Smart Tourism

HYPE OR REAL OPPORTUNITY?

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Keynote at TTRA Canada Conference, Halifax, Nova Scotia, September 27, 2018
Google Trends Analysis for “Smart tourism”

Average Yearly Relative Popularity
2013-2017 (Worldwide)
Smart tourism practice

The Smart Tourism Initiative

Connectthings transforms a New York landmark into a smart tourism destination, enriching the visitor mobile experience.

17 Oct 2016

Jeju Island Promotes Smart Tourism By Fostering Growth of Startups

May 9, 2017
Cathy Ski

SMART TOURISM AFIRICA - COP22

Tourism Investment, a leverage of inclusive and sustainable development

10 and 11 November 2016 in Marrakesh

0 0 0
HOURS MINUTES SECONDS
DESTINOS TURÍSTICOS INTELIGENTES

TERRITORIO INNOVADOR

Innovación aplicada a sistemas, procesos y recursos enfocados al turismo
A new initiative to reward innovative and smart tourism in European Cities!
Google Scholar

"smart tourism"

About 2,810 results (0.13 sec)

Smart tourism destinations
D Buhalis, A Amaranagana - Information and communication technologies. The rapid development of technologies introduces smartness to all organic communities. The Smart Tourism Destinations (STD) concept emerges from development of Smart Cities. With technology being embedded on all orgs.

Smart tourism: foundations and developments
U Gretzel, M Sigala, Z Xiang, C Koo - Electronic Markets, 2015 - Springer
Smart tourism is a new buzzword applied to describe the increasing reliance of destinations, their industries and their tourists on emerging forms of ICT to massive amounts of data to be transformed into value propositions. However...

Creating value from social big data: implications for smart tourism destinations
P Del Vecchio, G Mele, V Ndou, G Secundo - Information Processing & ..., 2018 - Elsevier
This paper aims to demonstrate how the huge amount of Social Big Data available from tourists can nurture the value creation process for a Smart Tourism Destination. Applying a multiple-case study analysis, the paper explores a set of regional tourist experiences related...

China’s “smart tourism destination” initiative: A taste of logic
D Wang, XR Li, Y Li - Journal of Destination Marketing & Management, 2017 - Elsevier

Conceptual foundations for understanding smart tourism
U Gretzel, H Werthner, C Koo, C Lamfsus - Computers in Human Behavior
Using digital ecosystems and smart business networks as conceptual building blocks, the paper analyses, describes and illustrates the idea of a smart tourism ecosystem.

Smart Tourism Platform Based on Microservice Architecture and Recommender Services
LM Garcia, S Acar, R Mendoza, JJ Puello - International Conference on ..., 2018 - Springer
Smart tourism platforms have made it easier for travelers to plan and manage their trips as a decision support. This paper is focused on three applications in tourist intelligent (tourism marketplace, trip planning and heritage education), integrated in a microservice architecture...

Emerging Social Media and Social Networks Analysis Transforms the Tourism Industry: Living Green Smart Tourism Ecosystem
TH Tsai, HT Chang, YW Lin, MC Yu, PJ Lien - ... on Universal Access in ..., 2018 - Springer
Using the smart tourism ecosystem model as its framework as well as the strength of ties theory and the SNS social computing formula as a theoretical basis, this study establishes the Living Green tourism ecosystem to improve connections between businesses and the...

Open Data and tourism. Implications for tourism management in Smart Cities and Smart Tourism Destinations.
Smart Cities

• Investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, through participatory action and engagement (Caragliu et al. 2009).

• Smart cities can be identified along six main dimensions:
  1. a smart economy
  2. smart mobility
  3. a smart environment
  4. smart people
  5. smart living
  6. smart governance
Smart City Development

Drivers
• Technology
• Policy
• Community

Domains
• Economy
• Society
• Environment
• Governance

Focus
• Governance
• Planning
• Productivity
• Innovation
• Liveability
• Wellbeing
• Sustainability
• Accessibility

Outcomes
• Integrated governance
• Participatory planning
• Productivity gains
• Skilled workforce
• Competitive advantages
• Innovation culture
• Greater mobility
• Better infrastructure
• Enhanced quality of life
• Inclusive community
• Responsible mgt/use of natural resources

Yigitcanlar et al., 2018
Smart Tourism Definition

Tourism supported by:

1) **integrated efforts at a destination to collect and aggregate/harness data** derived from physical infrastructure, social connections, government/organizational sources and human bodies/minds in combination with

2) the use of advanced technologies to transform that data into on-site experiences and business value-propositions

3) with a **clear focus on efficiency, sustainability and experience enrichment**.

Delineation necessary

• Technology-enabled but not necessarily technology-focused
• Technology use is not equal to smart tourism
• While smartphones are a core technology (at the moment), smart tourism is not driven by a single technology

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<thead>
<tr>
<th>Sphere</th>
<th>e-Tourism</th>
<th>Smart Tourism</th>
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<tbody>
<tr>
<td>Core technology</td>
<td>websites</td>
<td>bridging digital &amp; physical</td>
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<td>Travel phase</td>
<td>pre- &amp; post-travel</td>
<td>sensors &amp; smartphones</td>
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<td>Lifeclose</td>
<td>information</td>
<td>during trip</td>
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<td>Paradigm</td>
<td>interactivity</td>
<td>big data</td>
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<td>Structure</td>
<td>value chain/intermediaries</td>
<td>technology-mediated co-creation</td>
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<td>public-private-consumer collaboration</td>
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Conceptual Layers of Smart Tourism

Gretzel, 2017
Physical Layer

- Buildings
- Artefacts
- Landscapes/fauna/flora
- Transportation infrastructure (planes, busses, bikes, trains, subway system, etc.)
- Energy grid/utilities
- Communications infrastructure
- Closed-circuit TV/traffic monitoring
- Signs
Technological layer

• smart technologies are those that sense, adapt, learn, infer, predict and self-organize (Derzko, 2006)

• Back-end: Sensors, RFID, NFC, smart meters, beacons, cloud computing, etc.

• Front-end: smart phones, mobile apps, context-aware systems, recommender systems, AR/VR, etc.

• IoT: = communication paradigm that envisions that objects of everyday life will be equipped with technology that will make them able to communicate with one another and with the users
Beacon technology
Seoul City Tour Bus stops equipped with beacon technology that offer targeted information in four different languages
Brisbane, Australia

Beacons signal new way for visitors to explore Queensland

29 March 2015

A landmark digital tourism initiative is guiding visitors to explore Queensland’s destinations as Tourism and Events Queensland rolls out Australia’s largest tourism network of iBeacons across the state.

In Townsville for the Palaszczuk Government’s first Community Cabinet, Minister for Tourism, Major Events and Small Business, Kate Jones, said 150 iBeacons would be installed across Queensland’s 13 tourism destinations at airports, visitor information centres, national parks and other popular tourism attractions.

"Using new location-based technology, the beacons will automatically deliver users of the This is Queensland app with information about the top things to see and do in the area,” Ms Jones said.

“The beacons will also be used at major events, alerting attendees to information about the event and destination.

“It’s technology that will enhance the visitor experience and makes discovering Queensland’s destinations easy and enjoyable.”

Tourism and Events Queensland CEO Leanne Coddington said the app aimed to better connect visitors with their destination and encourage users to share their experiences with family and friends on social media using #thisisqueensland.

“The app and beacons form part of TEQ’s strategy to evolve Queensland tourism’s digital presence using leading-edge technology,” Ms Coddington said.
Augmented reality app in Lyon

Finding and experiencing the hidden passageways of Lyon
IoT Trash Cans in Seoul
Basic
Human
Needs

Self-actualization
Creativity, Problem solving,
Authenticity, Spontaneity

Esteem
Self-esteem, Confidence, Achievement

Social Needs
Friends, Family

Safety and Security

Physiological Needs (survival)
Air, Shelter, Water, Food

WiFi

Battery
Vancouver free WiFi

This map shows the current and future locations where free public WiFi service is available.

341,297 views

SHARE

Coming Soon

Locations where free WiFi is coming soon

Free Public WiFi Hotspot

Locations where free public WiFi is available

Made with Google My Maps
Smart City Charging Station NYC
Data Layer

- Data conceptualization
- Data capture
- Data storage
- Data processing
- Data interoperability
- Data analytics
- Data sharing
- Cloud computing
- Open data
Valais Tourism Observatory: https://www.tourobs.ch/

Figure 5
Airbnb supply (red-yellow), and Hotel supply (blue-violet) in Switzerland. Combination of both previous maps.
Business Layer

- Open innovation/user-driven innovation
- Livinglabs/testbeds
- Agility
- Value co-creation
- Open system beyond specific industry
- DMO as data broker/clearinghouse
Tourism Techhubs and Startup Competitions
SNBSOFT is a firm that uses geospatial data to provide multi-lingual maps. Using open data sourced from the Korea Tourism Organization (KTO), the company launched Talkyple (토끼풀) in 2014, a digital map of Korea available in simplified Chinese. By the end of 2016, the map also became available in English and Japanese. Currently, SNBSOFT’s maps are used by over 20 firms in various sectors, and the company has surpassed KRW 1 billion in total sales.

On Dec. 28, the Ministry of Culture, Sports and Tourism published its “2016 Directory of Open Data Based Startups” (2016 문화데이터 활용 사례집), a list that spotlights firms like SNBSOFT which have blossomed by making use of the government’s publicly available open data.

The directory provides information on some 125 different businesses and organizations that have thrived in recent years thanks to open data. It also introduces 12 startups and their individual success stories. A total of 221 examples can be found in the listing, divided into five sections: concerts, exhibits and festivals; travel; books and design; cultural heritage and artifacts; and, sports and other.
Amsterdam LivingLabs

The IoT Living Lab, Tapp and the City Innovation Exchange Lab (CITIXL) featured in Amsterdam Smart Cities new “Smart Stories” website that shares 20 ways of looking at a bright future for the city.

The City Innovation Exchange Lab (CITIXL) is a participatory partnership lead by IoT Living Lab, Tapp and the City of Amsterdam CTO office. CITIXL has a new website and mission: To lead quick win collaborations for the City of Amsterdam and partners by leveraging the power of the crowd.
<table>
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<tr>
<th>Date</th>
<th>Event Description</th>
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| 18 SEP | Le Fabbulleux Mix brasse en grand !  
Living lab |
| 13 SEP | Plus on est de fous, plus on Fabbulle!  
Living lab |
| 11 SEP | Le LLio créera des cellules d'innovation en Gaspésie et aux Îles-de-la-Madeleine  
Living lab |
| 29 JUIL | Le Living Lab accueille un nouveau CCTT  
Living lab | Recherche |
| 07 NEC. | Le LLio du Cégep à Kuujjuaq  
Living lab |
Experience Layer

- Consumption and creation of data
- Personalization
- Recommendation
- Notification
- Co-creation
- Technology-enhanced experience
- Blurring of touristic and local
Smart Mobility in Barcelona
Smart Tourism - Smart Tourists Nexus

• Can there be smart tourism without smart tourists?
• To what extent does experience enhancement require active participation?
• Can tourists exist outside of the smart tourism destination?
• Will smart tourists appreciate smart experiences?
• Are smart experiences necessarily perceived as superior?
Smart Destination

“An innovative tourist destination, built on an infrastructure of state-of-the-art technology guaranteeing the sustainable development of the tourist area, accessible to everyone, which facilitates the visitors' interaction with and integration into their surroundings, increases the quality of the experience at the destination, while also improving the quality of life of its residents” (SEGITTUR, 2018, n.p.).
Although the world probably doesn’t need another definition of Smart Tourism Destination, here is my proposal:

A Smart Destination is a destination where companies, administrations and tourists constantly interact to perform three activities continuously and iteratively:

1) Collection of data about the activities that take place at the destination, collected from all possible sources of data (some of which already are available and others that will be implemented specifically for this aim).

2) Analysis of the wide variety of data collected using various intelligent algorithms to detect patterns of tourist behavior and of operations at the destination, in order to allow proposal of measures to improve both the management of the destination and tourist satisfaction.

3) Implementation of measures that pass an analysis of economic, technical and financial feasibility to improve the destination, making it more sustainable and adaptable to the needs and tastes of tourists who can even customize their experiences—as a result, tourists obtain a more satisfying stay while improving the efficiency and effectiveness of the destination.

Rethinking Understanding of Destinations

Without using digital technologies enabling adequate public–private–consumer collaboration, it is almost impossible nowadays to achieve successful market valorization of destinations’ geographical attributes.

Jovicic (2017): From the traditional understanding of tourism destination to the smart tourism destination, Current Issues in Tourism, DOI: 10.1080/13683500.2017.1313203

Smart destinations use technology to fundamentally change the relationships tourists have with the destination

Implementation of smart technologies and intelligent systems that support resource stewardship, effective marketing, efficient organization and superior service.

Roadblock Example: Bike sharing

- Most implemented smart city concept
- Tourists often an afterthought
- Lack of DMO involvement

Need for strong tourism governance!
Governance Example: Electric Scooters
Smart Tourism Governance

- engage in open data initiatives;
- coordinate among administrative levels;
- activate public-private partnerships;
- represent and foster integration of tourism in urban governance processes;
- safeguard and promote heritage and culture;
- promote active involvement of residential population;
- provide for network infrastructures;
- plan sensor network for touristic purposes;
- develop platforms that facilitate tourism-related exchanges;
- control energy and resources consumption;
- balance the integration of information for the common good with protecting privacy;
- enable sustainable solutions that reduce costs;
- reduce social conflicts.

Smart Tourism increases DMO relevance
Smart DMO Roles:

“to lobby and maybe even partly sponsor the development of smart tourism infrastructure, to curate and manage smart tourism data, to facilitate development and uptake of smart tourism-related applications within the digital business ecosystem, to support tourists in learning about and consuming smart tourism experiences, and, finally, to link smart tourism with overall quality of life and sustainability development goals”

Smart Tourism Regions

• Is Smart Tourism scalable?

• Urban bias in smart tourism research and practice

• Herrera Priano et al. (2016: 466) define a smart tourism region as one that “correctly identifies its strengths and opportunities, and that, moreover, properly coordinates the available – and usually limited – resources to yield the maximum productivity of the areas that comprise it”. - only covers governance aspect!

• They also warn: “…combining N smart cities within the same territory will not necessarily lead to a smart region.” – regional perspectives currently lacking!
Smart tourism beyond the destination?

• Smart tourism at tourist origin?
• Smart tourism in transit?
• Smart city origins might be too limiting
Smartness Threshold for Destinations?

• Technology-focused definition raises the question of how much smart technology needs to be implemented in order for a destination to be identified as smart.

• Governance perspective much clearer as goals are clearly formulated – smart destinations are those that pursue smart development goals.
A Mindset Perspective

- A management philosophy/approach:
  - Goals
  - Data mindset
  - System thinking
  - Design thinking
  - Innovation
  - Value integration
  - Governance – is this why it is more prominent in practice in certain regional areas?
A Value System Perspective

Value Transformers

Value Propositions

Data Cloud

Context

Consumer

Gretzel & Buhalis, in progress
Innovation Perspective

• Meaning not only fast, convenient, cheap, and intelligent for a traveler, but also efficient, effective, productive, and creative for businesses in terms of providing and consuming tourism products and services through a network of cooperating businesses.

A Convergence Perspective

- IT – physical infrastructure
- Data sources
- Tourism infrastructure – City infrastructure
- IT businesses – tourism businesses
- Tourist-Resident
- Orchestration by DMO/public-private partnerships
Smart Tourism Challenges

• Barriers to innovation
• Barriers to openness
• Technology capabilities and data literacy in the industry
• Technology dependence
• Surveillance/privacy issues
• Digital divides
Smart Tourism & Overtourism

- Monitoring
- Redirecting
- Strengthening infrastructure
- Mobilizing resources
Smart Tourism & Resilience

Smart Destination Resilience

Sensing
Opening
Sharing
 Governing
Innovating

Smart Tourism Mindset

Conclusion

• Hype around specific technologies like VR and IoT
• Real opportunities for smart tourism as a mindset/management approach
• Real conceptual and practical challenges
• Smart city development is happening with or without tourism
Thank you! Merci beaucoup!

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