Big Data and Smart Tourism in Korea

Korea Tourism Big Data Lab

Smart Tourism City

October 26, 2023

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(Deputy Director of Tourism Big Data Strategy Team)
1. Changes in Tourism Market
2. Consumer Demand Changes
3. Digital Marketing Strategy
4. Korea Tourism Big Data Lab
5. Smart Tourism City
To advance tourism as a key driver for national economic growth and enhancement of national welfare.

- Int’l Tourism Division
- Domestic Tourism Division
- Tourism Industry Division
- Digital Tourism Division
1. Changes in Tourism Market
2. Consumer Demand Changes
3. Digital Tourism Marketing Strategy
4. Korea Tourism Big Data Lab
5. Smart Tourism City
1. Changes in Tourism Market

The number of Inbound Tourists to Korea has changed before and after the Pandemic.

<table>
<thead>
<tr>
<th>Year</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>14,000,000</td>
<td>18,000,000</td>
<td>2,000,000</td>
<td>6,000,000</td>
<td>10,000,000</td>
</tr>
</tbody>
</table>

2023:
- January: 200,000
- February: 400,000
- March: 600,000
- April: 800,000
- May: 1,000,000
- June: 1,200,000
- July: 1,200,000
- August: 1,400,000
1. Changes in Tourism Market

**Subdivision of Tourism Market**
- Customized Tour
- Individualized Tour

**Increase in Online Market**
- Diversified Tourism Platforms (App, web)
- Increase of OTA Market share

**Pursuit of Local Tourism**
- Extension of Travel Distance
- Local Tourism
1. Changes in Tourism Market

2. Consumer Demand Changes

3. Digital Tourism Marketing Strategy

4. Korea Tourism Data Lab

5. Smart Tourism City
2. Consumer Demand Changes

**Tourist**
- Change in tourism trends such as small-scale tourist destination, local tour, convenience, & pursuit of new experience, etc.
- Response to new tourism forms in periodic trend era of infectious diseases (endemic)
- Design of individual-customized tourism experience
- Enhancement of satisfaction with local tourism through provision of digital convenience & customized information, provision of opportunities for tourism experience

**Tourism Business**
- Global OTA enterprises expanded enormously with weakening of traditional tourism enterprises
- Reinforcement of tourism enterprises' competitiveness
- Reinforcement of linked cooperation among enterprises, between enterprise & area
- Enhancement of industrial competitiveness through digitalization of tourism enterprises and convergence of database technology & local tourism resources

**Local Government**
- Accelerated phenomenon of local extinction resulting from reduced population to face the limit on the development of local tourism
- Response to population reduction & local extinction through influx of tourists
- Reinforced competitiveness of local tourism through activation of participation by enterprises & local residents
- Enhancement of competitiveness for local Tourism by overcoming limitation of physical infrastructure and discovering diversified & differentiated attraction
1. Changes in Tourism Market
2. Consumer Demand Changes
3. **Digital Tourism Marketing Strategy**
4. Korea Tourism Big Data Lab
5. Smart Tourism City
3. Digital Marketing Strategy

Aims to support the Tourism Industry for a data-driven and sustainable decision-making.
3. Digital Marketing Strategy
1. Changes in Tourism Market
2. Consumer Demand Changes
3. Digital Tourism Marketing Strategy

**4. Korea Tourism Big Data Lab**
5. Smart Tourism City
Korea Tourism Big Data Lab (since Feb 21, 2021)

- **(What it is)** Tourism-specialized big data platform that provides tourism data and integrated analysis services
- **(Target Users)** Central and local governments, RTOs, tourism business sectors, academia and etc.
- **(Goal)** Supporting data-based scientific tourism policy establishment and tourism businesses
Korea Tourism Big Data Lab

Statistics

1) Monthly/yearly
2) One-time analysis report
3) Limitations to sample data of customer characteristics

Big Data

1) Timeliness
2) Sustainability
3) Characteristics of actual customers
4) Daily
5) Permanent platform
6) Customer characteristics based on actual data

- Big Data is a supplementary tool for statistics.
- Help making a better decision for policy-makers and business sectors.

1) Tourism Statistics: Statistics of foreign tourists visiting Korea, foreign visitor survey, a survey on traveling Koreans, statistics of visitors to major tourist attractions, tourism market research by country/theme
2) Big Data: Mobile Network Operators, credit card expenditure, navigation, social media, company information
4. Korea Tourism Big Data Lab

Big Data

- Mobile Network Operators
- Navigation
- Credit Card Expenditure
- Social Media
- Company Information

BIG DATA
TOURISM MARKET TREND RESEARCH
Mobile Network Operators (Koreans & Foreigners)

- Data from 2 operators – KT and SKT (60% of the market)
  (* There are 3 mobile network operators; we only collect data from 2 operators.)

- Big Data Guideline made in 2019
  - Raw data not suitable for tourism analysis.
  - Defining terms for analysis such as visitors or foreigners

VISITORS (define a visitor not a tourist)
: A person who stayed in a Specific Area or Location for a certain period or longer

FOREIGNERS
: Roaming data of foreigners who stayed less than 15 days in 60 days
Mobile Network Operators (Koreans & Foreigners)

- Customer characteristics – gender, age, place of residence, nationality, length of stay can be defined

- Parameter estimation
  - KT using the market share ratio / SKT using age range comparison
  - cannot add the number of visitors from two operators
• Data from travel by individual vehicle (excluding travelers on foot)

• Destination Search: Traveling more than 100m for longer than 1 min (may not arrive the destination)

• Departure-Arrival data: Traveling more than 1km after entering the destination

• Destination Revisit: verifying what types of visitors visited each destination often

• Can be used for tourist-targeted services such as tourist destination recommendations
• Data Source: BC card and Shinhan card
  - BC card: an alliance group – many credit cards joined the group
  - Shinhan Card: Korean company – the 1st credit card company in Korea

• (Basic Info) Date of expenditure, amount, location, gender, age group, etc.
• (Tourism-related Category) Accommodation, transportation, airline, leisure, duty free, online, casino, etc.
• (Life Cycle Info) Single, newly married or family with infants or toddler, family with children, elderly

• No parameter estimated (cannot estimate the whole amount of expenditure in each category)
4. Korea Tourism Big Data Lab

Main services

Tourism Data Analysis Service

Tourism Big Data
Tourism Data Analysis – Inbound Tourism Market Analysis

Analysis by country / global status / global travel
Tourism Data Analysis – Inbound Tourism Market Analysis

Analysis by country / global status / global travel
Tourism Data Analysis – Inbound Tourism Market Analysis

Analysis by country / status by country > Travel to Korea by country

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Tourism Data Analysis – Inbound Tourism Market Analysis

Analysis by country / global social media > Travel trends in Korea
Tourism Data Analysis – Domestic Tourism Market Analysis

Analysis by region > Status by region > Tourism by region > Comprehensive analysis

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Tourism Data Analysis – Domestic Tourism Market Analysis

Analysis by region > Status by region > Tourism by region > Visitor

Wonju City, Gangwon Province

Visitor trend
Tourism Data Analysis – Domestic Tourism Market Analysis

Analysis by region > Status by region > Tourism by region > Visitor
Tourism Data Analysis – Domestic Tourism Market Analysis

Analysis by region > Status by region > Tourism by region > Visitor
Tourism Data Analysis – Domestic Tourism Market Analysis

Analysis by region > Status by region > Tourism by region > Accommodation / Stay time

Wonju City, Gangwon Province

Visitor trend by number of nights

*To download individual data, click the More menu button at the top right of the data
Tourism Data Analysis – Domestic Tourism Market Analysis

Analysis by region > Status by region > Tourism by region > Accommodation / Stay time

Percentage of staying visitors/Average number of days of stay

Number of visitors by number of nights

Average length of stay
Tourism Data Analysis – Domestic Tourism Market Analysis

Analysis by region > Status by region > Tourism by region > Tourism Consumption
Tourism Data Analysis – Domestic Tourism Market Analysis

Analysis by region > Status by region > Tourism by region > Popular tourist destination

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Tourism Data Analysis – Domestic Tourism Market Analysis

Analysis by region > Status by region > Tourism by region > Popular tourist destination

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Festival analysis

We provide a Festival Performance Analysis Report using data from Mobile Network Operators, Navigation, and SNS when a local government or RTO requests the report.
Map of Center-related Tourist Spots

- shows the map of the center tourist spot and related tourist spots on the map.
- Useful to make a tour schedule
TREND REPORT

2023 Travel Trend “일상의 모든 순간이 여행”

- 로컬 관광: Meet the local
- 아웃도어 레저 여행: Outdoor/leisure travel
- 농촌 여행: Memorable time in rural
- 친환경 여행: Eco-friendly travel
- 체류형 여행: Need for longer stay
- 취미 여행: Trip to enjoy hobbies
## Restaurant Chart

### Top 10 locals

<table>
<thead>
<tr>
<th>Rank</th>
<th>Restaurant Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Donghwa Garden</td>
<td>754 Chodangmul-dong, Gwangju-si, Gyeongbuk</td>
</tr>
<tr>
<td>2nd</td>
<td>Cheongho Samul Hoe S...</td>
<td>11-28, Expoye-ro, Solcho-dong, Gangwondo</td>
</tr>
<tr>
<td>3rd</td>
<td>Thurnbo Pongyang Main Store</td>
<td>21-4, Geoyo-gil, 256Bcheon-gil, Ga...</td>
</tr>
<tr>
<td>4th</td>
<td>Stone Creek</td>
<td>1401-8, Jinjeon-dong, Wonja-si, Gangwondo</td>
</tr>
<tr>
<td>5th</td>
<td>Terra Rosa Coffee Factory</td>
<td>7-7, Hyonchon-gil, Gangnong-dong, Ga...</td>
</tr>
<tr>
<td>6th</td>
<td>Log House Dakgalbi Main Store</td>
<td>783-3, Sinsaabat-eup, Chunchon-myeon, G...</td>
</tr>
<tr>
<td>7th</td>
<td>Cakeryum</td>
<td>211-2, Wonchang-dong, Chunchon-myeon, G...</td>
</tr>
<tr>
<td>8th</td>
<td>Sea Garden</td>
<td>230, Beongje, Goseong-gu, Gangwon-do</td>
</tr>
<tr>
<td>9th</td>
<td>Ambrosia Sonoefelice</td>
<td>135-3, Minyong-dong, Goseong-gu, Gangwon-</td>
</tr>
<tr>
<td>10th</td>
<td>Bongpo Meoguri House</td>
<td>235-2, Yeongungno, Solcho-dong, Gangwon-</td>
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### Outsider ranking 10

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<td>Cheongho Samul Hoe S...</td>
<td>12-30, Expoye-ro, Solcho-dong, Gangwondo</td>
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<tr>
<td>4th</td>
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<td>783-3, Sinsaabat-eup, Chunchon-myeon, G...</td>
</tr>
<tr>
<td>5th</td>
<td>The Ambrosia Sonoefelice</td>
<td>135-3, Minyong-dong, Goseong-gu, Gangwon-</td>
</tr>
<tr>
<td>6th</td>
<td>Manseok Chicken Gangje...</td>
<td>72-6, Cheongcho-ban, Solcho-dong, Gang...</td>
</tr>
<tr>
<td>7th</td>
<td>Sinsa Seholeso</td>
<td>793-1, Goseong, Goseong-gu, Gangwon-do</td>
</tr>
<tr>
<td>8th</td>
<td>Sinsa Seholeso</td>
<td>793-1, Goseong, Goseong-gu, Gangwon-do</td>
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<td>793-1, Goseong, Goseong-gu, Gangwon-do</td>
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*We will pick and tell you the restaurants that locals often visit and the restaurants that travelers enjoy by using big data.*
4. Korea Tourism Big Data Lab

Travel Recommendation

Busan trip, BEST 4 hidden cherry blossom spots that you will regret if you do not go

Are you thinking about your travel plans?
Automatically create a customized travel course tailored to your taste with the AI Kollocz Planner in every corner of Korea!
4. Korea Tourism Big Data Lab

Local Government Data Lab Use Case

- Paju City Tourism Department

- Solving traffic congestion and parking problems by analyzing the concentration rate of visitors to tourist attractions and distribution by residence

- Tongil Garden Special Tourists Zone (Heyri + Provence)
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### Smart Experience
- Maximize the experience through convergence of Resource and Technologies
  - AR/VR Experience
  - Gamification
  - Interactive Elements

### Smart Conveniences
- Provide tourists with maximum convenience
  - Chat Bot
  - Multilingual Service
  - Smart Order

### Smart Accessibility
- Improve accessibility both physically and digitally
  - Smart Mobility
  - Mobile Tourism Map
  - Sign Language Guide

### Smart Platform
- Collect, share, utilize tourism data
  - Integrated Mobile Platform
  - Public Wi-Fi
  - Data Opening & Visualization
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Case 1 – Incheon

Vision
Time Travel Back to 19th Century
Via mobile, ‘Incheon Easy’

Area
Around Jung-ku open seaport
(Approx. 537,000 m²)

Period
Sept. 2020 ~ Jul. 2021 (11 months)

Budget
7 billion won (3.5 billion of government expense, 3.5 billion of local expense)

Background

Incheon’s representative tourist destination, Open Port
Adjacent to China Town, Woimi-de, Sinpo Market, etc.

Diversified contents for history & culture
Linkage with smart technology

Presentation expected of leading model for smart tourism innovation

VR Time Travel
Time tour to past by AR reproduction of panorama, people at time of 19th century

AI Tour Recommendation
My own tour course customized for taste, preference

Mobile Simple Payment
NFC payment (Incheon Smart Tourism City ONLY)

AR Docent
Diversified people revived by AR at Modern-Time Open Port to introduce history & culture

Free Wi-Fi
Free Wi-Fi service within Smart Tourism City

Mobile Service
 Provision of vehicles and mobile service optimized for tour schedule
5. Smart Tourism City

Case 2 – Suwon

Vision
Time slip with ‘Touch Suwon’, 1795 Suwon Hwaseong

Area
Suwon Hwaseong Special Tourist Zone (around the palace building)

Period
Sept. 2021 ~ Jul. 2022 (11 months)

Budget
7 billion won (3.5 billion of government expense, 3.5 billion of local expense)

XR Bus
Mobility + history education together, Expanded reality(XR) experience

AI Tour Secretary
Customized tour schedule with AI by simple survey

Audio Guide
Realistic guide with dramatized audio guide by famous history instructor

AR Hwaseong Palace
AR realization of appearance of major facilities & inside of unopened ruins

Smart Order
Mobile reservation and payment for Restaurant, cafe and crafts shop

IoT Locker
Luggage storage service utilizing IoT technology

Backgrounds for creation of Suwon Smart Tourism City
Suwon Hwaseong registered in UNESCO World Cultural Heritage
Limitation to development of physical tourism according to protection & management

Strict restrictions on development activities
Occurrence of economic loss and inconvenience compared with new downtown free to develop

Need ways to manage tourist attractions without damaging the Heritages
Necessity of new development measure & win-win model for urban growth