Passenger Flow Management & Technologies Study

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Study Summary

• The Study
• Findings
• Technologies
Participants

Airports

56 Invited Airports

22 Top 50 Airports

34 non-top Tier Airports

Total airports invited/contacted: 56
Interviews, Surveys & Meetings: 15
Total Airports Represented in Study: 21
Total PAX @ Airports: 415 Mn

33% Americas, 53% Europe, 6% Asia-PAC
Participants

Airlines

5 Invited

2 Engaged

Government Agencies/Authorities

5 Invited

3 Engaged
Participants

Technology Vendors

- 22 Invited
- 17 Engaged
- 2 Decline
- 3 No reply

Measurement and Push Technologies

- Video analytics
- Bluetooth
- SMS
- Mobile-web
- Wireless (802.11)
- Wireless - token
- Thermal Imaging
- Bar Code/ID Data Capture
- RFID
- Laser
- Biometrics card
- GSM Tracking
Study Summary

• The Study
• Findings
• Technologies
Findings

Airports

Airport Interviews/Surveys: Key Business Drivers Classification

- Security/immigration wait-time SLA compliance
- Improving pax experience
- Enhancing security
- Automating alignment of staffing and resources to pax flow
- Developing non-aeronautical revenue
- Improved infrastructure utilisation and efficiency
Findings

Airports

Airport Interview/Survey Responses: Experience with Measurement Technologies

- Video analytics
- Bluetooth
- 2DBC Validation
- Thermal Imaging
- Laser
- RFID
- Wi-fi tracking
- GSM tracking

Implemented
Retired
Implemented
Planned usage
Trialled
Trial planned
Interest in
Findings

Key Technologies: Implementations

- **Check-in**
  - Installed Base: 2
  - Planned usage or trial/interest: 3
  - Vendor reference airports: 3 (V=3)

- **Bag drop**
  - Installed Base: 1
  - Planned usage or trial/interest: 1
  - Vendor reference airports: 1 (V=1)

- **Security**
  - Installed Base: 1
  - Planned usage or trial/interest: 1
  - Vendor reference airports: 1

- **Retail**
  - Installed Base: 3
  - Planned usage or trial/interest: 2
  - Vendor reference airports: 5 (V=5)

- **Boarding**
  - Installed Base: 3
  - Planned usage or trial/interest: 2
  - Vendor reference airports: 2 (V=2)

- **(Immigration)**
  - Installed Base: 1
  - Planned usage or trial/interest: 1
  - Vendor reference airports: 1

**Legend:**
- **I** = Installed Base
- **P** = Planned usage or trial/interest
- **V** = Vendor reference airports

**Base:** Airports interviewed/surveyed and vendor reference airports (15)
Study Summary

• The Study
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• Technologies
Airport Technology Plans

All activity by technology - past, current and plans
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<th>Lifecycle Stage</th>
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| Bluetooth    | Growth          | • Initial deployments focused around proximity marketing in retail but has grown into a tool used for security, and recently, immigration wait-time measurement.  
  • Has grown into a tool which measures average wait-time based on sampling to monitor flow through a queue (fairly) anonymously, with 15-20% overall sample rate.  
  • Certain countries e.g. USA, Germany dictate that passengers are informed of tracking (which can reduce sample rate). Also, vendor feedback that regulators can at a national level and have disapproved e.g. French CAA due to low sample rate especially with small queues.  
  • Spectrum management issues at certain airports have resulted in its exclusion (BAA airports, although there are certain technical variations (power levels, etc.) which may address this in the future.  
  • Generally complemented by laser or other people counting technology to determine absolute volumes.  
  • Push capabilities which are usable for e.g. flight information push to passengers but trials have shown this is not a viable means to deliver proximity marketing as non-specific to passenger, seen as spam. Only one airport engaged has plans in this direction (AMS). |
| 2DBC         | Growth          | • Strong acceptance in check-in and boarding, and growing in security, with scanners and associated validation platforms (Desko, also Access Technologies).  
  • Fundamentally a means for airlines to track passengers at a coarse-grained level.  
  • Very few airports (2) engaged either harnessing the data, or elements thereof to measure aggregate passenger flow. |
# Technologies Lifecycle Stages

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| Wi-Fi                 | Emerging        | • Some interest as a future platform, both for measurement and personalized passenger services due to push/pull capabilities.  
                         |                 | • Growing base of WiFi enabled phones/devices and airport networks.  
                         |                 | • Most technical solutions are based on tags, incl. those that support RFID over WiFi, which brings major process complexity and cost. Known solutions based on context-based services to phones and personal devices emerged in shopping centres (Kista Galleria in Sweden). An airport that have looked into this as a means of providing required accuracy for queue management consider tracking accuracy and also infrastructure cost to be a major issue.  
                         |                 | • Becoming established in outdoor LBS (location based services) to complement GPS and GSM/cell technologies in multi-lateration to provide accuracy at a 'street level' but not yet proven for indoor tracking and fine-grained location services |
| Thermal Imaging       | Mature          | • Mature and robust people-counting and congestion-monitoring technology  
                         |                 | • Use potential in areas where there is variable light levels, glare  
                         |                 | • High accuracy levels (95% and above) in ideal environments  
                         |                 | • Strength in congestion monitoring, with evolving linkages to building management systems |
| Video Analytics       | Growth          | • Primarily a security and safety technology to identify threats across the entire airport facility, including airfield, perimeter and terminals  
                         |                 | • Has grown into BI/operational applications, including point solutions and platforms involving intelligent sensors with embedded analytics for retail, security queue/zone.  
                         |                 | • Mature technology in safety and security applications, which is now growing into business intelligence application types, including passenger flow measurement. Early stages of emerging to address passenger tracking through facial recognition and people-following technologies. |
## Technologies Lifecycle Stages

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| RFID/NFC     | Expired / Early Stage | - While a growth technology for baggage and airport asset/staff tracking, yet to emerge for passenger tracking, except small trials  
                        - The combination of growth in home check-in and the added complexity that the use of tokens presents, has negatively impacted this as a viable option  
                        - Near Field Communication does however have future promise; particularly when used in conjunction with eGates and could potentially complement 2DBC in terms of speed and ease of use for passengers equipped with NFC-enabled phones, which are now becoming available. |
| Laser        | Mature           | - Well established low cost people counting technology.  
                        - Used to count through fixed portals e.g. narrow doors and passageways, and complements other technologies that can measure passenger flow and track individuals |
Future Technologies

*Turn passengers into an engaged community right from their own mobile phone*

- Simple and works on any smart phone
- Pique interest, engage passengers
- Increase in-airport sales and generate new revenue streams