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AVIATION   TRANSPORTATION   TOURISM

Understanding the Traveler Using Automated Communication Device Tracking

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The Concept

□ The almost universal incorporation of wireless network (Wi-Fi) and Bluetooth communications into cellphones presents a set of new tools with which to better understand our customers.

□ Partnerships amongst travel gateways, tourist attractions, events, and other venues allows for information sharing in order to better understand the travelers' behaviours while visiting a destination

□ Round the clock 24/7 sampling across an extended period generates very large sample volumes with which to conduct statistical analysis and develop an understanding of underlying behaviour patterns.
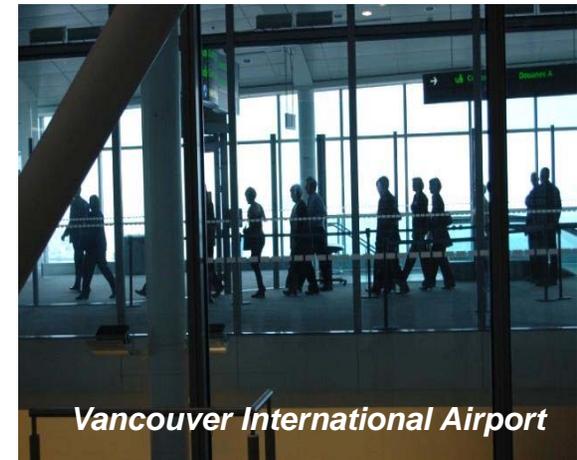
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How it Works

❑ Bluetooth is an open wireless communication standard for exchanged data over short distances. The open standard, low power consumption, and data security, have made Bluetooth popular for wireless communication between electronic devices.

❑ Cell phones equipped with Bluetooth or Wi-Fi have a unique identifier called a MAC address.

❑ The Wi-Fi and Bluetooth communications protocols include the RSSI (Received Signal Strength Indicator) which returns the received signal strength to the transmitting device allowing consistent range estimation.

❑ If either of these wireless functions are activated, scanners located around a facility can record the anonymous MAC address and the signal strength to track the movement of the device through the facility.
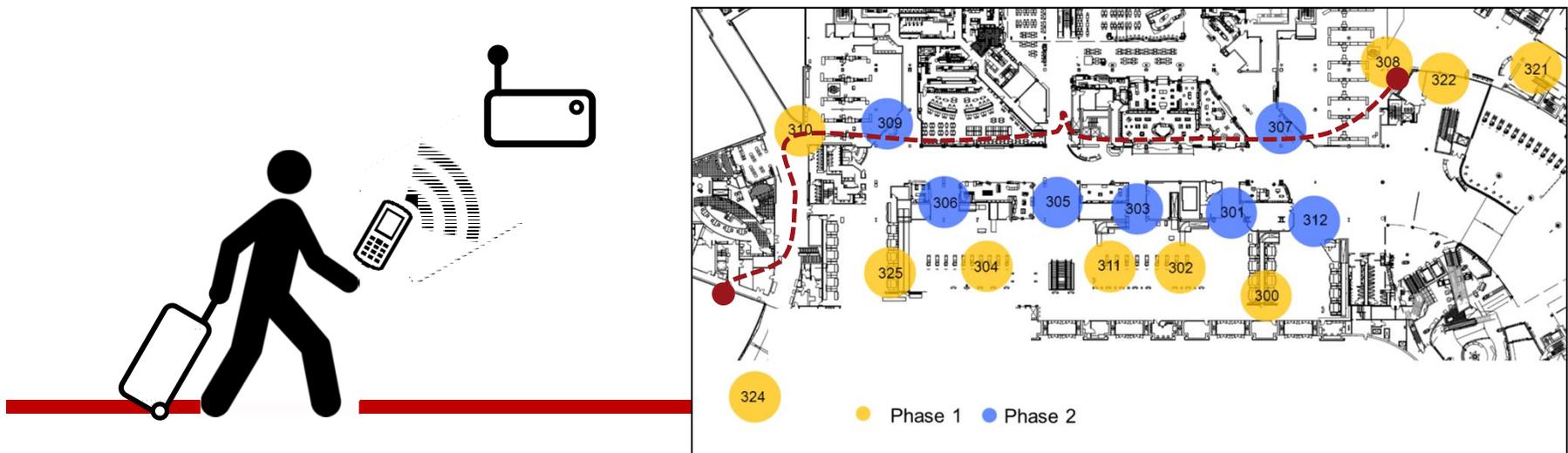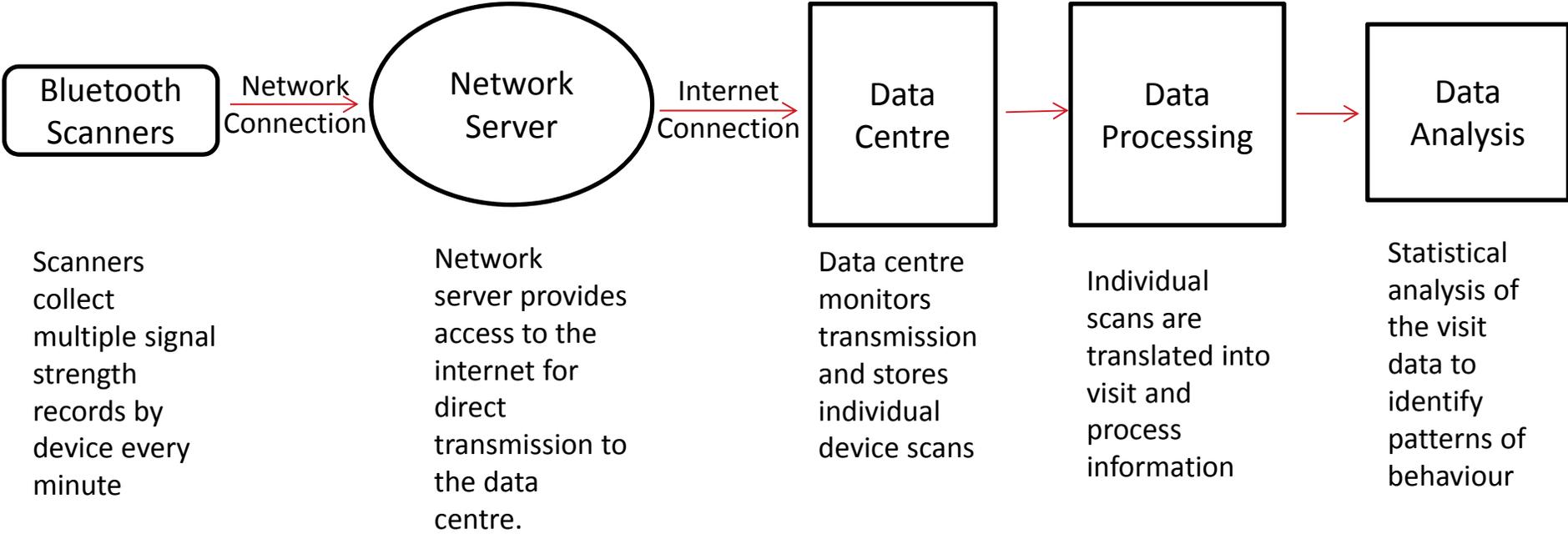
How it Works

❑ With these technologies we can :

- Identify when a customer enters a venue such as an airport, transit or train station, a tourist attraction, or a shopping mall

- How they then pass through the venue and the time spent at the processes and sub-processes within it

Vancouver International Airport

Camlik Shopping Mall, Denizli - Turkey

New Port Mann Bridge, Vancouver

Utrecht Train Station, Netherlands

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Data Processing Flow

Bluetooth Scanners → Network Connection → Network Server → Internet Connection → Data Centre → Data Processing → Data Analysis

Bluetooth Scanners

Scanners collect multiple signal strength records by device every minute

Network Server

Network server provides access to the internet for direct transmission to the data centre.

Data Centre

Data centre monitors transmission and stores individual device scans

Data Processing

Individual scans are translated into visit and process information

Data Analysis

Statistical analysis of the visit data to identify patterns of behaviour

What Does it Look Like

Bluetrace bluetooth scanner and directional antenna

11.5 cm

MAC Address Tracking is Anonymous and Non-invasive

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❑ MAC addresses are not associated with the mobile phone number or with any personal information.

- There is no direct interaction or capture of personal data or of information kept on the phone.

- Information remains completely anonymous, ensuring passenger privacy.

- The MAC addresses can be further encrypted as a guarantee of anonymity.

❑ The research is non-invasive as it does not alter the customers' behaviours or processing in any way.

- There is no requirement to directly interact with the traveler.

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Current and Interested Industries and Applications

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- ❑ Airports
  - ▪ Vancouver
  - ▪ Toronto
  - ▪ Montreal
  - ▪ Copenhagen
  - ▪ Heathrow
  - ▪ Schiphol
  - ▪ Hamburg
  - ▪ Houston
  - ▪ US TSA

- ❑ Airlines
  - ▪ A large US Carrier to measure hub efficiency

- ❑ Rail and Transit
  - ▪ Utrecht Rail Station
  - ▪ Trans-link Vancouver
  - ▪ Washington Metropolitan Area DC Transit

- ❑ Shopping Malls
  - ▪ European factory outlet malls

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Airport Application

❑ Real-time monitor of queue and dwell times by process

  ▪ Check-in, Security, Customs and Immigration, Baggage Delivery

❑ Process time benchmarking

❑ Carrier performance comparison

❑ Passenger flow and pathways through the airport

❑ Retail shopping behaviour and correlation with passenger flow and processing efficiency

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Vancouver Airport Implementation
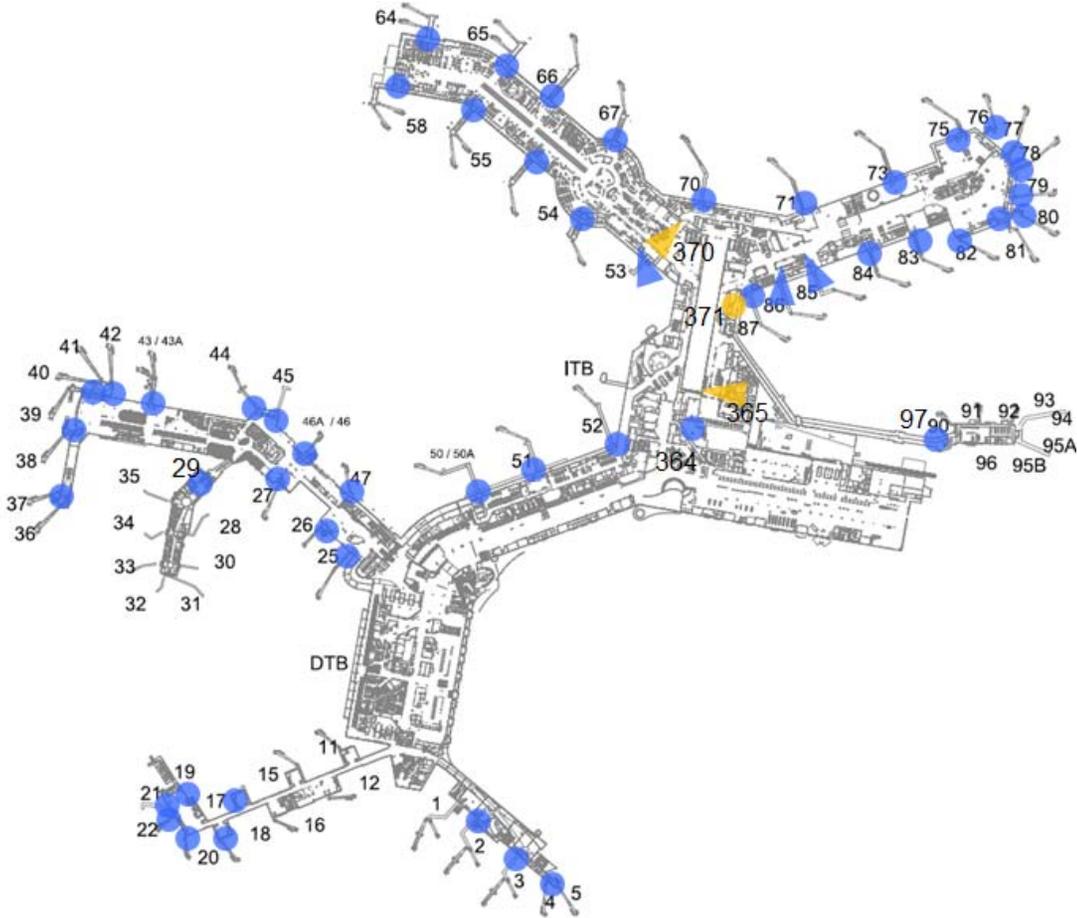
❑ Location of scanners at the gates allows YVR to match arrival / departure with gate schedule

❑ Gate schedule defines the carrier and the flight origin and destination

Vancouver Airport Implementation Benefits to the Airport

❑ Consistent tool to measure around the clock process performance:

   ▪ Establish performance targets for stakeholder community

   ▪ Measure performance and provide guarantees against targets

❑ Provision of detailed analysis of customer volumes by process and floating hour as input to planning process.

❑ Quantification of the relationship between process efficiency and visits to the retail stores.

❑ Timely feedback on procedure and facility modifications designed to improve process efficiency.

❑ Linking of satisfaction surveys with actual realized experience to validate assumptions re key drivers of passenger satisfaction

Benefits from Real-time Monitoring

- ❑ Real-time monitoring lets a venue take immediate action to address issues affecting customer satisfaction that would otherwise have implications on retail spend or future visits.

- ❑ Aggregate information enables the venue to set service standards and monitor performance over time and with their partners to quantifiably set and measure performance benchmarks making it possible to offer incentives based on tangible results.

- ❑ Retail programs can benefit from better understanding the visitor flow and the factors affecting visits by time of day and day of week.

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Applications for Tourism Marketing

❑ Individually tourism venues can apply communications device tracking tools to improve the service offered to the customer

❑ Collectively information shared across a destination can build an image of customer behaviour:

- Airport information provides passenger origin, arrival and departure date

- Scanners at venues and attractions provide information on the tourists behaviours, interests, and experience

❑ Statistical analysis can identify patterns and determinants in behaviour that can be used to:

- Direct the marketing and communications program and measure effectiveness

- Identify product weakness and strengths and assist in setting strategic direction

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Types of Tourism Data that Could be Collected

Share of Manitoba Visits by Venue				
Point of Origin:	Ontario			
Month:	July			
Venue	Length of Stay			
	<= 3 days	4 - 7 days	8 - 14 days	> 2 weeks
Museums	7%	13%	19%	21%
Arts and Culture Attractions	1%	6%	13%	15%
Festivals	1%	6%	9%	12%
Sporting Events	15%	13%	13%	12%
Entertainment Events	15%	13%	13%	12%
Theme Parks and Zoos	15%	13%	13%	12%
Hunting/Fishing Lodges	0%	6%	9%	7%
Resorts and Camping	1%	5%	5%	5%
Conventions	44%	25%	6%	2%
Share of Total Visits	**30%**	**45%**	**15%**	**10%**

❑ Varying behaviours based on origin, season, length of stay, and group size.

❑ Trending of behaviours month-to-month and year-over-year

❑ Results can be augmented with external data such weather, special events, political events etc.

Issues

- ❑ Low sample rates:
  - ▪ Problem: Share of consumers with their communications devices appropriately enabled varies between 2% - 15%
  - ▪ Mitigation:
    - • Continuous sampling leads to large sample sizes
    - • Process measurement needs only a small sample size to represent the queue/dwell time
- ❑ Cost:
  - ▪ Problem: Technology is not in expensive:
    - • Scanners can range in price from $1,000 to $2,000 per unit
    - • Data management, processing and analysis can cost form $10,000 to $200,000 per year depending on scope
  - ▪ Mitigation:
    - • Per customer surveyed, costs are extremely low
    - • Opportunity to share information across network of travel patterns

- ❑ Privacy
  - ▪ Problem: Customers will inevitably be wary of any technology the monitors their movement
  - ▪ Mitigation:
    - • Meets the highest standards for privacy protection
    - • Negative customer response to date has been minimal

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Only the Beginning

❑ The use of Bluetooth signal scanning to accurately measure processing times through airports and rail stations is now a proven technology meeting industry and government requirements for privacy and security.

❑ The travel industry is, however, only beginning to identify the applications and advantages of these types of passenger flow analysis tools and the installations to date represent only the tip of the iceberg.

Inter*VISTAS* would like to thank Vancouver airport for their contribution to this presentation

Thank-you for Your Attention

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