSINESS GOALS
• Gain insights into passenger data
• Gain insights into car parking
• Share data across TWO airports
• Facilitate Decision Making

DATA SOURCES
• Leverage Credit Card data of Passengers
• License Plate data
• Develop psychographic profiles of passengers
• Psychographic > Buying Profiles of Passengers
CASE STUDY: LONDON HEATHROW

BUSINESS GOALS

• Study baggage data
• Forecast Baggage flow
• Flag problems in Baggage handling capacity
• Prevent strain on Security Staff
• Re-architect data analytics system written in PERL (old language)

DATA SOURCES

• Historical Baggage Data
• Unplanned events
• Weather data
• Flight control data
• Security Staff Capacity Data
POTENTIAL AREAS TO INNOVATE

- Passenger FootFall/Area & Revenue
- Passenger Service Improvement
- Crowd Analytics
- Predictive Analytics of Delays
- Safety Analytics (Runway, Weather, Terrorism, etc.)
- Facilities Analytics (Bathrooms, Baggage Area, Gate Assignments....)
- Baggage Damaged & Lost Improvement Analytics
SIMPLE DIGITAL INNOVATION PROCESS

1. Define Vision
2. Create Digital Innovation Strategy
3. Create Future Operational Plan
4. Assemble Plan, People, Processes, Capabilities
5. Pilot, Test, Feedback

The process is iterative and circular, allowing for continuous improvement and adaptation.
COMBINE INNOVATION + SMAC

- Cloud (On-Demand Computing for Airport Applications)
- Analytics (Airport Data)+AI
- Social (Engagement+Data Gathering)
- Mobile (Enabled Decision Making)