On measuring tourism: SMART Tourism and big data

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Designing vacationscape
The science of tourism experiences

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1. introductory remarks
2. technology and measuring tourism
3. important areas for measuring tourism
4. challenges to measuring tourism
5. concluding remarks

presentation outline
Dominance of technology

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Dominance of technology

Technology:
Six generations of Internet development

- Usability
- Development
- Persuasion
- Community
- Mobility
- Ubiquity

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Emergence of data and tools

Blogs, tweets, likes, etc.
Networks – facebook, 4square
Search, logfiles, purchases, surveys
Scanner data - RFID tags - QR codes
Mobile devices - systems
Cameras
Internet of things
Data mining tools
Emerging analytics – sentiment analysis
Age of Big Data

“It’s a revolution,” says Gary King, director of Harvard’s Institute for Quantitative Social Science. “We’re really just getting under way. But the march of quantification, made possible by enormous new sources of data, will sweep through academia, business and government. There is no area that is going to be untouched.”
How much data?
today...
today…
Building a Smart(er) planet

Are you an IBMer?

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Defining Big Data

Three aspects of Big Data

- Big numbers
- Lots of different data
- It happens often
Important trends for tourism

1. Better understanding of the world
2. New technology, new metrics & new tools
3. Systems thinking
4. Design orientation
5. Increased capacity to communicate with travelers
What is experience?
“The aggregate and cumulative customer perception created during the process of learning about, acquiring and using a product or service” (Carbone & Haeckel 1994)
“..engage individual customers in a way that creates a memorable event” (Pine & Gilmore, 1999)

Components of experience...
Implies acquisition of knowledge and sensations
Creates emotional connections
Supported by social settings and technology
Choose Vacation spot (L)
Choose airline & hotel (L)
Make Reservation (L)
Go to airport (M)

Check in (L)
Go to hotel (M)
Immigration, Baggage (L)
Experience in Flight (M)
Check in & Boarding (L)

Occupy Room (H)
Dine in Restaurant (H)
Shopping (H)
Check out (L)
Go to Home (M)

FINISH
Go to airport (M)
Immigration, Baggage (L)
Experience in Flight (M)
Check in & Boarding (L)
Strong theory - Key design factors

Themes
Stories
Atmospherics
Affordances
Co-creation
Technology
Ecological systems

- Organism
- Systems
- Dynamic
- Adaptive
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Logic of design in tourism

Current Perspectives

- Design – noun
- Design – verb
- Design thinking
Challenges with using big data

Measurement

Indexes
Scales
Challenges with using big data

Ecological Fallacy

Making conclusions about one level of analysis basis analysis of another
Challenges with using big data

Measuring the right thing

Understanding the systems that underlie the ‘behaviors’ that you are measuring what you think you are measuring.
Challenges with using big data

Nature of system structure

Embedded systems
Challenges with using big data

Conclusions regarding causal mechanisms
Applications in tourism

Range of applications of Design Science are endless

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Applications in tourism – mapping the economy

Tracking the flow of economic wealth through the economy
Applications in tourism – traveler DNA

Understanding travel behavior and designing recommendation systems to support travel

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Applications in tourism – SMART cities

Responding to a changing world

BUILDING RESILIENCE

is about making people, communities and systems better prepared
to withstand catastrophic events – both natural and manmade – and able to bounce back more
quickly and emerge stronger from these shocks and stresses.

1913: 10% of the world’s population lived in cities.
2013: 50% of the world’s population lives in cities.
2050: 75% of the world’s population will live in cities.

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Applications in tourism – reputation

Understanding the dynamics image and reputation –
The Black Swan effects

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Applications in tourism – SMART stadiums

Building engagement and redefining spectator
Applications in tourism – organizational innovation

Supporting innovation and organizational change
Applications in tourism – social relations

Social communities and
Social change

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Applications in tourism – SMART health

Mobile systems – wearables for health and everyday living

Photo: Noah Zerkin
Applications in Tourism - capturing experiences

Sara

time-interval survey

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Sara’s experience reported hourly

12:00

my initial emotions

“I saw a guy with a really bad haircut…”

12:24

my first report

“it’s hot & sticky…”

12:44

my second report

“really pretty city… people on the street seems pretty nice…”

13:05

“… we walked upon an Italian wedding…”

14:04

my third report

“I’m at Rouge… we’re having some snacks”

14:34

“the street signs have been super super helpful!”

14:59

15:00

15:25

16:00

my last report

“I had a really lovely time with my friends … I’m about to do some shopping!”

16:32

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Sara's Philadelphia experience

place
“i’m in front of a giant statue… in front of the rocky steps…”

people
“I’m still with Becca & Jessica.”

activity
“We’re taking pictures (of the statue)… posing…”

things
“The map we’ve created & printed before we came…”

sights
“The architecture of the buildings… so gorgeous.”

colors
“Green! …is lush and bountiful out here.”

sounds
“Buses, motorcycles, cars… traffic…”

smells
“…a little like exhaust…”

emotions
Cheerful
Relaxed
Excited
Bored
Happy
Sad
Alert
Tired
Annoyed
Measuring human response to design

Figure 2. Day 1 EDA level
Extending the tourism experience – wearables

- Vision
- Taste/Olfaction
- Somatic (e.g., temperature, humidity)
- Audition
- Haptic
- Movement
Applications - Sensory experiences at different touchpoints

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Applications in tourism – experience design

Integrating the nature of experience and the role of design
Applications in tourism – neural marketing

The linkages between information, experiences and the biology of human mind
Current projects in tourism design

Dynamics of emotions of place and communications

Mapping changes in controlled settings so as to test for the effects of design parameters of stories in various forms
Current projects in tourism design

Dynamics of emotions of place

Mapping changes in real time and in real settings

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Future of big data and tourism design

1) New world and exciting world
2) New tools and unparalleled access to data
3) Huge challenges for theory, measurement, analysis and practice
4) Data is about something – it has ethics

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Thank you...

Questions or comments?

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