Engineering the Knowledge Destinations in the Era of e-Tourism: A Conceptual Introduction

Prof. Matthias Fuchs

Guest Lecture

15.11.2013, Rimini, Italia

Mid Sweden University/ ETOUR

ETOUR est. 1997 at Mid Sweden University, **Campus Östersund**

Staff
13 faculty researchers
8 PhD students
3 Professors

Tourism education
Bachelors degree
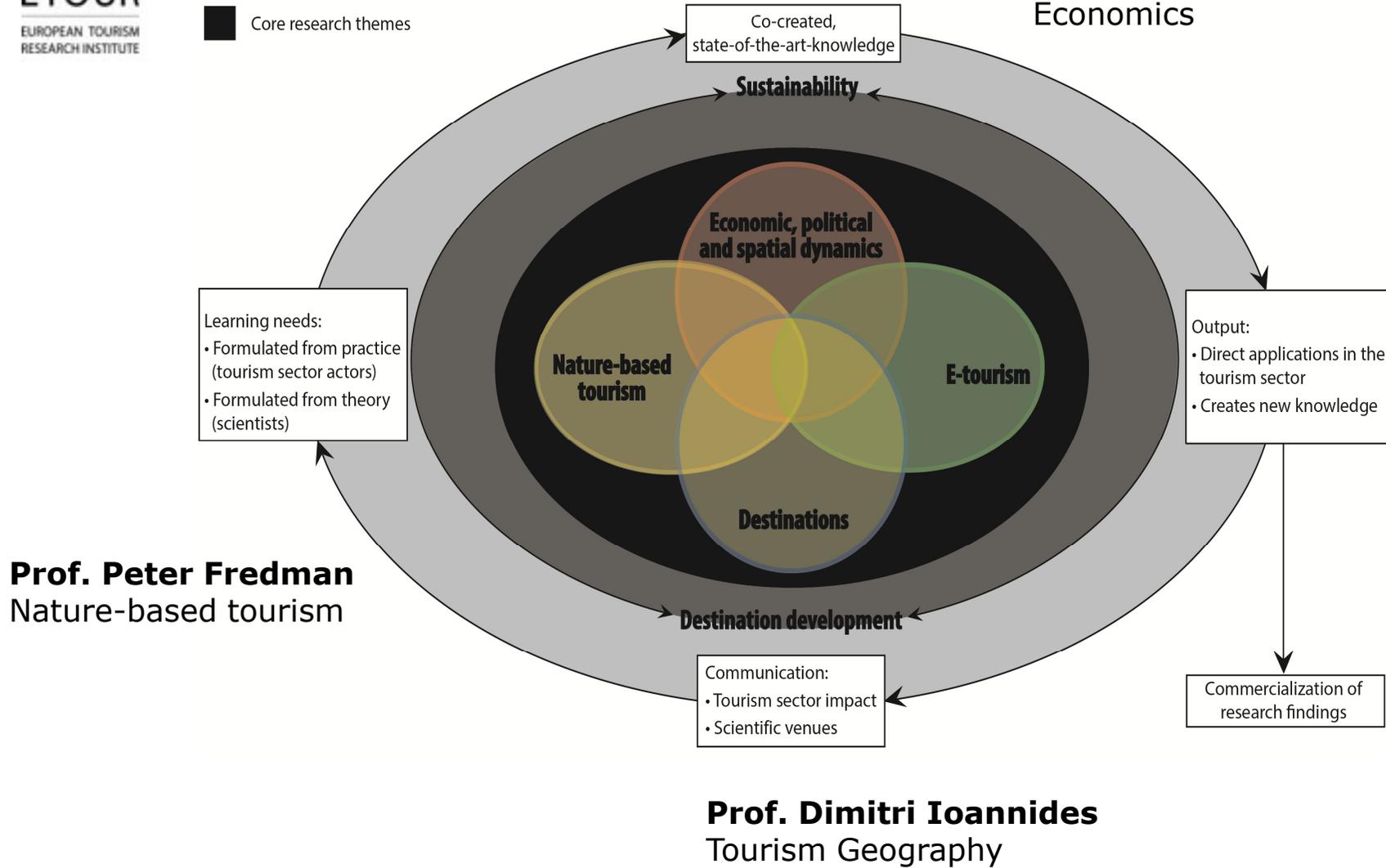Masters degree
PhD degree (since 2010)

http://www.miun.se/en/Research/Our-Research/Centers-and-Institutes/ETOUR/

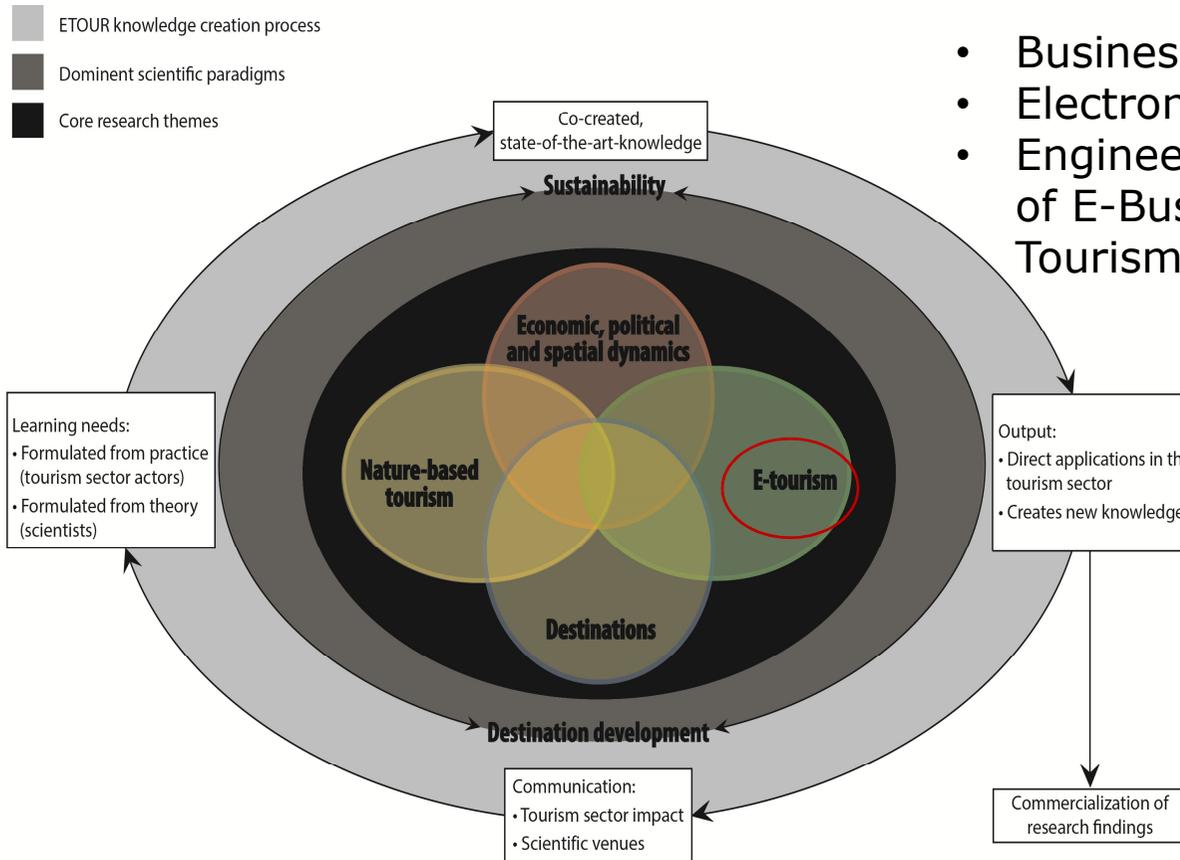**Tourism Research**

ETOUR
EUROPEAN TOURISM
RESEARCH INSTITUTE

ETOUR knowledge creation process

Dominent scientific paradigms

Core research themes

Prof. Matthias Fuchs
Tourism Management &
Economics

Co-created,
state-of-the-art-knowledge

Sustainability

Economic, political
and spatial dynamics

Nature-based
tourism

E-tourism

Destinations

Learning needs:
• Formulated from practice
  (tourism sector actors)
• Formulated from theory
  (scientists)

Output:
• Direct applications in the
  tourism sector
• Creates new knowledge

Destination development

Prof. Peter Fredman
Nature-based tourism

Communication:
• Tourism sector impact
• Scientific venues

Commercialization of
research findings

Prof. Dimitri Ioannides
Tourism Geography

Prof. Matthias Fuchs

E-Tourism Research

- Business Intelligence in Tourism
- Electronic Marketing in Tourism
- Engineering and Impact Evaluation of E-Business Applications in Tourism

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Destinations

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Destination development

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Commercialization of research findings

Agenda Engineering the Knowledge Destinations in the Era of e-Tourism

- The Knowledge Destination
  - The Knowledge Paradigm
  - The Knowledge Destination Framework
- Stylized Facts on e-Tourism after 15 years of Web-Story
  - e-Tourism Market
  - Web 2.0 Revolution
  - M-Tourism
- E-Tourism research – An Interdisciplinary View
  - E-Business Models
  - ICT Adoption & Acceptance
  - Social Media Marketing
  - Mobile Tourist Guides
  - Success Factors of Tourism Online Auctions - The Case of eBay
- Conclusion
  - Major e-Tourism Trends
  - Future Challenges for eTourism Research

The Knowledge Paradigm

- Service societies = f {trends: *societal*, *demoscopic*, *internationalization,* ***new information and communication technologies***} (Fitzsimmons & Fitzsimmons 2006) ⇔ Travel & Tourism (Dwyer et al. 2007)

  - ICTS erode traditional firm boundaries and ***knowledge bases*** ⇔ behavioural and structural changes (*market place* → *market space*)

- **Knowledge-based view of the firm** (Grant 1996)

  - Organization's value **limited by available knowledge**

  - Economic development of industries related to **availability of knowledge** to **reconfigure** resources to remain competitive (Barney 1991: 101)

The Knowledge Paradigm

- Only if **knowledge resources** are…

  - **valuable to customers**

  - **scarce**

  - **difficult to imitate/substitute**

    … ideal base to gain long-term competitive advantages → **core**

    competencies

  - Combination and reconfiguration of resources ⇔ based upon **core competencies**

- **Dynamic reconfiguration capability** (Teece et al. 1997: 516)

  - Firm's ability to integrate, build and reconfigure **internal and external**

    competencies to address changing environments

  - Need for **renewal and validation** through **learning** (knowledge absorption)

The Knowledge Paradigm

- **Capabilities for organizational learning** (Burmann 2002)

  - *Replication capability*

    - Effectively and efficiently multiplying established processes and operations ⇔ **firm-internal** knowledge transfer and codification processes

  - *Reconfiguration capability*

    - Modifying resource configurations through acquisition and development of **new core-competencies** ⇔ determined by

      - Absorbability of **external knowledge** (**ability to learn**) and potential to deduce generalizable cause-effect relationships from knowledge applicable to a **wider range of strategic options** (Back et al. 2007)

      - Firm's **proximity to the customer** ⇔ relevance of **customer-based knowledge** (Tajeddini 2010)

The Knowledge Destination

- **Tourism destination**

  - Strategic unit in T&T

  - Value network of **competencies** coordinating complex social stakeholder constellations and resource configurations to deliver co-created ***tourist experience*** (Coles et al 2006)

- **Competitiveness of tourism destinations**

  - Attractiveness and **self-transformation potential** (Ritchie & Ritchie 2002; Ritchie & Crouch 2003)

  - Satisfied **information needs** and **learning requirements** of stakeholders (Fesenmaier et al. 2004; Shaw & Williams 2009) ⇔ Generation and access of information relevant for resource re-configuration (Back et al. 2007)

The Knowledge Destination

- **Learning Tourism Destination** (Schianetz et al 2007)

  - Effective learning cycles through networked ***ICT-based infrastructures*** and ***services* collecting data for processing, applying and disseminating knowledge**

    - **ICTS' role** in satisfying communication, info & knowledge needs (↓info asymmetries) (Pyo et al. 2002; Buhalis 2006)

  - Area where **knowledge is created and** where **knowledge is applied**

    - Feedback loops between **knowledge interfaces** through which **new *external* information** is **collected** and **areas where knowledge is applied**

      - **Inclusion of client** in learning system (ibid 2007:1487)

    - Organisational learning in tourism destinations enhanced by **Business Intelligence** (Pyo 2005; Fuchs & Höpken 2009)

The Knowledge Destination

- Large variety and quantity of **customer-based data** in destinations

  - **Data bases** [Transaction Data, CRM Data, Survey Data]

  - **Webservers** [Navigation Data, Search Data, UGC]

  - However, huge amount remains **unused**

- **Solution**: Knowledge creation, application and org. learning through

  Business Intelligence (Pyo 2002; Höpken et al 2011)

- *Data Mining* = One of 10 technologies changing the world (MIT Tech Review 2001)

  - Explosive growth of data flows and collection

  - Decreasing data storage costs ⇔ growth of computing power/storage capacity

  - OS SW for AI applications (*WEKA™, RapidMiner™*)

  - Ad-hoc analyses by marketing managers

The Knowledge Destination

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Business Intelligence...

- ***Data Warehousing:*** Data identification & ETL: focus *customer/product characteristics*

  (e.g. quality, price, distribution channel) vs transaction-oriented ⇔ DB system

- ***Data mining***: process of discovering meaningful *new* correlations, patterns and trends by

  sifting through large amounts of data stored in repositories, using *pattern recognition*

  techniques as well as *statistical* and *mathematical techniques* (Larose 2003)

  - Weak data assumptions ⇔ Huge in amount

- ***Online Analytical Processing*** (OLAP)

  - Supported analyses by *data base query* (MySQL)

OLAP Cube

Fuchs, M. & Höpken, W. (2009): Data Mining in Tourism (In German: „Data Mining im Tourismus"), *Praxis der Wirtschaftsinformatik*, 270 (12): 73-81.
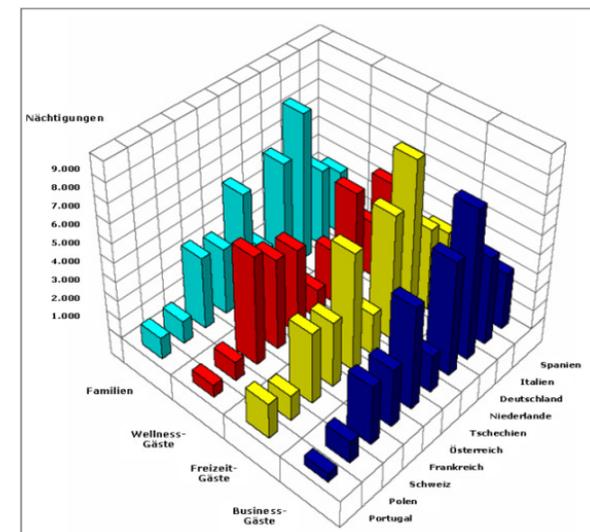
The Knowledge Destination

Huge amounts of customer-based data in destinations **unused**

- **Transaction data**
- **CRM data**
- **Survey data**
- **Tracking data**

Data Bases

World Wide Web

- **Navigation data**
- **Search data [keywords]**
- **UGC [ratings, blogs, e-reviews]**

Business Intelligence

Knowledge

- **Marketing effectiveness**
- **Quality of visitor experience**
- **Economic performance**

Destination Management Information System

events/ attractions acco/ gastro mobility orga- nization distri bution tourist
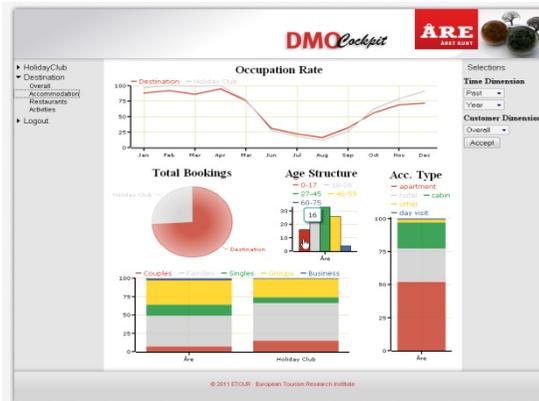
- *Monitor fulfilment of strategic goals*

  e.g. Are Vision 2020: satisfied guests,

  stays, contacts, brand awareness...

- *Decision making support to increase degree of goal fulfilment*

  e.g. media mix, reach, conversion,

  market basket, capacity forecast,

  cancellation...

The Knowledge Destination Framework
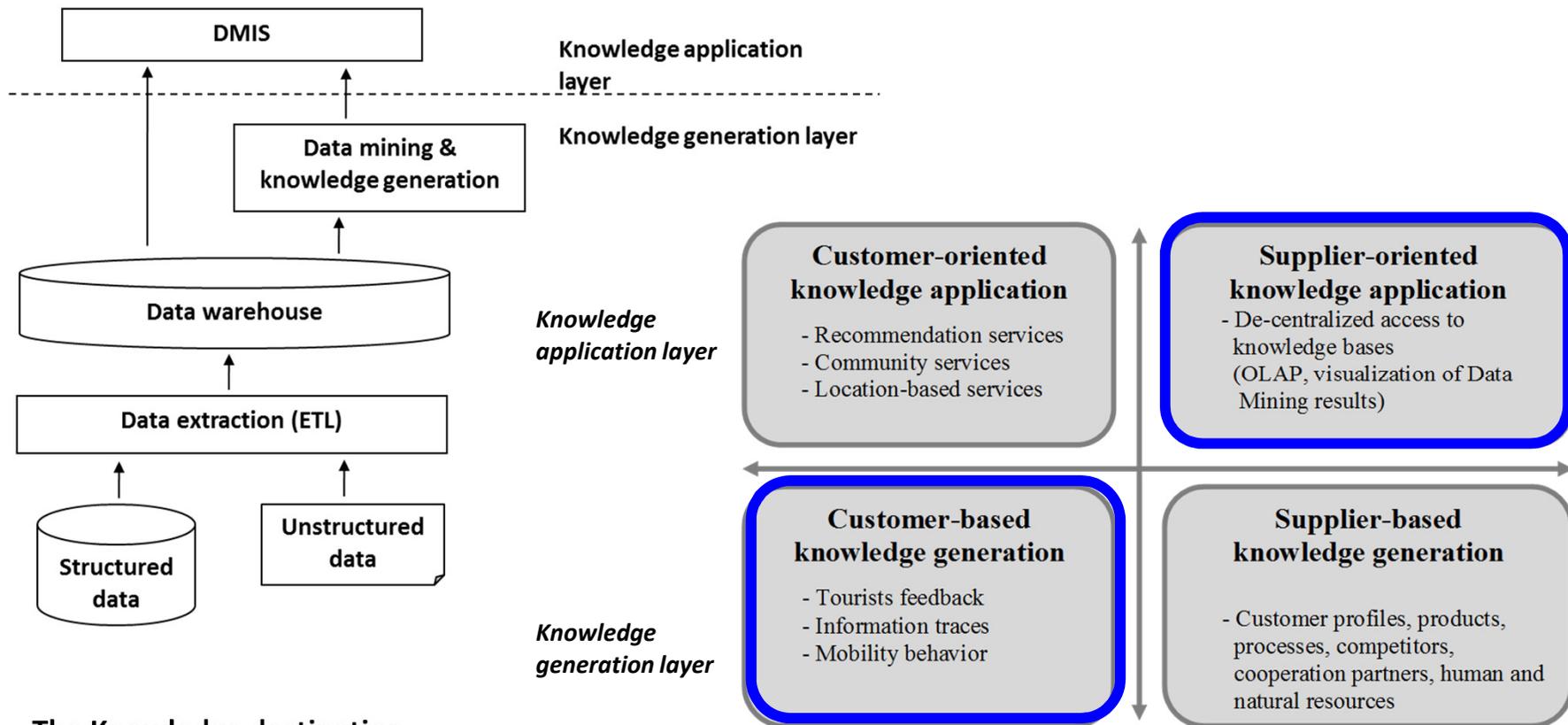
The Knowledge destination framework architecture

Höpken, W., Fuchs, M., Keil, D. & Lexhagen, M. (2011): The Knowledge Destination – A Customer Information-based Destination Management Information System, In: Law, R., Fuchs, M. & Ricci, F. (eds.), *Information and Communication Technologies in Tourism 2011*, Springer, New York: 417-429.

Stylized Facts on e-Tourism

- Information Technology and Tourism ⇔ 2 world´s fastest growing industries

  - Travel & holidays = most expensive regularly purchased item

  - Travel & Tourism (T&T)

    - 5th world's biggest economic sector (WTTC 2012)

      - $ 2 trillion in 2011 and 98 million employed people

      - Double GDP if compared to automotive industries

      - Expected growth 2020: 4.2%

    - Information intensive ⇔ **T&T largest sector in e-Commerce**

      - 25.7% (€ 65.2 Bn) of EU online sales generated by T&T - in 2001: € 5 Bn (Marcussen 2009)

      - **T&T ⇔ ICT shortcomings**: collaborative offer generation, market research, knowledge creation, product innovation and strategic decision-making (E-Business Watch 2006)

15 Years of Web-Story

- The Internet - Globally accessible and transparent info infrastructure

  - Most nodes few links, but small and significant number show very many (hubs, authorities)

    - 25 billion distinct web sites

    - 7 trillion web pages

    - 307 trillion links

- In 2010 480 Exa-bytes (10^{18}) of information

  - 25% originally created ⇔ 75% **replicated**

  - 95% unstructured, distributed, little control → *query*

- Internet Users

  - 2000 400m → 2006 1Bn → 2008 *1.5 Bn* → 2012 2.3 Bn (i.e. **1/3 of global citizens**)

- Changes in society ⇔ Service industry transformation

  - **Virtual network externality**: value based on information and user integration in global service network co-creating complex interactions (Vargo & Lusch 2002)

17   Fuchs, M. & Höpken, W. (2010): E-Business Horizons in the Tourism Industry, Sidali, K., Spiller, A. & Schulze, B. (eds.), *Food, Agriculture and Tourisms- Interdisciplinary Perspectives*, Springer, Berlin & Heidelberg, pp. 140-160.
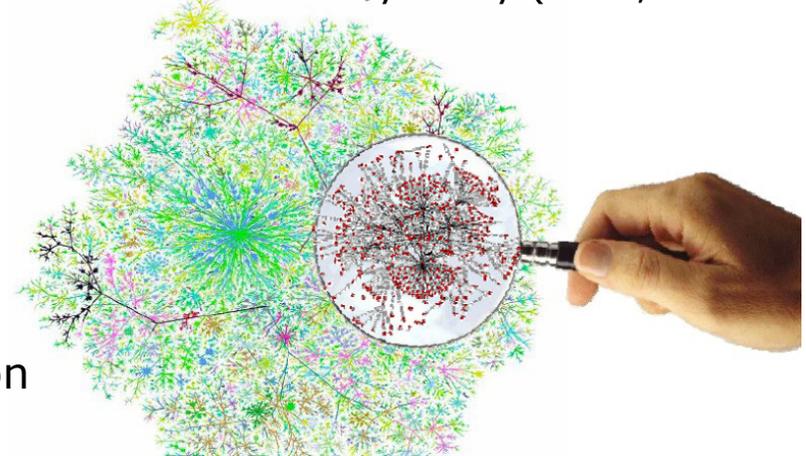
Stylized Facts on e-Tourism

- Internet Tourism
  - 96% search online (i.e. 10 sites before booking), 62% book online (Phocuswright 2009)

Package

DIY — Organised

Modular

Non-organised

~35%

45%

49%

6%

~30%

~35%

TUI 2008

10% 2%
16%
16%
56%

EU online trave market by type of service
Marcussen 2008

- Airline
- Hotels
- Packages
- Train
- Car
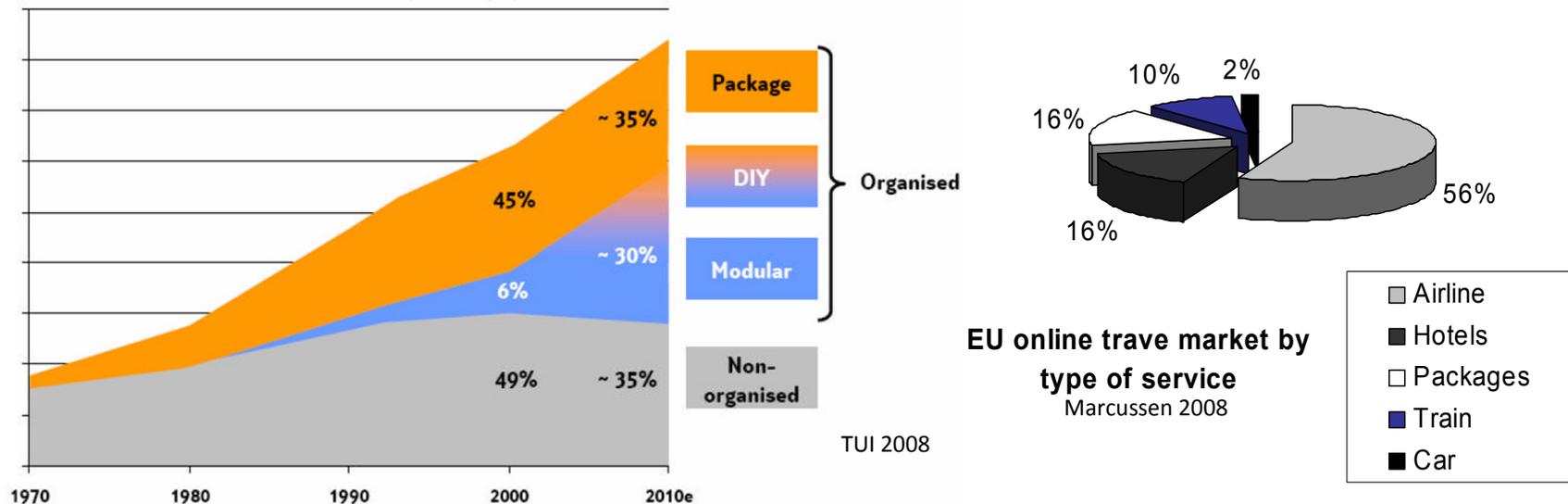
- *Concentration*: Top 1% of tourism websites join 53% of users
- 3 players dominate 93% of online travel US market (65% EU)

IAC/InterActiveCorp   *Travel Portals*: Expedia, Hotels.com, Tripadvisor

CENDANT   *GDS*: Galileo, Gullivers, Avis, Orbitz.com, Octopustravel.com

CRS: Travelocity.com, Lastminute.com

Sabre Holdings

Fuchs, M. & Höpken, W. (2010): E-Business Horizons in the Tourism Industry, Sidali, K., Spiller, A. & Schulze, B. (eds.), *Food, Agriculture and Tourisms- Interdisciplinary Perspectives*, Springer, Berlin & Heidelberg, pp. 140-160.

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Stylized Facts on e-Tourism

e-Business Scoreboard 2006 (for sectors, EU-10)
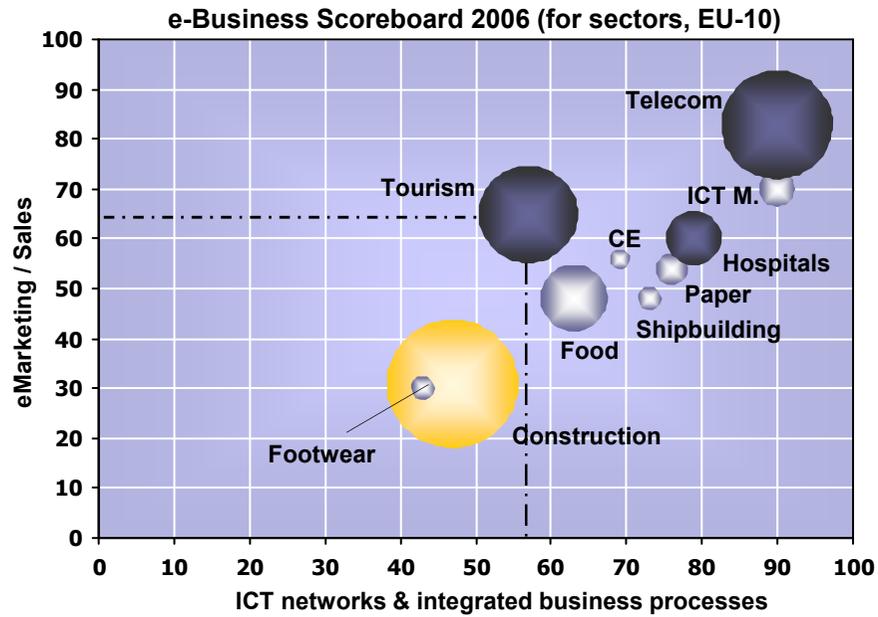
ICT Diffusion in Tourism

e-Business Scoreboard 2006 (for size-bands, EU-10)

The electronic tourism market

Migration

The electronic tourism market

The electronic tourism market

Form-based dialogues for preference elicitation

Personalized Recommendation

Jannach, D., Zanker, M. & Fuchs, M. (2009): Constraint-based Recommendation in Tourism: A Multi-Perspective Case Study. *Information Technology and Tourism*, 11 (2): 139-155.

The electronic tourism market

http://www.tiscover.at/ebay

Web 2.0 Revolution in Tourism

- The Social Tourism Web

Web 2.0 Revolution in Tourism

ENGAGING VIA PROMOTIONAL CAMPAIGNS: EXAMPLES

NORWAY 'SCREAMS' CAMPAIGN

http://vimeo.com/61038689

NORWAY
POWERED BY NATURE

JOIN THE LONGEST SCREAM IN THE WORLD

SUBMIT YOUR SCREAM
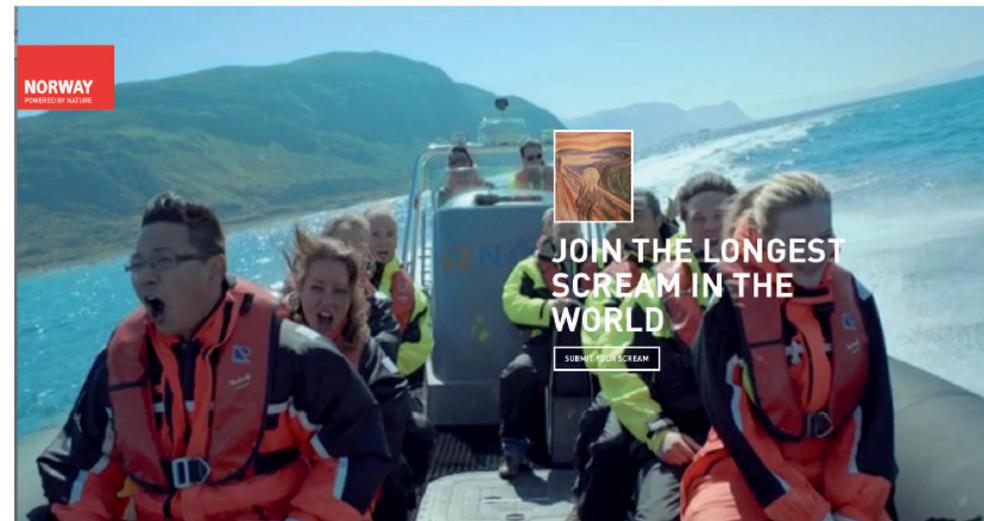
SOCIAL: EXAMPLES

NTO SOCIAL MEDIA: FACEBOOK EXAMPLES

- The Visit Norway Facebook page, pictured, has a high level of visitor engagement (currently: 47,041 "talking about this"), they use daily competitions, featuring high-quality photography, to provoke conversation and pique interest.

In summary, a good example because:

- High level of visitor engagement

- Uses daily competitions to provoke engagement

NORWAY DAILY CHALLENGE

Answer our daily challenge about Northern Norway for a chance to win instant **prizes from Bergans of Norway** and a final **grand prize: A trip to Northern Norway** for two people courtesy of Northern Norway Tourist Board and Norwegian Air Shuttle.

Where can you go on a king crab safari?
Learn more here!

If you are a Norway lover here are some social network connections you cannot miss:

Follow — NORWAY — Visit Norway UK

Like 488k — NORWAY — Visit Norway UK

Source:

The European NTO digital benchmark

DIGITAL TOURISM THINK TANK
WWW.THINKDIGITAL.TRAVEL

IN PARTNERSHIP WITH

YAHOO!

■ The Geospatial Web

SOCIAL MEDIA APP: TRIPADVISOR

- With social media it's the pages and apps that anticipate and leverage our emotional needs that often do well.

- With an estimated 10,000,000+ monthly active users TripAdvisor's social travel guide app is ranked as the third most popular of all Facebook apps.

- It's no accident that TripAdvisor promotes it as letting the user "show off all your adventures" and "then compare your travels to all your friends". TripAdvisor are aware that users' self esteem, friends and family are important.

Geo-referenced feedback

M-Tourism
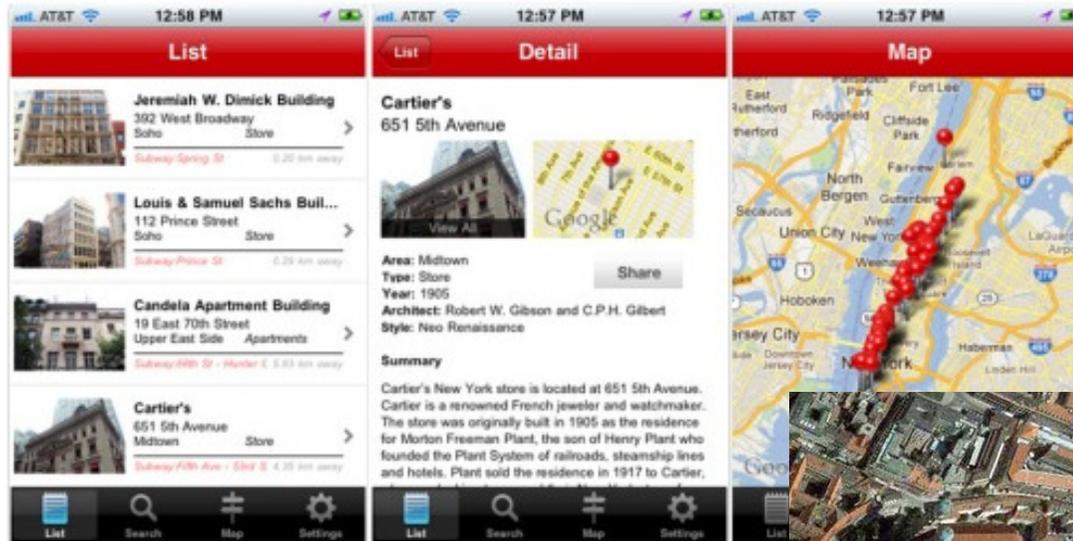
Geo-referenced queries

QR Code-based Info Retrieval
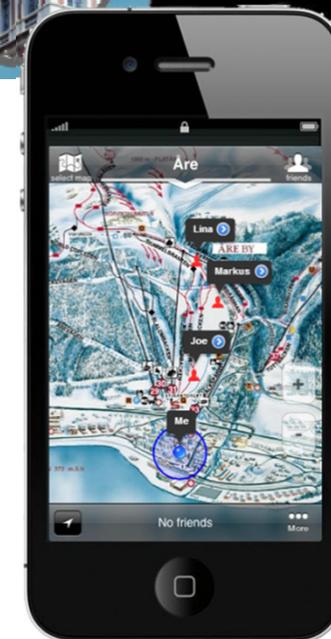
M-Tourism

Augmented Reality

Mirror World

Ambient Intelligence

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E-Tourism Research: An Interdisciplinary View

E-Tourism research ⇔ Conceptualization, Development & Implementation, Acceptance & Adoption, Use and Impact of ICTS in Tourism
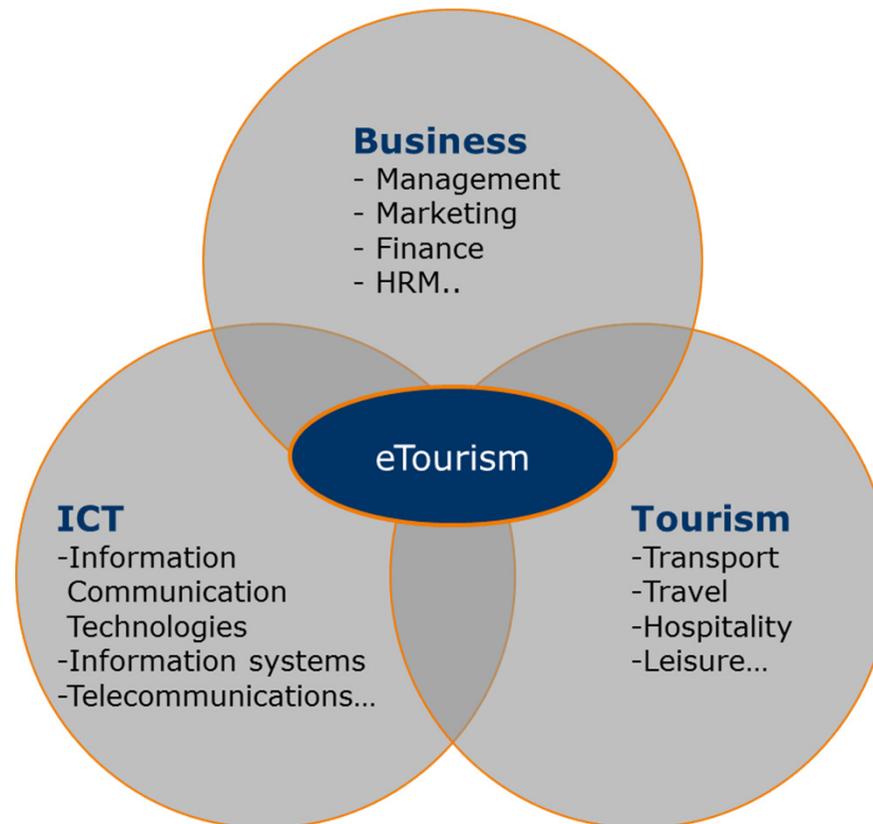
Fuchs, M. & Höpken, W. (2010): E-Business Horizons in the Tourism Industry, Sidali, K., Spiller, A. & Schulze, B. (eds.), Food, Agriculture and Tourisms- Interdisciplinary Perspectives, Springer, Berlin & Heidelberg, pp. 140-160.

E-Tourism Research: An Interdisciplinary View

- **Scientific Community Association**
- **Textbooks**
- **Major Conference**
- **Journals**
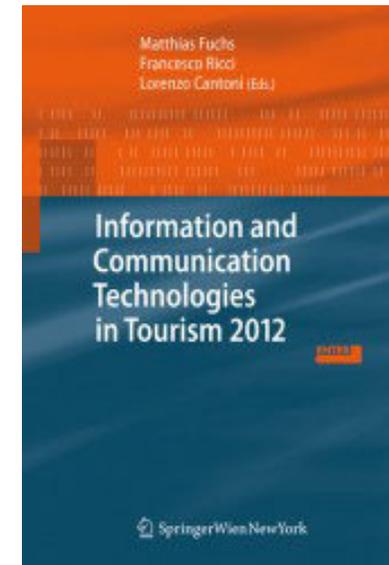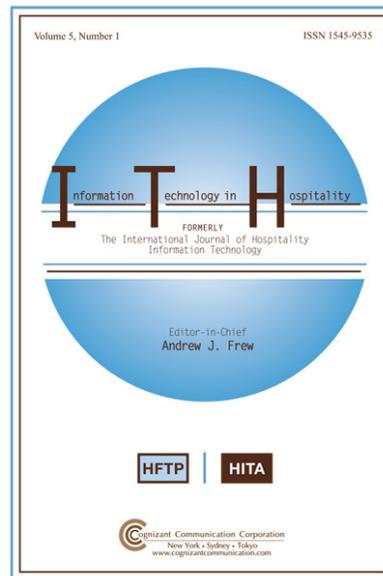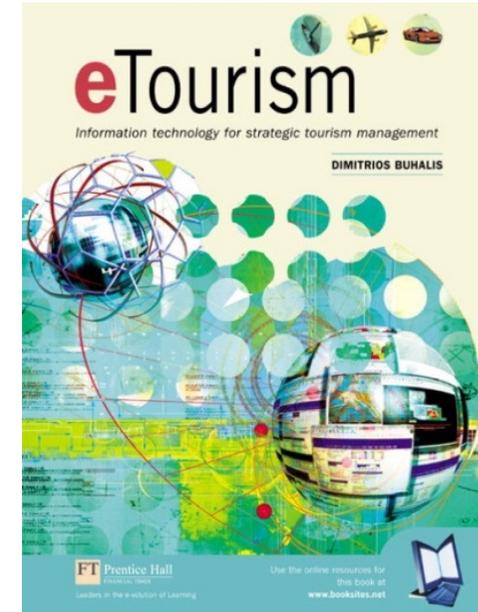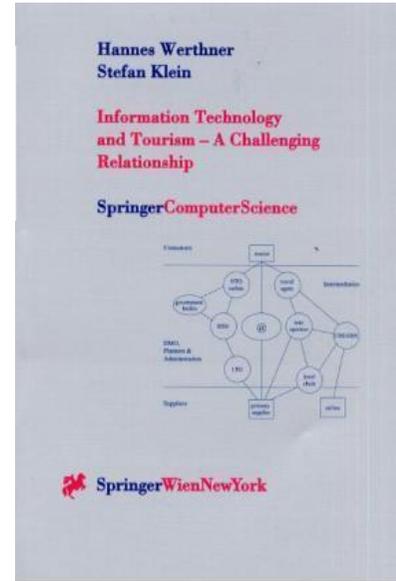
IFITT Digital Knowledge Bank
Life-long Learning with IFITT

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The Blog of **ifitt** & **ENTER Conferences**
International Federation for IT and Travel & Tourism

Resources Tab on www.ifitt.org

❯ IFITT e-Tourism Curriculum

- • Open Learning Resources
- • Up-to-Date Case Studies
- • Lecturing Material

Content Areas:

- ▷ ICT and Tourism Introduction
- ▷ ICT Usage in Tourism and Case Studies
- ▷ Trends and Technical Applications

❯ IFITT e-Tourism Wiki

- • Theme-specific Wikipedia
- • Contributions by Scholars in the field of e-Tourism
- • More than 40 e-Tourism Topics

❯ IFITT Digital Library

- • ENTER Proceedings
- • Journal of Information Technology & Tourism
- • Parameterized Search Mechanism

E-Tourism Research: An Interdisciplinary View

Management Sciences

Behavioral & Information Sciences

Computer Science

Service Dominant Logic
Revenue Management
Dynamic Pricing
Business Intelligence
ERP
Online Auctions
Efficiency
PMS
Branding
Customer Relationship Management
Smart Business
Adoption Behaviour
Web 2.0
Multi-functional Platform
Mobile service
Technology Acceptance
Blog
E-Services
Augmented Reality
Recommendation
3D
Knowledge Retrieval
Dynamic Sourcing
GPS
Artificial Intelligence
Interoperability
QR Code
Rule-based Push
Natural Language Processing
Ontologie
Search engine
Semantic web
DSL
RFID
Web-Services
Java
XML

Destination Life-Cycle
Quality of Life
Airline
Hotel
Policy
Spatial Development
Seasonaility
Environment

Business ◄┈┈► Non-Business

The „Tourism Study Field"

The „World of Tourism"

Technologies

Destination Portal
Global Distribution System
Destination Management System
Smart Hotel Room
Computer Reservation System
Switch

Fuchs & Höpken, 2010, p. 146

E-Tourism Research: An Interdisciplinary View

- Tourism benefits from ICT due to **confidence characteristics** of tourism product

  - Complex service experience **co-created** by SMES & tourist best presented by new media

    - **Supply:** Coord., differentiation & promotion (visualization), distr., reduce risks in co-production

    - **Demand:** Planning & individualization, config., interaction, risk avoidance in co-production

  - **Information intensiveness in tourism**

    - Huge data amounts and info-processing efforts

- Frictionless market scenario through Internet (Akerlof 1970)

  - *Ubiquitous* access to ***equilibria mechanisms*** *(brand, web2.0, screening)*

- Consumer Culture Theory and SD-Logic

  - ICTS put empowered user in middle of *co-creation* process to achieve *performance*

    - **Interest driven** web-behaviour (i.e. need-recognition → going online)

    - Business engineering → well-being engineering (i.e. utilitarian/ratio AND hedonic/entertainment)

  - Website neutralizes trade-off between no. of achievable persons and info richness

    - e.g. accuracy, timeliness, customization level, etc.

Truly equivalent…

Information

Transaction — Collaboration

Interaction   Communication

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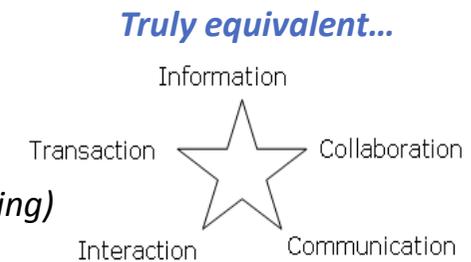
E-Tourism Research: An Interdisciplinary View

- **Strategic goals** in T&T associated with ICTS

  - 1996 - 2000 *Establish online presence*

  - 2001 - 2005 *Acquire new customers* (e.g. personalized information)

  - 2006 - 2009 *Retention of customers* (e.g. eCRM)

  - 20010 - ? *Customer integration (i.e. customer focussed → customer driven)*

- **Strategic ICT Use in T&T**

  - **Value proposition & e-Marketing** (info, dialogue , engagement ⇔ complexity / effort reduction, trust ⇔ branding/e-CRM)

  - **Flexible co-creation** (adaptation & customization, dynamic sourcing & pricing YM)

  - **Management & re-engineering** (cost structure & sources of revenue, resources and assets, Business Intelligence)

  - **Market Value Chain** (linkages to online portals & e-commerce operators, n/r/l, PPP)

  - **ICT investments** (R&D, training, TAM)

E-Tourism Research: An Interdisciplinary View
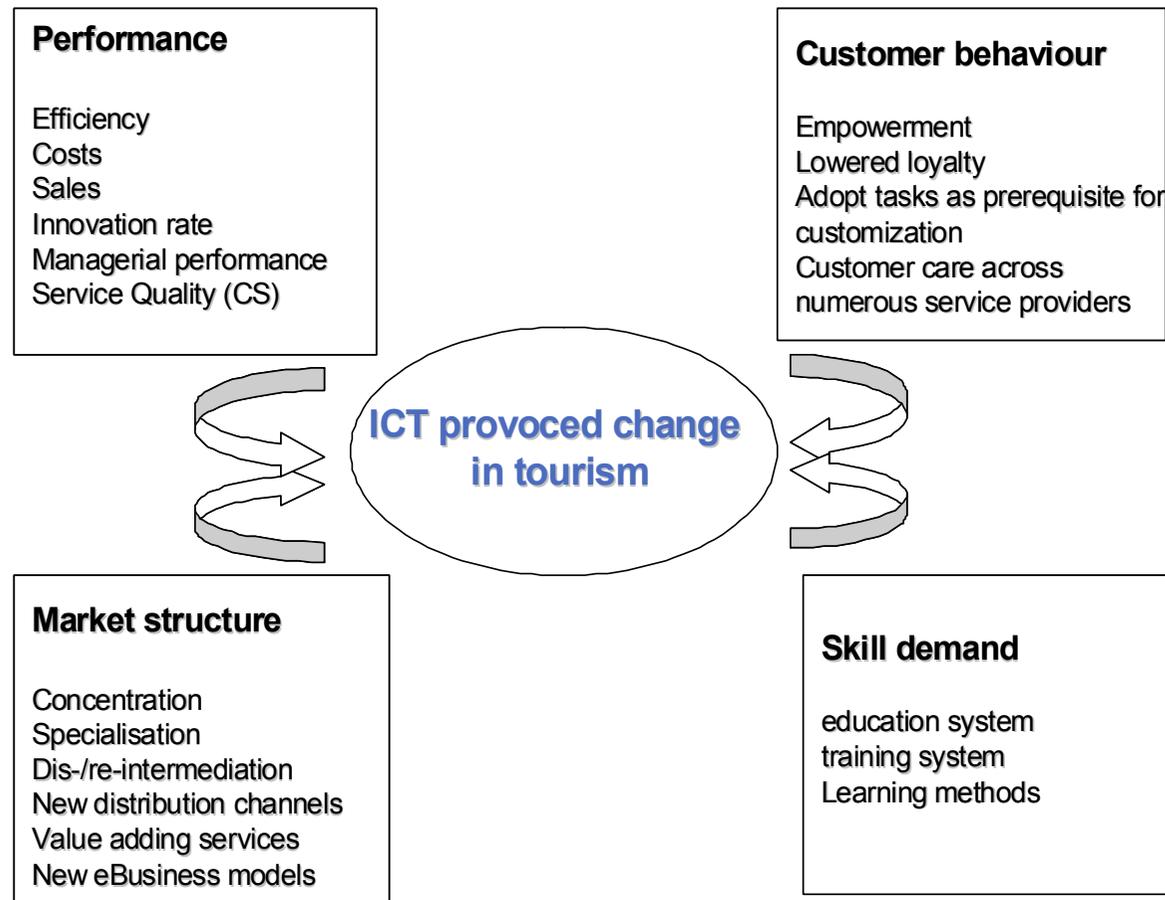
Performance

Efficiency
Costs
Sales
Innovation rate
Managerial performance
Service Quality (CS)

Customer behaviour

Empowerment
Lowered loyalty
Adopt tasks as prerequisite for customization
Customer care across numerous service providers

ICT provoced change in tourism

Market structure

Concentration
Specialisation
Dis-/re-intermediation
New distribution channels
Value adding services
New eBusiness models

Skill demand

education system
training system
Learning methods

Fuchs, M., Höpken, W. (2008): Structural and Behavioural Changes on account of New Information and Communication Technologies in Tourism. In: Kronenberg, Ch., Müller, S., Peters, M., Pikkemaat, B. & Weiermair, K (eds.), *Change Management in Tourism – From 'Old' to 'New' Tourism, Erich Schmidt Verlag,* Berlin: 247-261

E-Tourism Research: An Interdisciplinary View
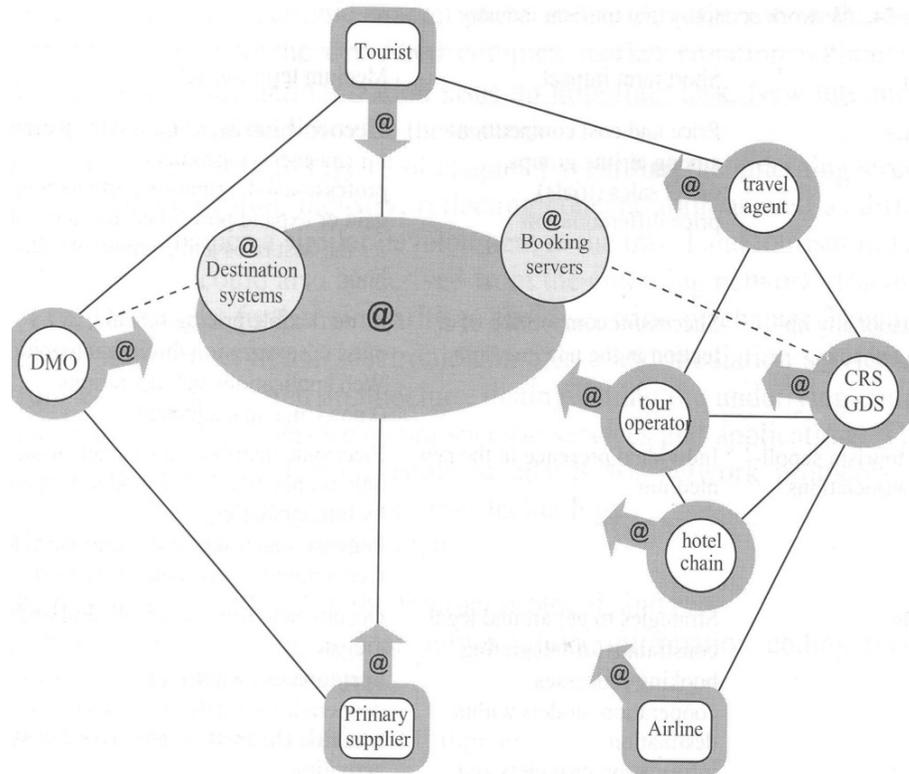
e-Intermediaries

(Werthner/Klein 1999)

Value chains *integrated* in longer **e-value system** → coordination need
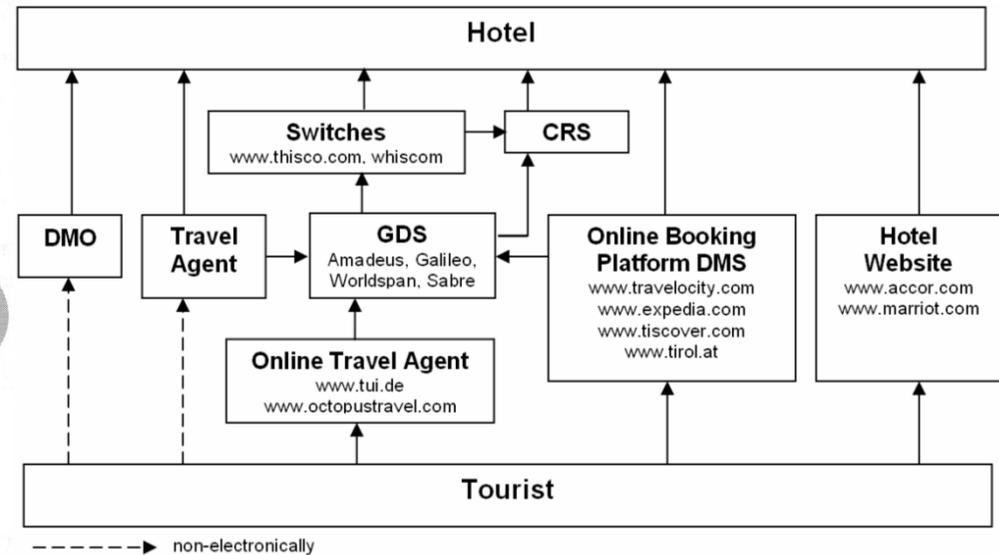
Dis-*Intermediation*
TrC > PrC
but also…

Re-*Intermediation*
TrC = PrC and Value Added

Fuchs, M., Höpken, W. (2008): Structural and Behavioural Changes on account of New Information and Communication Technologies in Tourism. In: Kronenberg, Ch., Müller, S., Peters, M., Pikkemaat, B. & Weiermair, K (eds.), *Change Management in Tourism – From 'Old' to 'New' Tourism, Erich Schmidt Verlag,* Berlin: 247-261

E-Business Models in Tourism

- **E-Tailing** ⇔ single hotel website or commission-based portal supports

  customer query and enables booking, e.g. www.tiscover.com, www.skistar.com

- **Infomediary** ⇔ buyers & sellers gain info and do business, e.g.

  www.expedia.com , www.travelocity.com
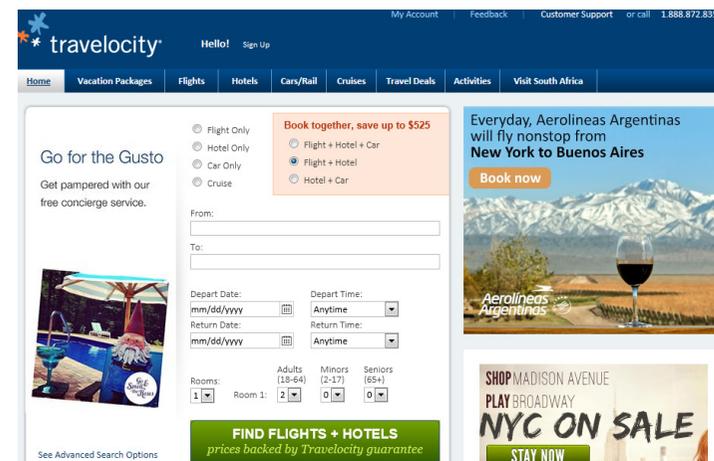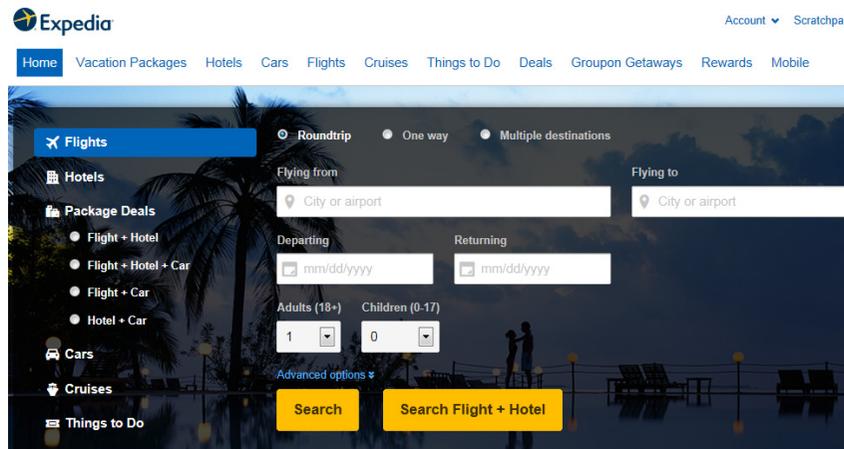
E-Tourism Research: An Interdisciplinary View

E-Business Models in Tourism

- **Adverstising** ⇔ search engines generate traffic and permit customization, e.g.

  www.austria.info

- **Brokerage** ⇔ market makers OTA : suppliers

  - Marketplace exchange (e.g. www.orbitz.com)

  - Demand collection (e.g. www.priceline.com)
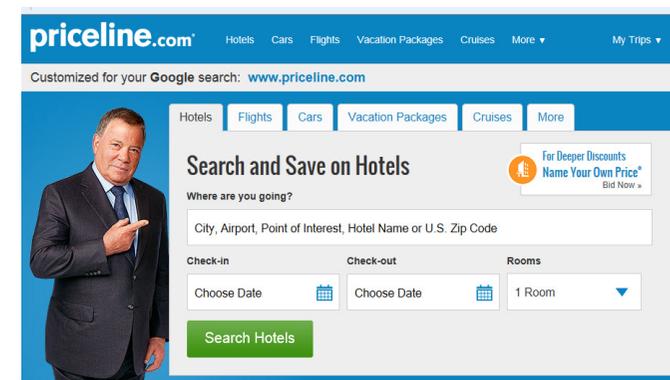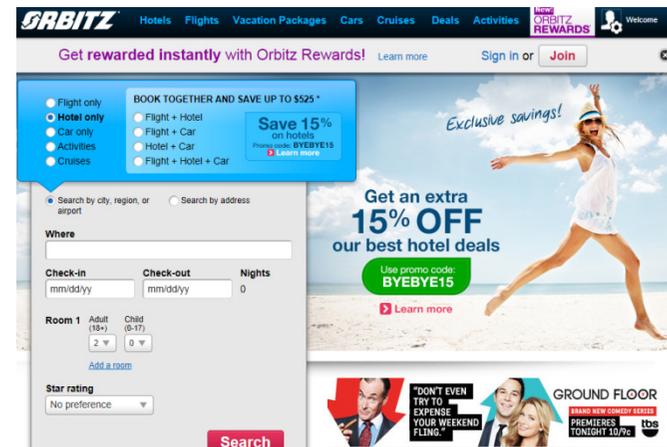
E-Tourism Research: An Interdisciplinary View

E-Business Models in Tourism

- **Auctions** e.g. www.ebay.com
  - With **smart business network** for inter-firm collaboration

http://www.ebay.com/sch/hotelgutscheinreisen/m.html
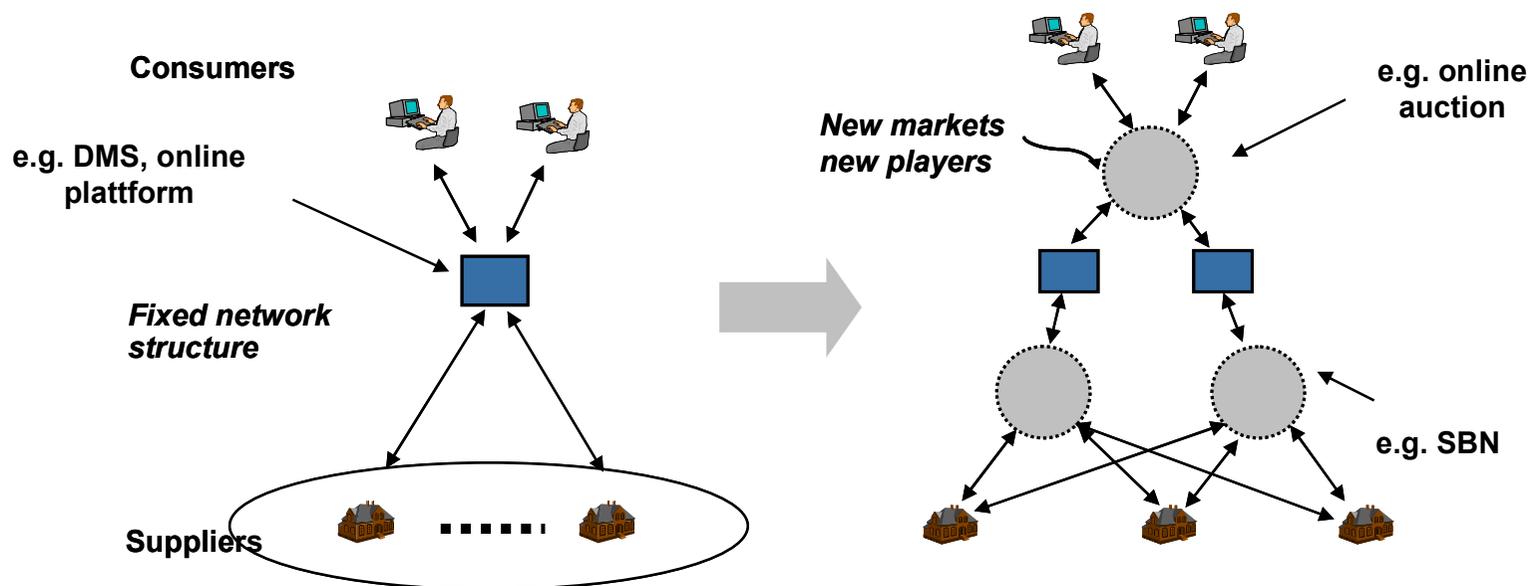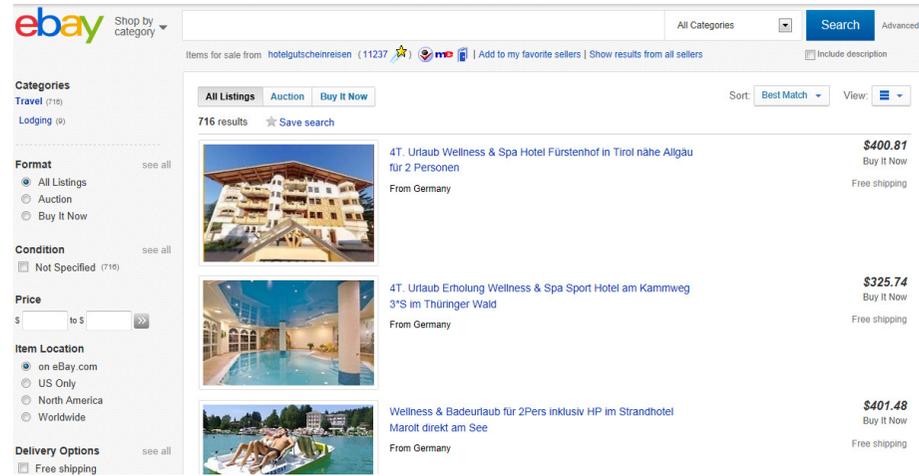
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Business Intelligence by mining log file data
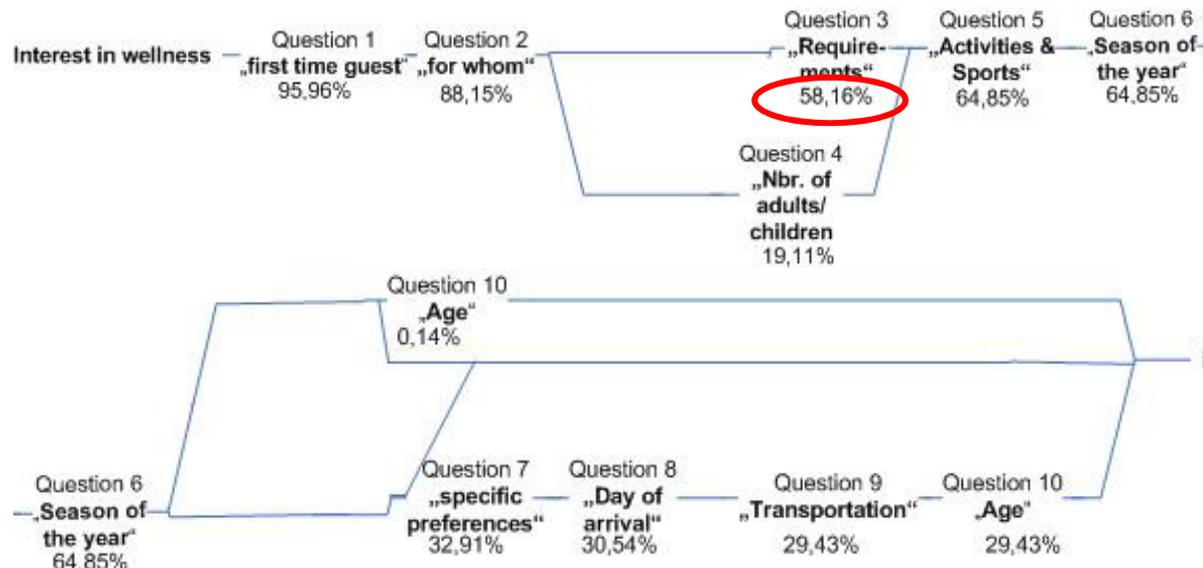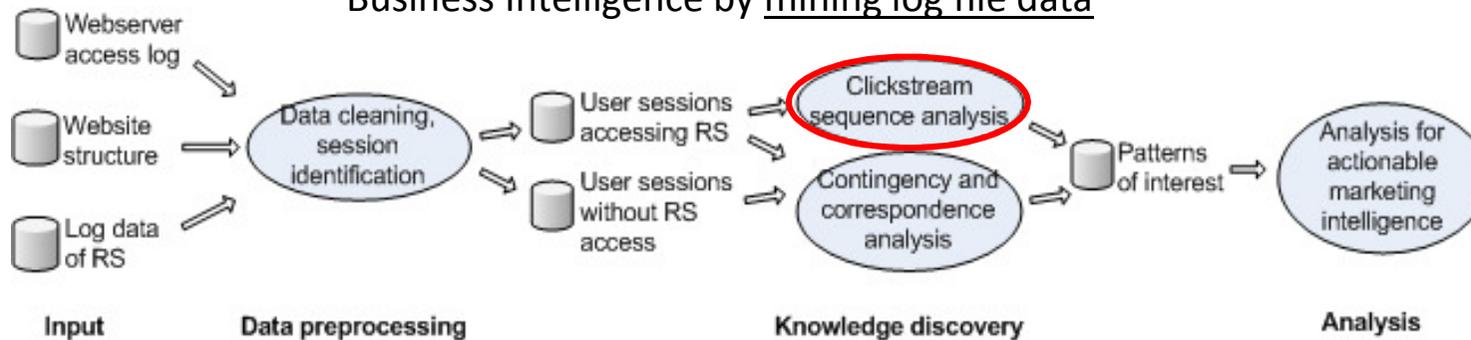
	Use of virtual advisor	
	Yes	No
Availability request	in %	in %
Yes	8,91	3,49
No	91,09	96,51
Total	100	100

$\chi 2(1) = 62.87; p < 0.000$
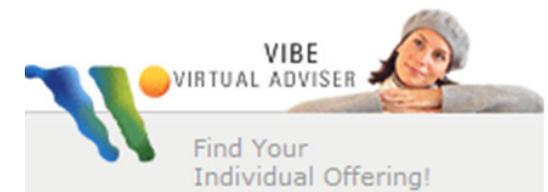
Zanker, M., Fuchs, M., Höpken, W., Tuta, M. & Müller, N. (2008): Evaluating Recommender Systems in Tourism - A Case Study from Austria. In: O'Connor, P., Höpken, W. & Gretzel, U (eds.), *Information and Communication Technologies in Tourism* 2008, Springer, New York: 24-34

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ETOUR EUROPEAN TOURISM RESEARCH INSTITUTE | **Mittuniversitetet** MID SWEDEN UNIVERSITY

ICT Acceptance & Adoption

I. Technology Organization Environment Framework (TOE)
(Tornatzky & Fleischer 1990, Iacovou et al. 1995, Zhu et al. 2002)

II. Innovation Diffusion Theory (IDT)
(Rogers 1995, Ching & Ellis 2004, Wang & Cheung 2004)

III. Technology Acceptance Model (TAM)
(Davies 1989, Thong 1999, Grandon and Pearson 2004, Al-Qirim 2005)
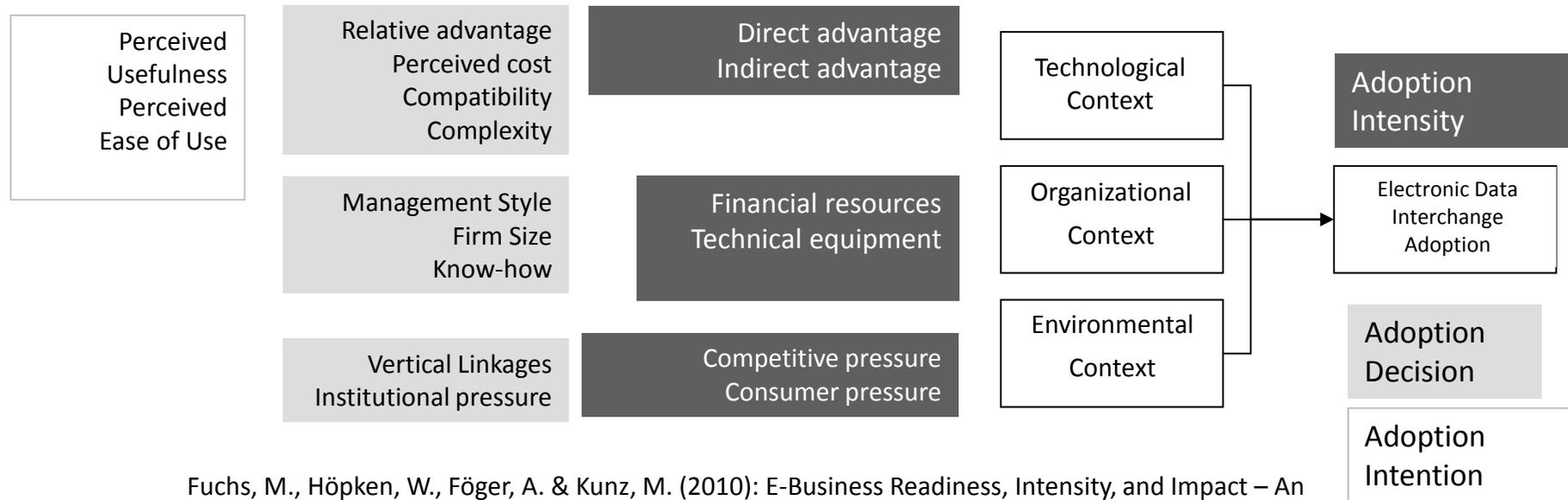
Perceived Usefulness Perceived Ease of Use

Relative advantage
Perceived cost
Compatibility
Complexity

Direct advantage
Indirect advantage

Technological Context

Adoption Intensity

Management Style
Firm Size
Know-how

Financial resources
Technical equipment

Organizational Context

Electronic Data Interchange Adoption

Vertical Linkages
Institutional pressure

Competitive pressure
Consumer pressure

Environmental Context

Adoption Decision

Adoption Intention

Fuchs, M., Höpken, W., Föger, A. & Kunz, M. (2010): E-Business Readiness, Intensity, and Impact – An Austrian Destination Management Organization Study, *Journal of Travel Research*, 49 (2): 165-178 .

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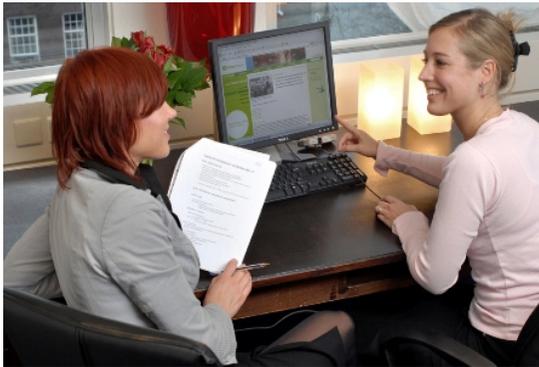
Usability-Lab *i-consult* (*Vienna AUT*)
www.innsbruck.info, www.soelden.com
N= 206 (G) (A) (CH)
Booking task → Evaluation of 57 indicators

Indicator Model Web Site Evaluation

Content & Design

Customer Relationship

Technique & Usability   Added Value & Service

Sales

Content & Design		#
1.1	Entrance & First Impression	6
1.2	Information	8
1.3	Branding	5
1.4	Design	7
	Total:	26

Customer Relationship		#
2.1	Safeness	6
2.2	Interaction Quality	6
2.3	Customer Retention & After Sales	6
2.4	Customization & Language	7
	Total:	25

Technique & Usability		#
5.1	Search & Find	6
5.2	Navigation	8
5.3	Data Format & Kompatibility	4
5.4	Reliability & Functionality	4
5.5	Page Performance	7
	Total:	29

Added Value & Service		#
3.1	Help & Service-Functions	5
3.2	Useful tools	7
3.3	Corporate Exposition	6
3.4	Value Added Services	5
3.5	Multimedia	7
	Total:	30

Sales support		#
4.1	Product Exposition/Tangibilisation	6
4.2	Vacancies & Prices	7
4.3	Reservation & Booking	6
4.4	Payment	7
4.5	Legal & Business Conditions	5
4.6	Target Group Adaptation	6
	Total:	37

147 indicators

items / indicators

Entry area & first impression

....

Information

....

Trustiness

sub-criteria

Perceived Ease of Use

Perceived Usefulness

Intention To Use

TAM

cp.: Lederer et al. (2000), The Technology Acceptance Model and the www.

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CRYSTAL WEBAWARD 2005
CRYSTAL WEBAWARD 2006
CRYSTAL WEBAWARD 2007
CRYSTAL WEBAWARD 2008

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www.soelden.com	Factor 1 Entrance Design	Factor 2 Payment & Security	Factor 3 Product – Exposition	Factor 4 Contact – Imprint	Factor 5 Multimedia	Factor 6 Help	Factor 7 Target Group	Factor 8 Website Performance
Eigenvalue	14.23	3.46	2.89	2.64	2.59	2.19	1.83	1.70
Cronbach α	0.91	0.89	0.86	0.83	0.85	0.86	0.81	0.85
Colour scheme/selection	0.820							
Optical appealing of site entrance	0.793							
Inviting site entrance	0.774							
Contrasts	0.744							
Layout	0.725							
Traceable information	0.548							
Relevance of information	0.530							
Clearance of Credit Card data		0.801						
Trust in booking process		0.774						
Security of booking process		0.763						
Guaranteed booking		0.757						
Trust in online booking		0.704						
Ensured privacy		0.610						
Trust in information		0.500						
Destination exposition by pictures and images			0.838					
Presentation of destination activities/experiences			0.724					
Detailed destination information			0.682					
Description of various destination products/services			0.601					
Booking information			0.491					
Contact information to DMO				0.779				
Appropriate contacts to DMO				0.725				
Possibility to contact DMO				0.634				
Imprint				0.595				
Multimedia applications					0.875			
Multimedia quality					0.788			
Multimedia search					0.762			
Hotline						0.860		
Helpful FAQ						0.839		
Traceable FAQ						0.779		
Discounts for target group							0.806	
Adaptation regarding seasonality at the destination							0.757	
Target group information							0.747	
Reliability								0.875
Loading time of the destination website								0.803
Technical actuality								0.697

Strategic core question…

"which website dimensions perceived by potential users have strongest impact to acceptance of that specific website system?"

43

www.soelden.com	Factor 9 Cross-selling	Factor 10 Legal Conditions	Factor 11 Branding	Factor 12 Information Relevance	Factor 13 Information Amount	Factor 14 Information Depth	Factor 15 Val. Added Services
Eigenvalue	1.66	1.58	1.40	1.30	1.22	1.15	1.03
Cronbach α	0.74	0.78	0.77	0.84	0.75	0.73	0.74
Offers of further destination services	0.762						
Links concerning Flight/Train information	0.733						
Information regarding destination region, culture	0.722						
General business conditions		0.749					
Cancellation information, terms of payment		0.730					
Office hours		0.715					
Consistency & continuity: Design			0.723				
Consistency & continuity: Corporate Design			0.713				
Corporate Design			0.613				
Important information				0.839			
Desired information				0.829			
Information actuality					0.810		
Information amount					0.649		
Plentiful information					0.435		
Info-depth						0.641	
Downloads						0.531	
Info-style						0.461	
Mail contact							0.782
Travel insurance							0.537

Extraction Method: Principal Component Analysis
Rotation Method: Varimax Rotation
Total Explained Variance: 78,17%
Sampling Adequacy: Kaiser-Mayer-Olkin = 0.831
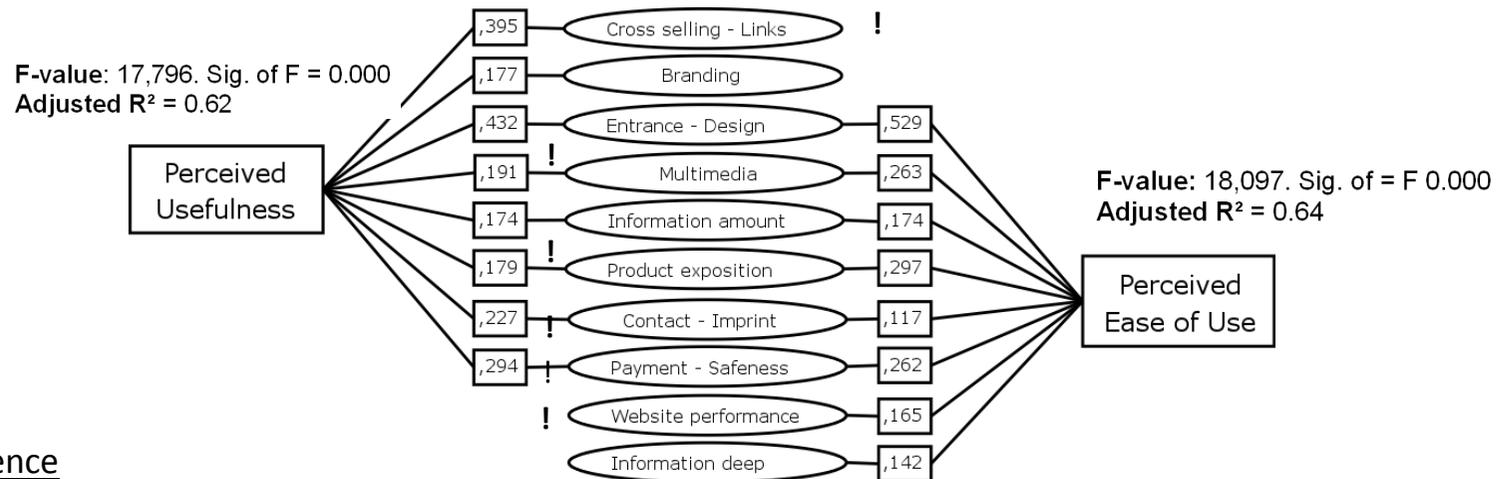**Bartlett Test of Sphericity** = 6517,717 (Sig. = .000)

Factor Analysis Results from: www.soelden.com

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Regression Analysis for www.soelden.com

F-value: 17,796. Sig. of F = 0.000
Adjusted R² = 0.62

Perceived Usefulness

,395	Cross selling - Links !
,177	Branding
,432	Entrance - Design
,191 !	Multimedia
,174	Information amount
,179 !	Product exposition
,227 !	Contact - Imprint
,294 !	Payment - Safeness
!	Website performance
	Information deep

Entrance - Design	,529
Multimedia	,263
Information amount	,174
Product exposition	,297
Contact - Imprint	,117
Payment - Safeness	,262
Website performance	,165
Information deep	,142

F-value: 18,097. Sig. of = F 0.000
Adjusted R² = 0.64

Perceived Ease of Use

IT experience
*Low IT experienced accept websites at same level as
high IT experienced users and by same factors!*

Gender
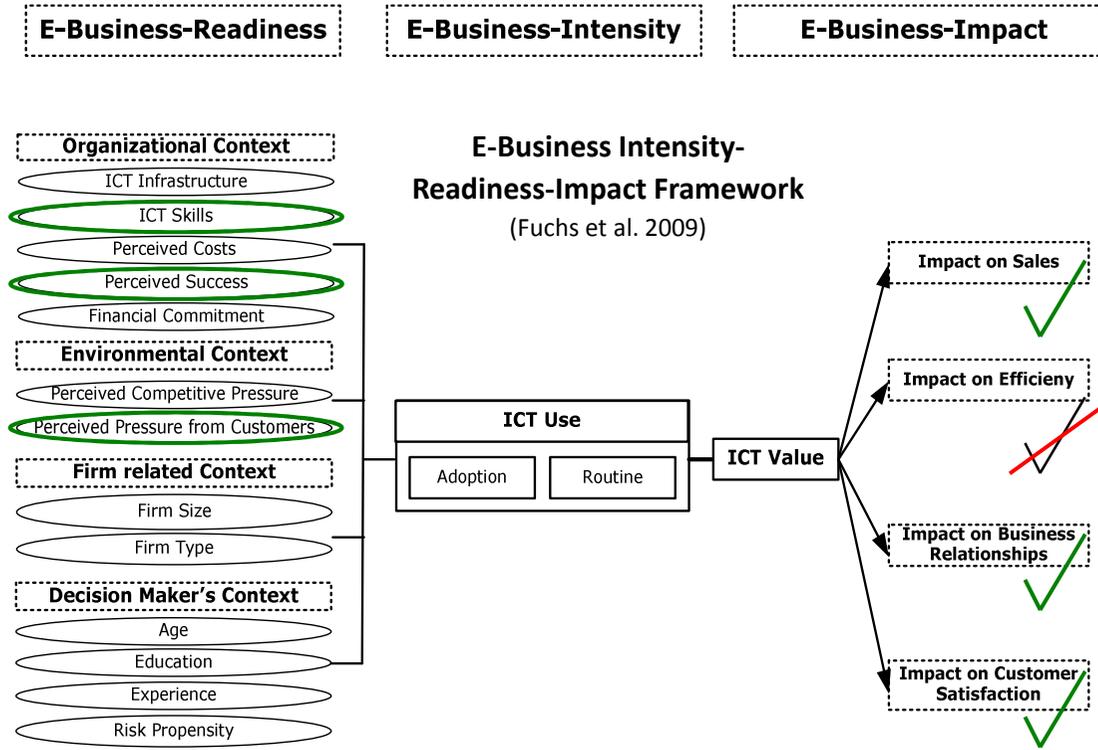*Ease of Use (w payment/security, m performance)*

Age
Ease of Use (> 30 performance)
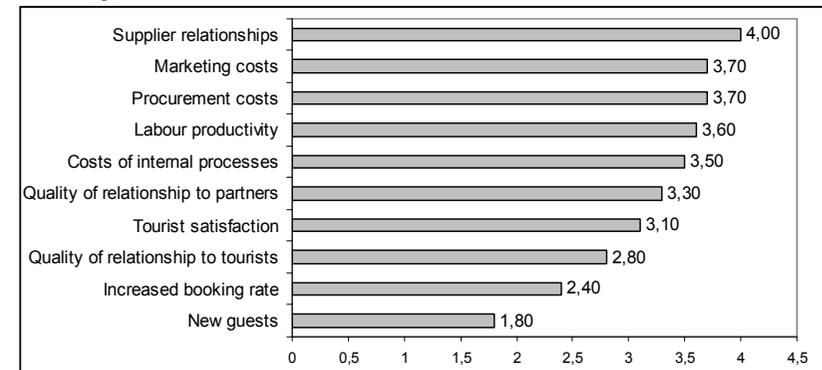*Usefulness (> 30 cross selling)*

44   Fuchs, M., Höpken, W., Wöckl, J, Lehmann, P. (2006): Destination Website Evaluation using Technology Acceptance
Models. In: Frew, A. (ed.) *Travel Distribution Summit, Europe - EyeforTravel@2006*, Axon Imprint, London, pp. 87-100

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E-Business-Readiness   E-Business-Intensity   E-Business-Impact

E-Business Intensity-Readiness-Impact Framework
(Fuchs et al. 2009)

Online survey (Jan- March 2008)
managers of 3,600 hotels
723 completed questionnaires (20%)
equally distributed over whole of
Austria

Are Austria's hotel managers
unable to *generate* or to *recognize*
efficiency gains from ICT ?

Organizational Context
- ICT Infrastructure
- ICT Skills
- Perceived Costs
- Perceived Success
- Financial Commitment

Environmental Context
- Perceived Competitive Pressure
- Perceived Pressure from Customers

Firm related Context
- Firm Size
- Firm Type

Decision Maker's Context
- Age
- Education
- Experience
- Risk Propensity

ICT Use — Adoption | Routine

ICT Value

Impact on Sales
Impact on Efficieny
Impact on Business Relationships
Impact on Customer Satisfaction

e-Business Application	Adoption Share	Usage Intensity (Mean)
Distribution via Online Platforms (OPLA)	96%	1.85
Online Procurement (PROC)	88%	3.21
E-Mail-Marketing (EMM)	87%	2.73
Property Management System (PMS)	78%	2.37
Costing & Accounting System (CAS)	78%	3.14
Websites with booking functionality (WBOOK)	68%	2.99
eCustomer Relationship Management (CRM)	67%	3.08
Intranet (INTR)	50%	4.00
Yield Management System (YMS)	42%	4.71
Enterprise Resource Planning System (ERP)	41%	4.86
Personal Information System (PIS)	40%	4.76

Category	Value
Supplier relationships	4,00
Marketing costs	3,70
Procurement costs	3,70
Labour productivity	3,60
Costs of internal processes	3,50
Quality of relationship to partners	3,30
Tourist satisfaction	3,10
Quality of relationship to tourists	2,80
Increased booking rate	2,40
New guests	1,80

45

Fuchs, M., Scholochow, Ch., & Höpken, W. (2010): e-Business Adoption, Use and Value Creation – An Austrian Hotel Study, *Information Technology and Tourism,* 11 (4): 267-284.

Web 2.0 Revolution in Tourism

25 Mio. unique users
96% positive reviews

- 1995s: Web 1.0 (S-GC – 2D)
- 2005s: Web 2.0 (U-GC – 3D)
  - UGC Creators: 44% → 51%
  - Blog Readers: 58% → 69%
    (eMarketer 2009)

Rating and Reviews

What others are saying

Sharing discoveries with peers

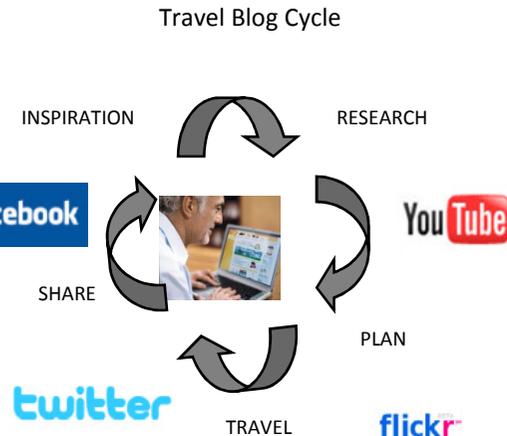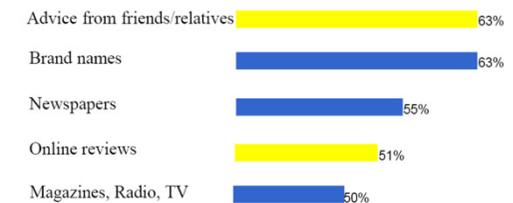Recommendation

GPS Tracking, Mashup Navigation UG Adds (Tags)

Photo & Video

Up-Selling

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- **Web 2.0**
  - No separation between *user* and *editor*
    - Authoring tools (*dynamic website, UCG*)
      - Social network: open, interactive, rich-experience, global → hyperlinked collective intelligence = permanent collaborative contributions)
  - Dislocation of desktop applications into Internet (→ user configures and controls, *open source* = *perpetual Beta*)

- **Research areas**
  - Applications (e.g. blogs, feedback-reviews, mobile tags, podcasts, body finder…)
  - Conditions & implications (e.g. communities, integration, empowerment, sharing, innov., co-creation…)

47   Fuchs, M. & Höpken, W. (2010): E-Business Horizons in the Tourism Industry, Sidali, K., Spiller, A. & Schulze, B. (eds.), Food, Agriculture and Tourisms- Interdisciplinary Perspectives, Springer, Berlin & Heidelberg, pp. 140-160.

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- **Types of Social Media**   Source: Morevisibility.com
  - **Social Networking Sites**: *Facebook*, Myspace, LinkedIn
  - **Picture Sites**: *Flickr*, Picasa, Instagram
  - **Video Sites**: *Youtube*, Vimeo
  - **Aggregators/social bookmarking**: Digg, *Tumblr*, Del.icio.us, Pinterest
  - **Forums/Message Boards**: *Tripadvisor*, Virtual Tourist
  - **Blogs/Microblogs**: Bloggers, *Twitter*
  - **Virtual Worlds/Games**: *SecondLife*

Community Site		Visits (04/08)	Links	Shared Goal	Specific features/web 2.0 technologies
lonely planet	www.lonelyplanet.com	1,158,800	630	Travel info	Forum, blogs for professional authors, mobile services (POI & Reviews)
TravelPod	www.travelpod.com	657,000	991	Travel experiences	Blogs (i.e. travelogues) associated to geographical maps (linked in mashups), mobile blogging & podcasting
virtual Tourist	www.virtualtourist.com	1,154,400	3,277	Unbiased fellow-based travel guides	Descriptions & rateable reviews of travel locations, several forums, 'post a question', reservation and booking functionalities (travel deals)
travelistic	www.travelistic.com	90,000	170	Travel info & video	Flash player-based, user and professional video content is linked to geographical info & map, can be rated, commented and tagged (á la YouTube)
Wikitravel	www.wikitravel.org	723,400	2,036	Free travel guide	Open create & edit functions, Blogs, RSS-feeds, tag clouds
YAHOO! TRAVEL TRIP PLANNER	www.travel.yahoo.com/trip	n.a.	n.a.	Create & illustrate custom trip plan	Schedule (timeline), journal (reviews, descriptions, podcast) & maps (integrates)
Couch Surfing project	www.couchsurfing.com	900,400	539	Network for private accommodation	Messenger, contact list, blogs & reports, profiles
tripadvisor	www.tripadvisor.com	4,413,200	7,070	Unbiased fellow reviews & helping in forums (> 10 Mio. reviews generate 17 Mio. trips / week)	Popularity index, traveller articles (wiki-based), game travel IQ (find locations on map), right now (community events in real time), forum, podcast
TravelBlog www.travelblog.org	www.travelblog.org	575,800	1,101	Travel info & experiences	Geographically associated blogs, forum and photos (tips, facts, history), map and routes

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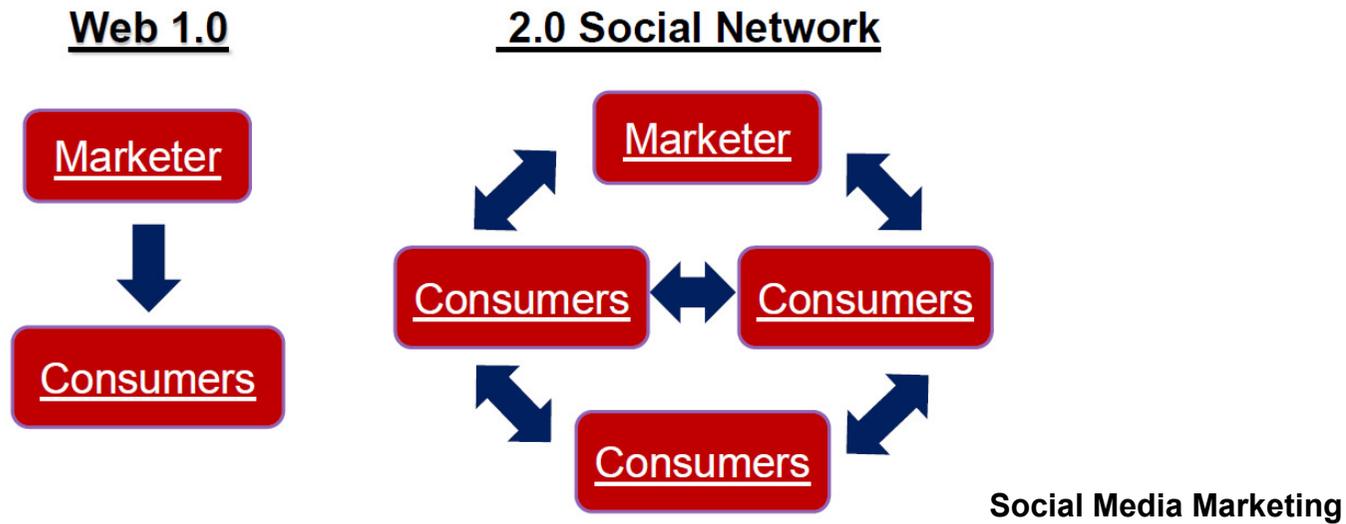

- **E-WOM** - From interpersonal communication to broadcasting
  - Beyond immediate social circle
  - Creative and engaging
  - Visible for marketers
- **New Consumers** - Full of opinions
  - Online throughout day
  - Maintain wide personal networks
  - Demand to be heard
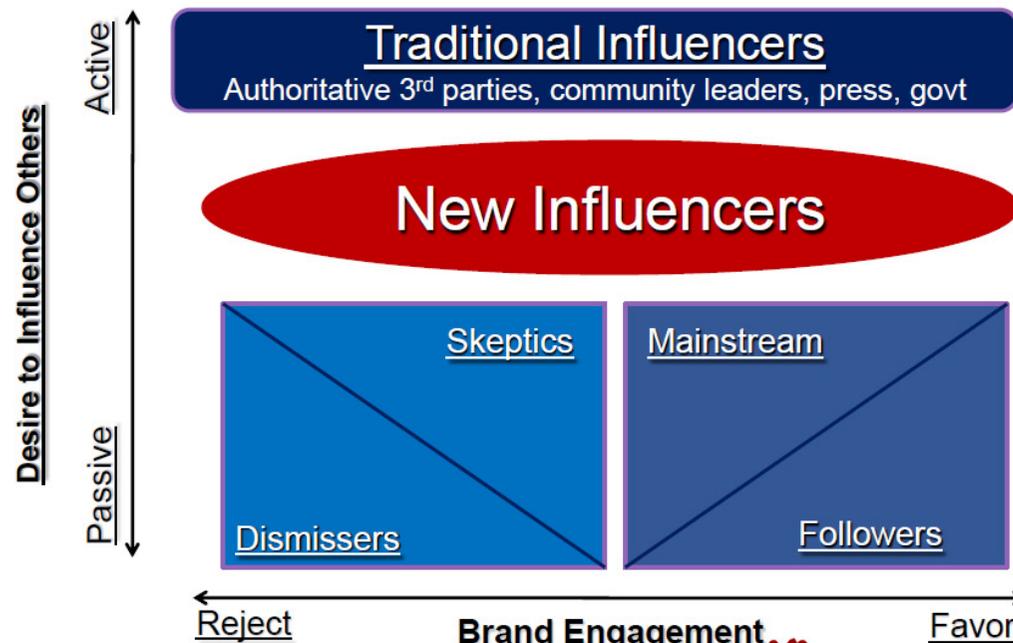
Source: Vovici.com

New Influencers

Source: Sean Moffett, BuzzCanuck

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Web 1.0

Marketer

↓

Consumers

2.0 Social Network

Marketer

Consumers ↔ Consumers

Consumers

Social Media Marketing

What type of Web 2.0 & Social Media marketing initiatives are you planning for 2010?	2008	2009	2010
Advertise on social media sites (e.g. TripAdvisor, Facebook, etc.)	8.1%	15.1%	39.7%
A photo sharing functionality on the hotel website	12.7%	4.7%	32.8%
Sweepstakes and contests on the hotel website	9%	3.5%	36.2%
Survey and comment card on the hotel website	18.4%	14%	31%
Subscribe to a reputation monitoring service	8.4%	2.3%	19%
Create profiles for my hotel(s) on the social networks (Facebook, Twitter, Flckr, etc.)	13.3%	14%	50%
Create and post videos on YouTube	N/A	N/A	46.6%
Actively participate in blogs that concern my hotel	12.7%	5.8%	24.1%
I am not planning on Web 2.0 and Social Media initiatives for 2010	N/A	15.1%	6.9%

Hotels and Social Media

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http://www.hospitalityebusiness.com/blog/are-hoteliers-ready-for-hyper-interactive-travel-consumers/

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- **Key benefits of SMM**

  - Customer Loyalty

  - Brand Awareness

  - Ideation & Innovation

  - Low Feedback costs

  - Ongoing Dialogue

Traditional CRM	CRM 2.0
Company to customer communication	Company to customer Costumer to company Customer to customer sharing of company communication
Delayed response	Real-time
Messages for one-off promotions	Continuous communication
Intimate relationship	Visible to others
Focus on behavioural loyalty => driving sales	Both behavioural and attitudinal loyalty => managing reputation
Personalization	Relevance

7 Wonders of Social Media Marketing (source: Vovici.com)

- *Relationships*
  - Customers' prospects /preferred communication means ⇔ P2P not Brand2People
- *Respect*
  - Reciprocal learning from customer opinions/input ⇔ Dialogue not Sell
- *Personalisation*
  - Data-based customization of communication and service ⇔ Privacy
- Partizipation
  - Encouraged by feedback on what others say ⇔ Support networking
- *Conversation*
  - No control rather topics ⇔ **text mining** (**Sentiment Detection**)
- *Community*
  - Place to talk ⇔ opinion leaders' content provision
- *Co-Creation*
  - Idea generation (commenting) about promo/product improvements

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- **Marketers' concerns**
  - SM only encompasses the young
  - Negative Buzz
    - Most feedback is positive
    - Most dissatisfied customers mollified
    - Negative feedback isn't bad
    - Admit fallibility ⇔ promise to improve

Tone of Online Feedback for Products and Services Written in the Past Month by US Internet Users*, August-October 2007 (% of respondents)

- Equally split 11%
- Negative every time 1%
- Negative most times 1%
- Positive every time 36%
- Positive most times 51%
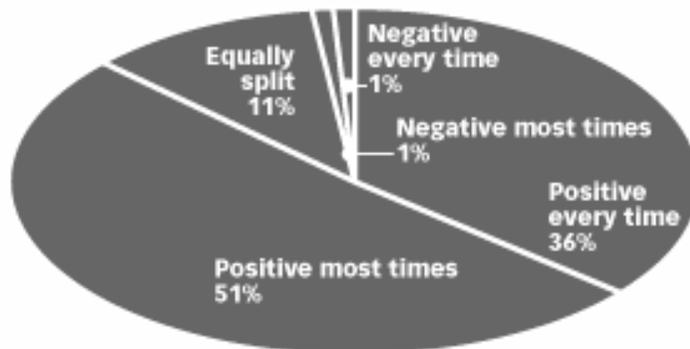
Note: *who posted one or more reviews to Bazaarvoice client Websites
Source: Bazaarvoice conducted by Keller Fay Group as cited by Marketing Charts, November 27, 2007

090066

www.eMarketer.com

Age distribution on social network sites
United States, data sorted by average age per site, youngest at the top

0 - 17 | 18 - 24 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | 65+

Bebo
MySpace
Xanga
Friendster
Hi5
Tagged
LiveJournal
Last.fm
Reddit
Ning
Facebook
FriendFeed
Digg
StumbleUpon
Twitter
Slashdot
Delicious
LinkedIn
Classmates.com

Data source: Google Ad Planner (United States demographics data)

www.pingdom.com

http://royal.pingdom.com/2010/02/16/study-ages-of-social-network-users/

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DMO challanges

- **Content Collection ⇔ Info Provision**
  - *Multi channel UGC*
  - *Mobile & LBS*
- **Promotion**
  - *SM-based facilitator & moderator of consumer processes*
  - *eCRM →* **eCMR** *(viral)*
- **Research & Quality Assurance**
  - *CS ⇔ e-Reviews*
  Sentiment Detection
- **Transactions**
  - *One-stop shopping, Dynamic packaging → open SBN*
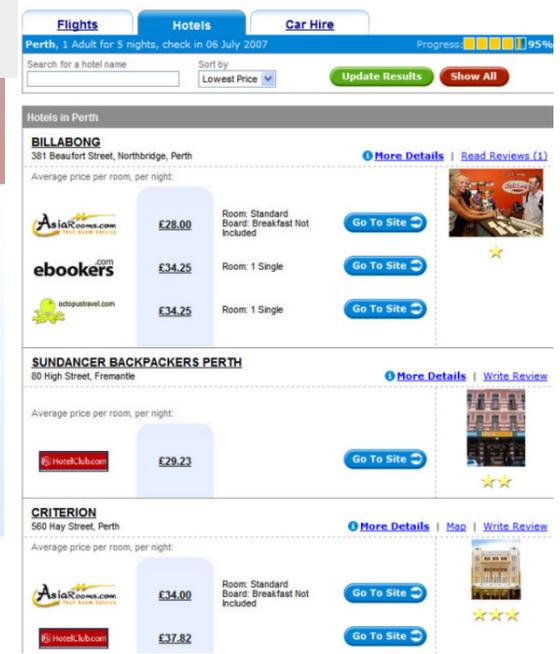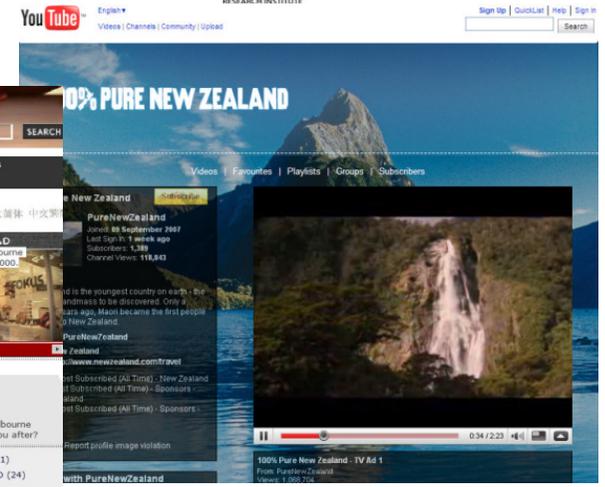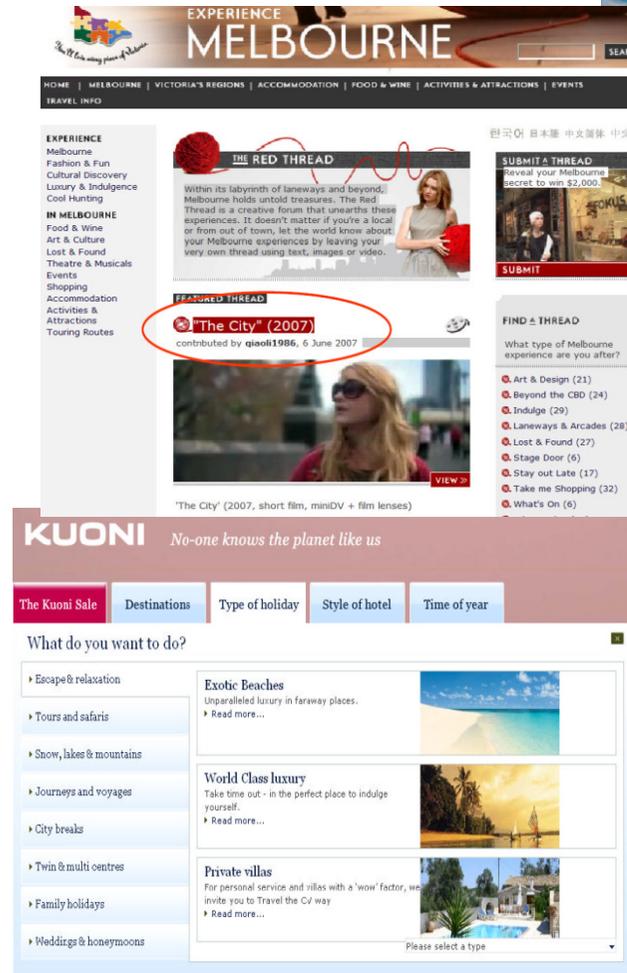
Where do I do what → what do I do where?

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(Roger Carter 2009)

Mobile services in tourism

eTourism → mTourism

- **Characteristics of mobile services** (Pocket Computer→ Tablet/PDA → Smart Phone)
  - **Ubiquity** (any time and anywhere)
  - **Localisation** (location-based)

Mobile services in tourism

- Destination access, reached and located at any place and time
  - Interaction = location-sensitive, time-critical, identity-enacted
  - 79%/310 M EU citizens use mobile broad-band for smart phones (65% priv.)
- Failed tourism projects
  - Technology/investor-driven development & implementation (Anegg et al. 2002 *Lol@,* Pugh et al. 2004 *POSITION*, Wohltorf et al. 2005 *BerlinTainment*)
- User centricity
  - Comprehensive support during stay
    - M-Search/Browsing
    - Transaction
  - LBS (GPS)
    - Push/Pull
  - Web 2.0
    - Mobile-Social Media
  - Web-based
    - www.innsbruck-mobile.at
    - www.dolomitiSuperski.mobi

Rasinger, J., Fuchs, M., Höpken, W. & Beer, Th. (2009): Building a Mobile Tourist Guide based on Tourists' On-Site Information Needs. *Tourism Analysis*, 14 (4): 483-502.

Mobile services in tourism

- **Dynamic adaptation & personalization**
  - Application logic (web-/midlet-based), display and content representation automatically adapts to preference, **use context** (*user, location, time, environment*) and device
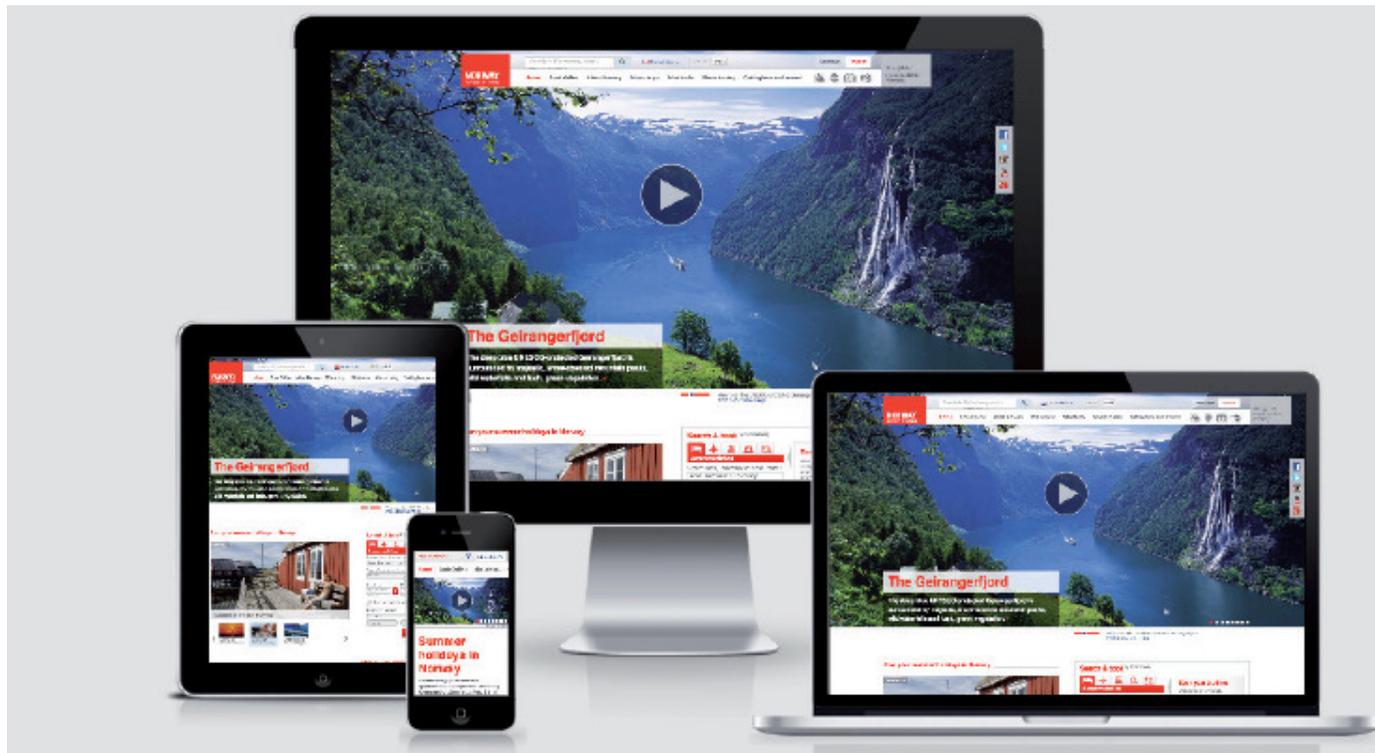
Höpken, W., Fuchs, M., Zanker, M., Beer, Th. (2010): Context-based Adaptation of Mobile Applications in Tourism, *Information Technology and Tourism*, 12(2): 175-195.

Mobile services in tourism

- **Recommendation**
  - Preference-based (**multiple** collaborative filtering)

Collaborative filtering with single rating table

	Absolut Inn	La Cabana	Solo-vina	Kunst-raum I.	Galerie Taxisp.	Alpen-zoo	User similarity
John	1	1		1		●	Recommendation
Jim	1	1	1			1	0.58
Helen			1	1	1		1/3
Eve						1	0

Collaborative filtering with multiple sources of evidence

	Likes (Food and Drink)			Requires (Sights)			Likes (Sights)			
	Absolut Inn	La Cabana	Solo-vina	family	no kids	half-day	Kunst-raum I.	Galerie Taxisp.	Alpen-zoo	User similarity
John	1	1			1	1	1	●		Recommendation
Jim	1	1	1	1					1	0
Helen			1		1	1	1	1		0.87
Eve				1		1			1	1/3
	Partition A			Partition B			Partition C			

Zanker, M., Höpken, W. & Fuchs, M. (2011): Exploiting Feedback from Users of Innsbruck.mobile for Personalization, In Law, R., Fuchs, M. & Ricci, F. (eds.), *Information and Communication Technologies in Tourism* 2011, Springer, New York: 63-74

Fuchs, M. & Zanker, M. (2012): Multi-criteria Ratings for Recommender System: An Empirical Analysis in the Tourism Domain, In Huemer, C. & Lop, P (eds.) *E-Commerce and Web Technologies, Lecture Notes in Business Information Processing* (LNBIP), Springer, Heidelberg, London, 123(3): 100-111,

Mobile services in tourism

- **Push Functionality**
  - E-C-A Rule-Engine (triggers SMS/Email)
  - Location-based push-notification (GPS)
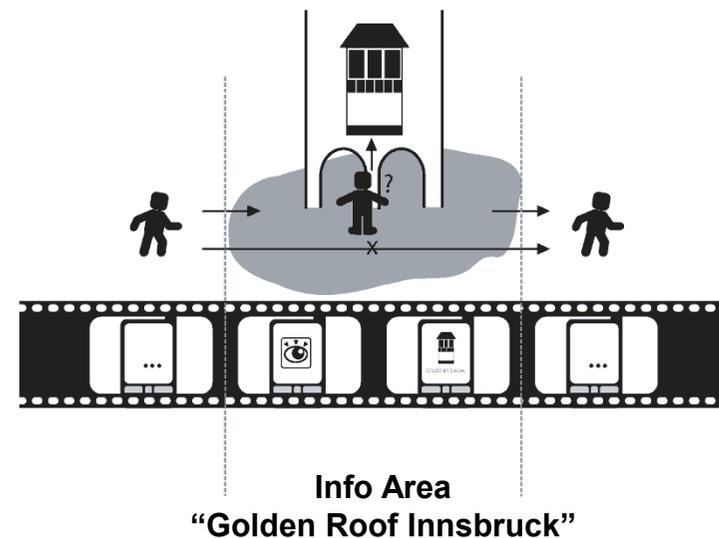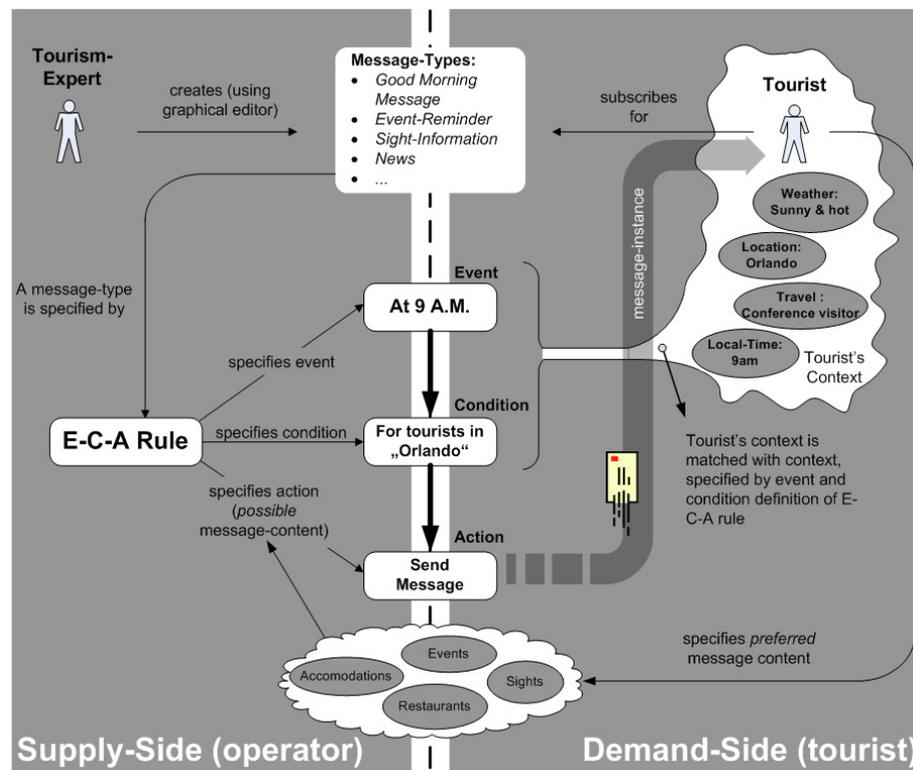
Info Area
"Golden Roof Innsbruck"

Beer, Th., Rasinger, J., Höpken, W., Fuchs, M. & Werthner, H. (2007): Exploiting E-C-A Rules for Defining and Processing Context-Aware Push Messages. In: Paschke, A. & Biletskiy, Y. (eds), *Lecture Notes in Computer Science - Advances in Rule Interchange and Applications* (RuleML 2007), Springer, Berlin & Heidelberg: 199-206.

Mobile services in tourism

Cockpit
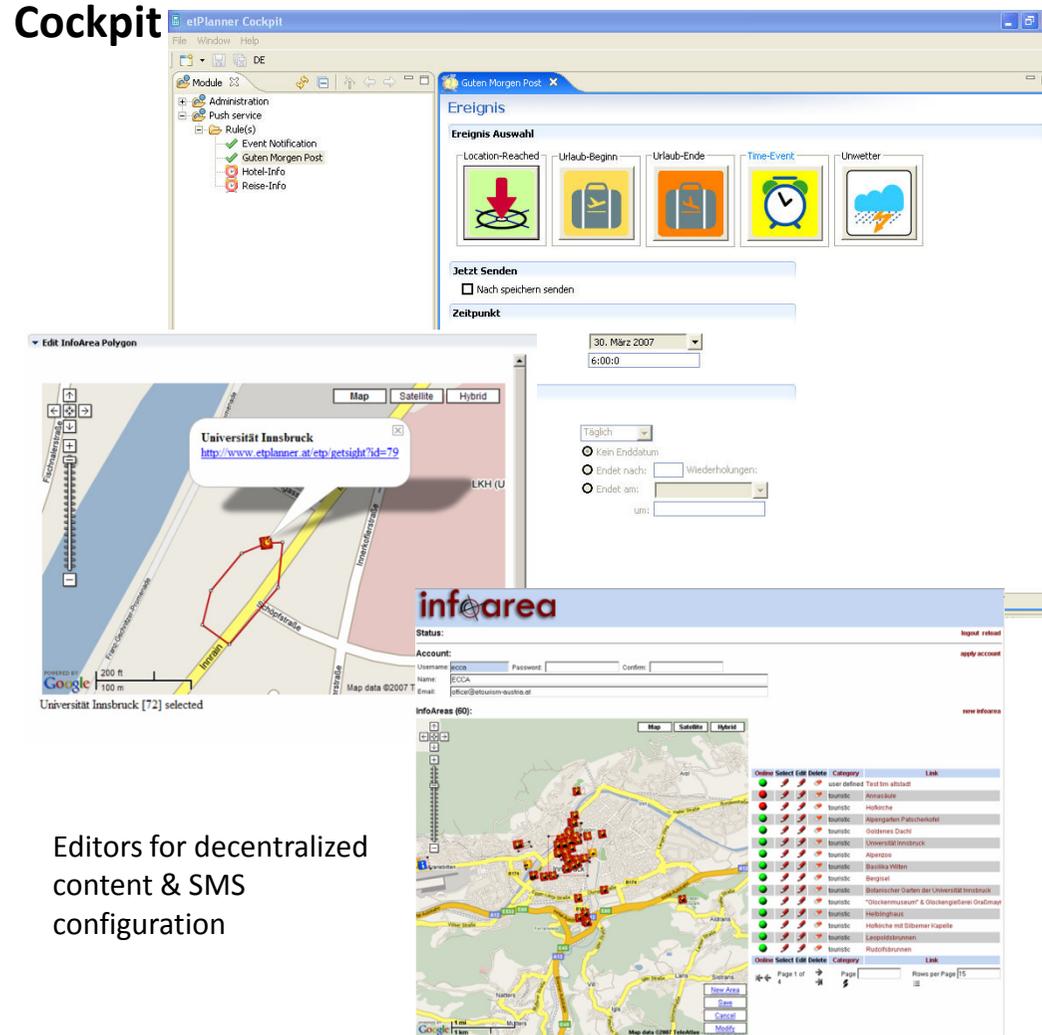
Editors for decentralized
content & SMS
configuration

Höpken, W., Fuchs, M., Zanker, M., Beer, Th. (2010): Context-based Adaptation of Mobile
Applications in Tourism, *Information Technology and Tourism*, 12(2): 175-195.

innsbruck.mobile

DAS MOBILE TOURISTENINFORMATIONSSYSTEM

Kurzmitteilung 1/2

Von +436643917873

Hallo M. Mustermann! Ihr heutiges Wetter: Sonne+Wolken bei max. 16 Grad. Tipp des Tages: Goldenes Dachl in Innsbruck, Tel.: +43 (512) 581111

Optionen   Zurück

Context-Sensitve Push I

innsbruck.mobile
DAS MOBILE TOURISTENINFORMATIONSSYSTEM
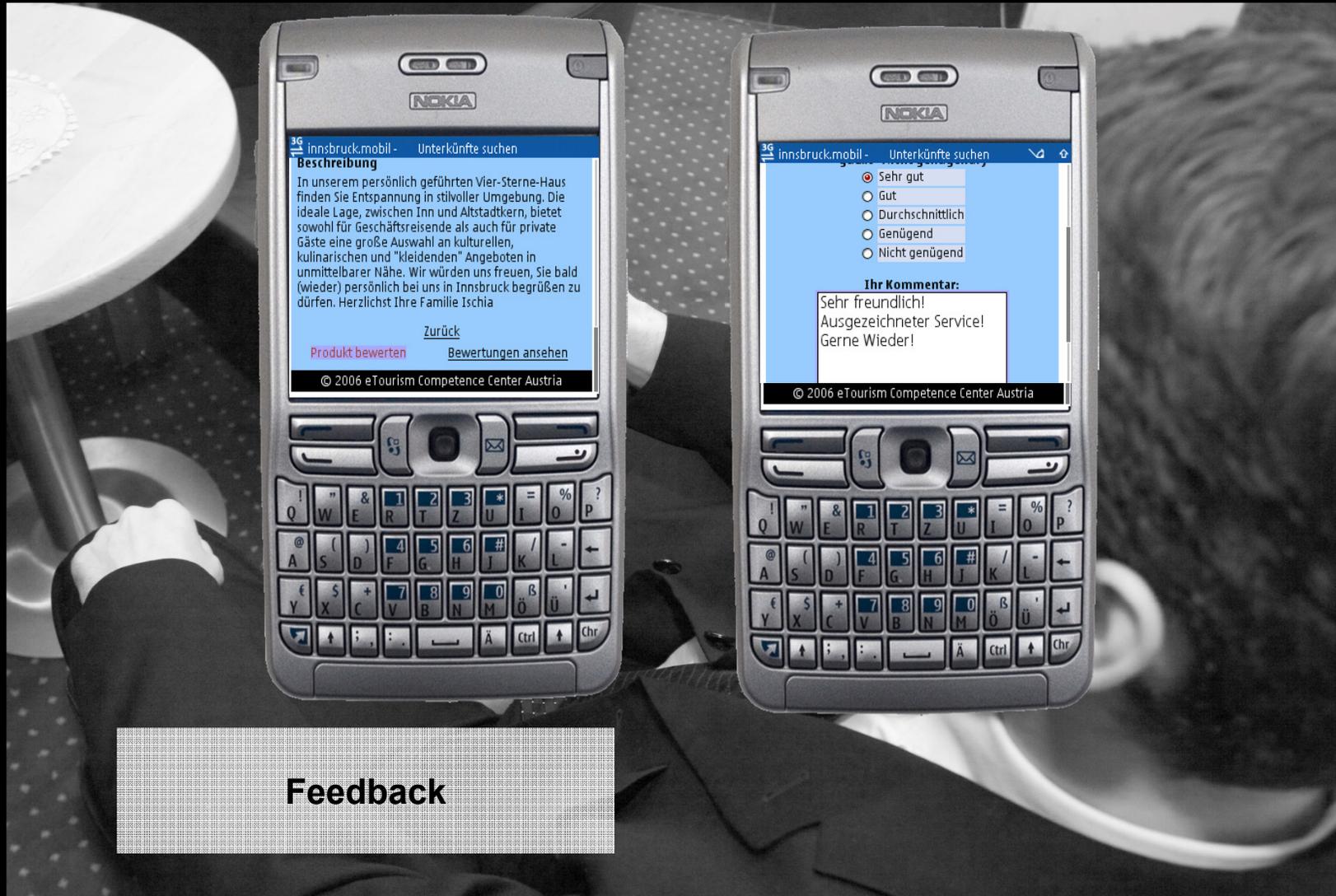
Feedback

Mobile services in tourism

- **EURO 2008**
  - Daily Programme
  - Match schedule
  - Event Zones (fan route, VIP areas)
  - Stadion
  - SMS Service (match report, traffic)

- **Traffic information**
  - Timetable train
  - Bus-stations Live
  - Parking places
 - Traffic notifications (congestion, preferred routes)

Piazolo, F., Fuchs, M., Höpken, W. Promberger, K. (2009): Intelligent Local-based Information – The EURO 2008™ experience from Innsbruck. In: Larson, M. & Vujicic, S. (eds.), Events & Meetings in the City, Universtiy of Gothenburg – School of Business, Economics and Law : 43-67.

Mobile services in tourism

Usage summary for innsbruck-mobile.at
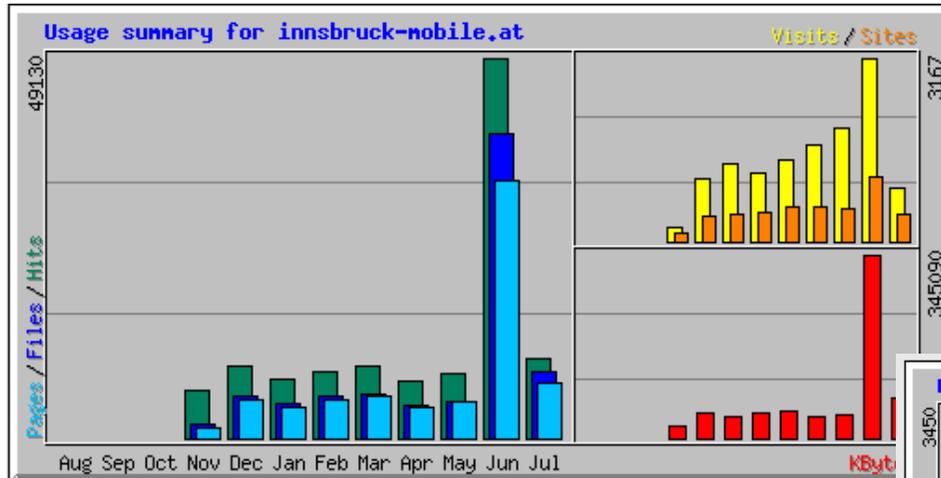
Monthly Statistics for June 2008	
Total Hits	49130
Total Files	39275
Total Pages	33268
Total Visits	3167
Total KBytes	345090
Total Unique Sites	1122
Total Unique URLs	674
Total Unique Referrers	163
Total Unique User Agents	212

| Top 10 of 674 Total URLs By KBytes						
#	Hits		KBytes		URL	
1	14931	30.39%	104649	30.33%	/trafficOptions.ecca	
2	6973	14.19%	70156	20.33%	/euroOptions.ecca	
3	4493	9.15%	30307	8.78%	/mappings.ecca	
4	911	1.85%	15074	4.37%	/	
5	563	1.15%	9671	2.80%	/start.ecca	
6	701	1.43%	7421	2.15%	/festivalOptions.ecca	
7	286	0.58%	2952	0.86%	/processEventSuchen.ecca	
8	268	0.55%	2140	0.62%	/help.ecca	
9	168	0.34%	1483	0.43%	/options.ecca	
10	190	0.39%	1255	0.36%	/eventsOptions.ecca	

Daily usage for June 2008
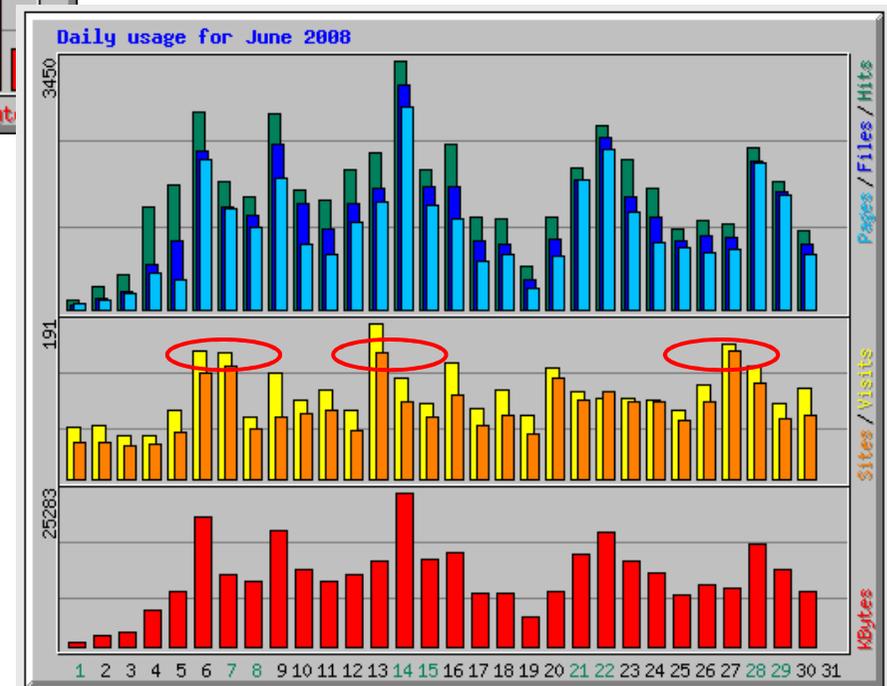
Pilotized in Nov. 2006   www.innsbruck-mobile.at

Since, ca. 25,000 users

Höpken, W., Fuchs, M., Zanker, M., Beer, Th. (2010): Context-based Adaptation of
Mobile Applications in Tourism, *Information Technology and Tourism*, 12(2): 175-195.

66

Mobile services in tourism

www.dolomitiSuperski.mobi
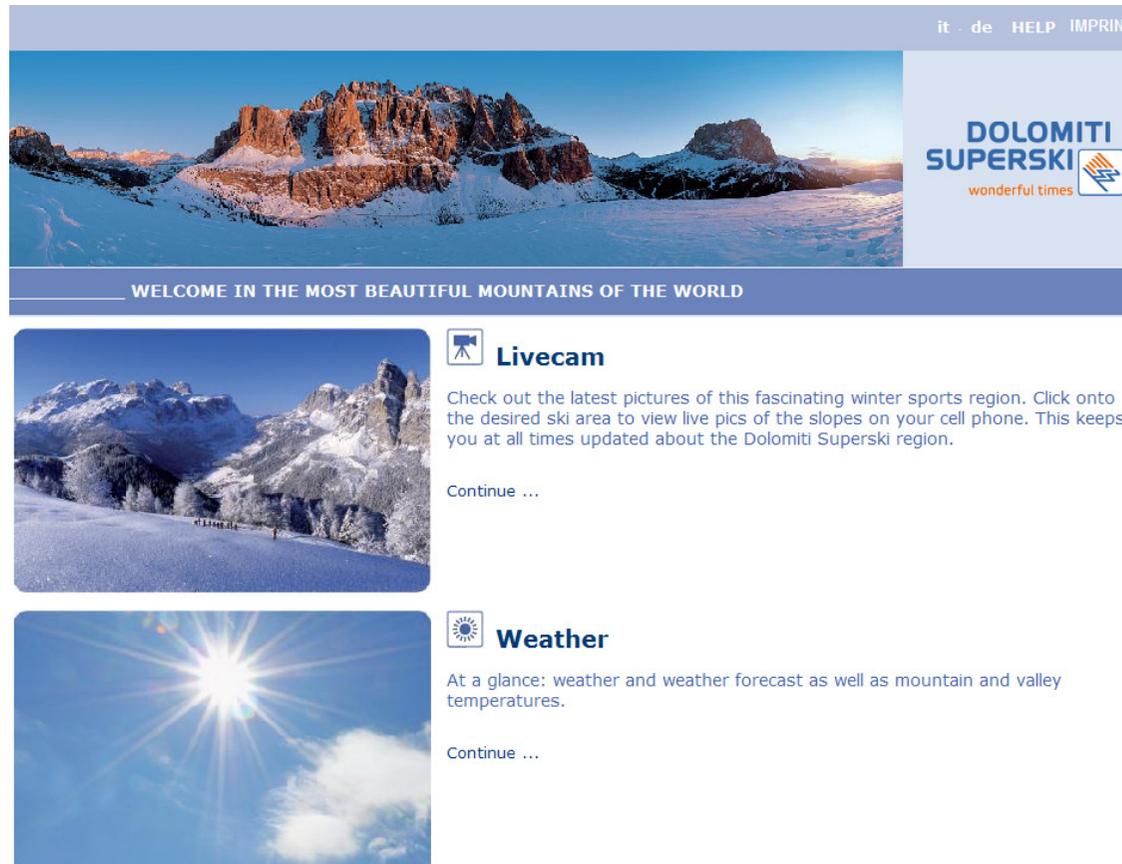
PC Version

Smart Phone

Mobile services in tourism

Livecam

Weather

Mountain temperature:	-7.0°C
Valley temperature:	12.0°C
Mountain winds:	0.0km/h
Livecam:	Show ⏵

Forecast

07.12.2008:	☀
08.12.2008:	☀
09.12.2008:	☀

Lifts and Slopes

Kronplatz Lifts and Slopes

Total length of slopes :	90 of 105 km
Open ski lifts:	25 of 31
Snow type:	Morning solidly packet/Afternoon wet packed
Total snowfall - mountain:	140 cm
Total snowfall - valley:	50 cm
Last snowfall:	05.12.2008 (20 cm)

SMS Services

SMS info neve/piste aperte
Good Morning Post
482812 scrivendo "GMP" + LOCALITÁ

Skimap

Dolomiti Dating

Dolomiti Dating

When
⦿ today
○ tomorrow

Freetext

Where
Kronplatz

For what
-all-
-all-
Skiing
Snowboarding
Flirting
Aprés Ski
Meet & Eat
Nightlife
Sled / Bob run
Ice Skating
Cross Country Skiing

Dolomiti Dating

Please choose
⏵ I want to be found
⏵ I am looking for somebody

When
⦿ today
○ tomorrow

Freetext

Where
Cortina d'Ampezzo

For what
Skiing

Nickname

Cell phone number

Mobile services in tourism

Mobile services in tourism

- Usage Statistics
  - 23,453 Unique Visits (2008)
  - 36,750 Unique Visitors (2009)

- Satisfaction Survey (N = 207)
  - Tyrol (14-30/04/08)
    - Nokia *E61*
  - 20_{min} Test
  - 10_{min} Evaluation
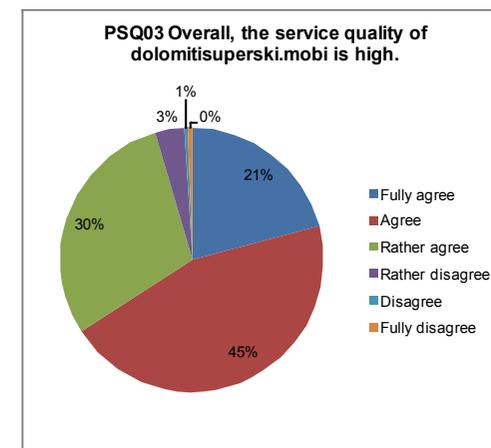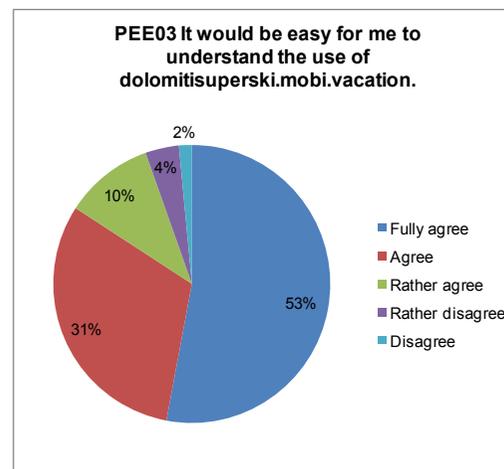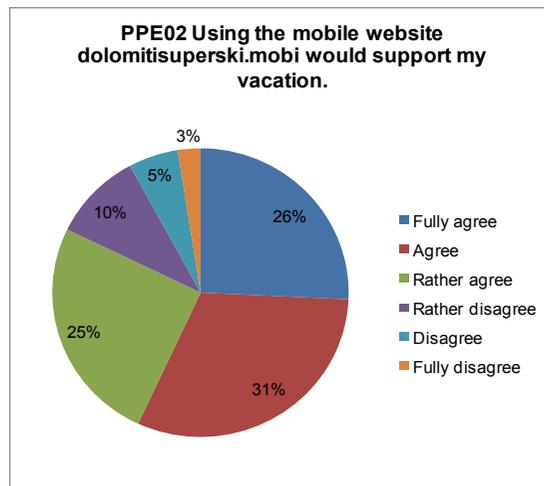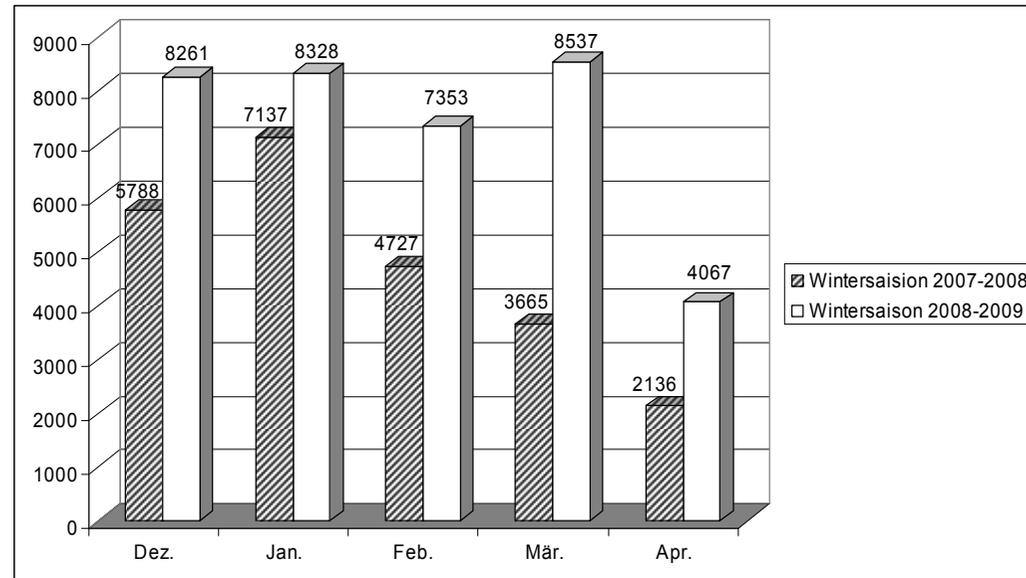
PPE02 Using the mobile website dolomitisuperski.mobi would support my vacation.

PEE03 It would be easy for me to understand the use of dolomitisuperski.mobi.vacation.

PSQ03 Overall, the service quality of dolomitisuperski.mobi is high.

Fuchs, M., Höpken, W. & Rasinger, J. (2012): Behavioural intention to use mobile information services in tourism - The case of the tourist guide DolomitiSuperski. Mobi, *Information Technology and Tourism*, 13(4): 285-307.

Mobile services in tourism
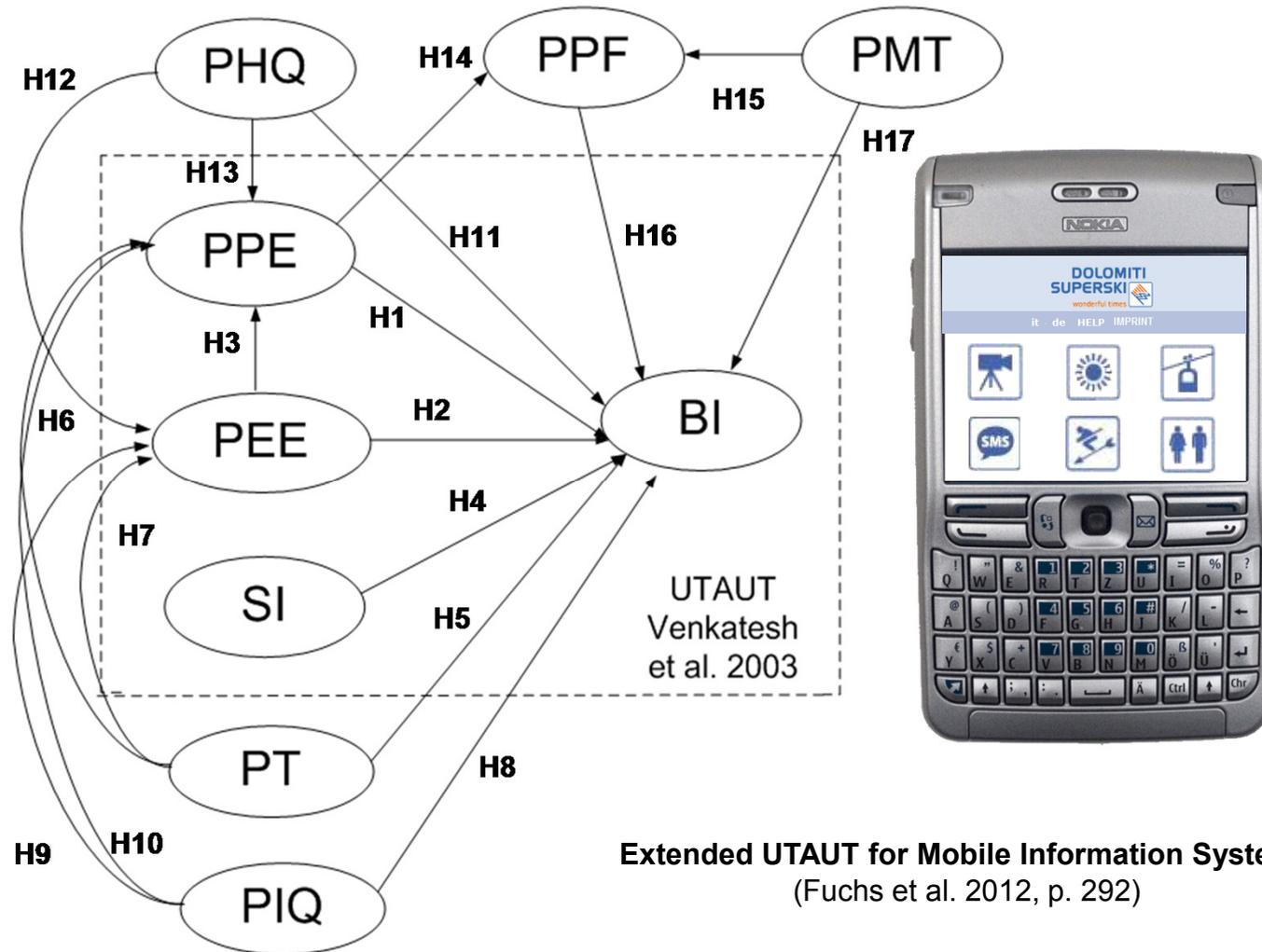
Extended UTAUT for Mobile Information Systems
(Fuchs et al. 2012, p. 292)

Fuchs, M., Höpken, W. & Rasinger, J. (2012): Behavioural intention to use mobile information services in tourism - The case of the tourist guide DolomitiSuperski. Mobi, *Information Technology and Tourism*, 13(4): 285-307.

Mobile services in tourism

Scale items	Mean	Cronbach Alpha	Std. Loadings	CR	SMC
Perceived Performance Expectancy		.917			
Being a visitor I would find DS useful.	2.26		.85	14.54	.73
DS would support my vacation.	2.46		.90	15.51	.80
DS would increase the quality of stay.	2.65		.83	-ª	.69
Perceived Effort Expectancy		.937			
I find DS easy to use.	1.96		.92	-ª	.84
DS is clear and understandable.	1.70		.95	23.10	.91
It is easy to use DS.	1.71		.80	16.21	.65
Perceived Hedonic Quality		.908			
DS is flashy and fun to use.	2.68		.91	-ª	.82
DS is exciting to use.	3.01		.91	19.05	.82
DS is cool.	3.20		.74	13.14	.55
Perceived Information Quality		.877			
Info given by DS is accurate.	2.27		.94	-ª	.89
Info given by DS is concise.	2.39		.94	22.06	.88
Info given by DS is updated.	2.01		.68	11.44	.46
Info given by DS is complete.	2.78		.70	12.80	.49
Social Influence		.856			
My friends think that I should use DS.	3.80		.69	-ª	.48
Using DS can raise my prestige.	4.63		.87	12.15	.76
Using DS is a status symbol	4.94		.79	10.22	.63
Perceived Trust		.826			
I think DS has adequate security features	3.00		.64	-ª	.41
I trust info on DS.	2.70		.78	9.44	.61
DS is trustworthy.	2.57		.96	9.59	.91
Behavioural Intention		.957			
I would use the service.	3.73		.93	-ª	.86
I plan to use the service.	3.65		.98	30.70	.96
I intend to use the service	3.76		.97	29.81	.95
Perceived Monetary Transparency		.865			
I know what it will cost to visit DS	3.77		.95	-ª	.91
I can estimate costs incurred by use of DS	3.73		.92	24.45	.85
I find costs transparent	3.78		.87	20.86	.76
Perceived Price Fairness		.974			
Price for usage of DS is adequate.	3.69		.95	-ª	.90
Use of DS is good value for the money.	3.72		.98	33.82	.96
Price for the usage of DS is fair.	3.77		.86	22.57	.78

Method:
MLE

Model Fit :
Normed-χ^2 = 1.436
AGFI =.896
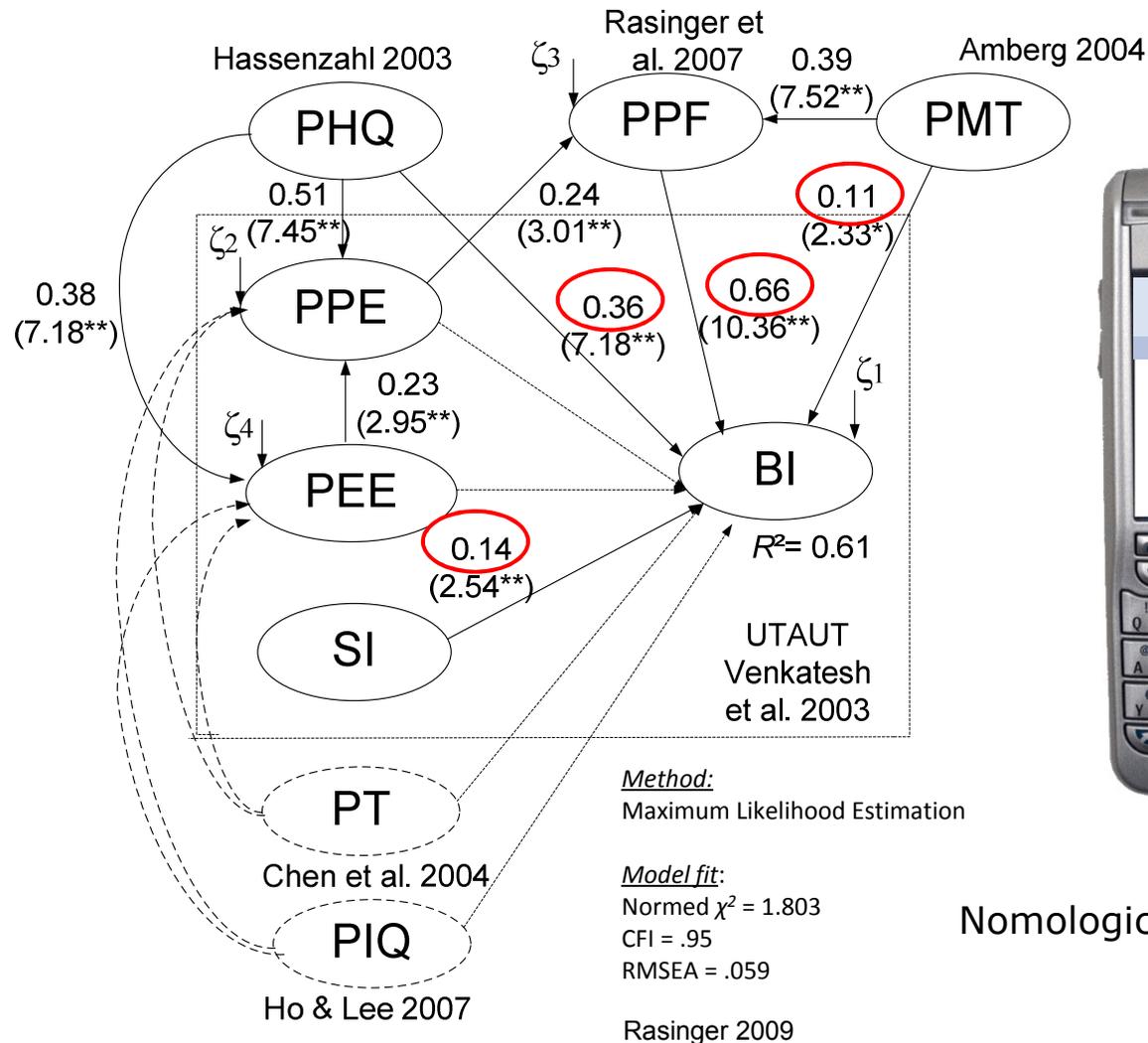RMSEA= .046
CFI= .97
SRMR=.05
Cost Model:
1€/1 MB: (Roto et al. 2006)

Measurement Model Validation

72

Mobile services in tourism

Nomologic Validation of Mobile UTAUT

Fuchs, M., Höpken, W. & Rasinger, J. (2012): Behavioural intention to use mobile information services in tourism - The case of the tourist guide DolomitiSuperski. Mobi, *Information Technology and Tourism*, 13(4): 285-307.

Mobile services in tourism

- **Usage barriers**
  - Cost issues (EU Roaming: € 1.25 - € 17.79 / MB)
    - BI_1 1€ / 1 MB   3.70
    - BI_2 Free of charge   2.11
      - Bilateral contract with network operator / service provider
      - Bluethooth / WiFi broadcasting station
  - Moderators (Goldsmith, 2001)
    - $BI\ Q_1$ Innovators   2.93
    - $BI\ Q_{2-3}$ Majority   3.70
    - $BI\ Q_4$ Laggards   4.39

- **Sucess factors**
  - Hedonic quality
    - Goal directed → Appeal focussed
  - Social Influence

- **Mobile services in tourism**
  - eCRM (time & place independent interaction)
  - Cross-Selling (Use patterns)
  - Branding
    - Brand community (Web 2.0)
    - Innovativeness & promotion

Dolomiti Superski Goes Mobile

By Patrick Thorne on December 2, 2007

A new cellphone service allows skiers to access snow cams and singles in resorts including Selva.

Images of the slopes and the snow-covered Dolomites can now be accessed on your mobile phone thanks to a new service from Italy's largest ski area, Dolomiti Superski, which incorporates around 50 ski resorts on one lift ticket, including Selva in Val Gardena.

View 1 Photo

Simply connect your mobile phone to the website www.DolomitiSuperski.mobi and you will be able to look at the webcam images of the resorts and see for yourself the actual slope conditions; additionally you can access useful numbers to book accommodation, ski lessons or lunch in one of the huts.

Furthermore, if you are on holiday on your own or if you simply want to add some fun to your holiday, you will be able to meet other like-minded skiers or snowboarders thanks to the Dolomiti Superski Dating through your mobile phone arranging to meet for some skiing together. If you are keen to find out the daily stats on how much you skied, how many kilometres you did, how many lifts you used and metres you climbed you can also now download your ski performance on your mobile phone.

US Press Releases
DolomitiSuperski.mobi

"Mobile Services" also offeres novelties galore. Besides free SMS and MMS newsletter service, the users of internet enabled cell phones will be able to acess live *webcams*, weather and resorts info. You'll also be able reserve a ski school session or a seat in a local *rifugio*. Further on, the posibility of ski dating will provide single single skiers with a fast track-route to romance. These services will be accessible at www.dolomitisuperski.mobi in two months' time.

Online Auctions in tourism

Disadvantages of static pricing in rapidly changing economic environments

- Elimination of excess capacity (i.e. *secondary capacity*)

- Price discrimination (i.e. *rare products*)

- Auctions - *The* dynamic pricing instrument

- Online auctions

  - Reduce transaction costs (e.g. multimedia)

  - Increase pool of bidders (longer duration, sniping = last minute bidding/duelling, automatic proxy bidding, retailing = BIN)

  - Auction Data → Mining (Business Intelligence)

- Scarce tourism research eBaY®

  - Market size & structure, success and revenue forecast

  - Determinants affecting final price

  - Software for optimally listing accommodation packages

Online Auctions in tourism

Market size

- *Travel*

  - 25,000 listings (i.e. 5m unique visits per month)

● **Short-term lodging** (i.e. 7,500 listings, 300 visits)	45%
● Travel Packages	7%
● Coupons/Vouchers (e.g. restaurants, rent-a-car)	5%
● Vacation houses & holiday flats	12%
● Camping	2%
● Tickets (e.g. rail, airplane, etc.)	6%
● Cruising & bus travelling	2%
● Accessoires for travelling	21%

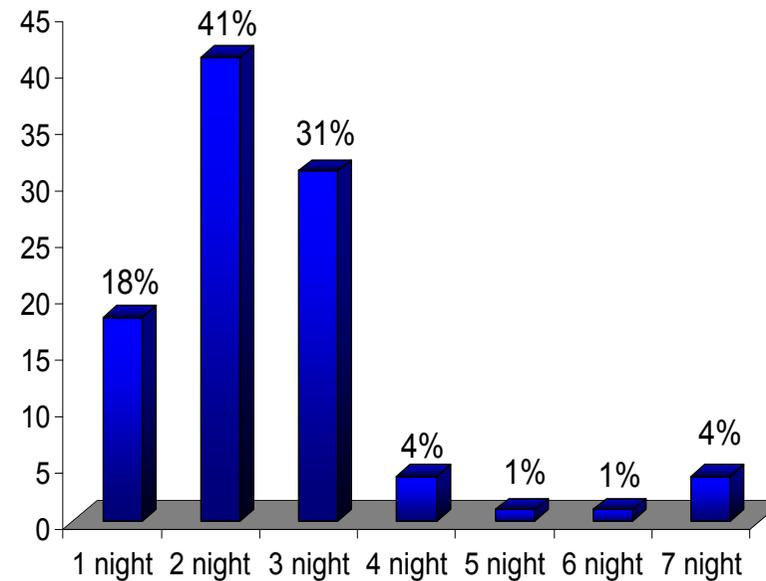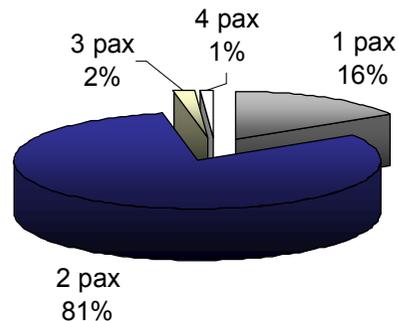Every 4 minutes one hotel voucher is sold (Cultuzz 2005)

Fuchs, M., Höpken, W. Eybl, A. & Ulrich, J. (2008): Selling Accommodation Packages in Online Auctions -
The Case of eBay. In: O'Connor, P., Höpken, W. & Gretzel, U (eds.), *Information and Communication Technologies in Tourism 2008*, Springer, New York: 291-302.

Online Auctions in tourism

Market structure

- *Short-term lodging*

3 Star 10%
2 Star 4%
5 Star 6%
4 Star 80%

3 pax 2%
4 pax 1%
1 pax 16%
2 pax 81%

18% — 1 night
41% — 2 night
31% — 3 night
4% — 4 night
1% — 5 night
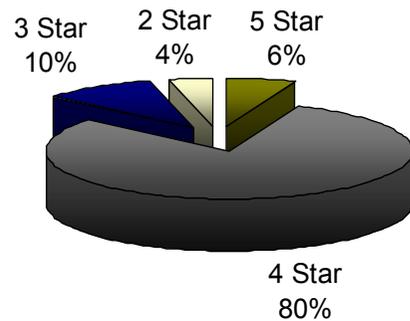1% — 6 night
4% — 7 night

29.8% 4 star – 2 pax – 2 nights

Fuchs, M., Höpken, W. Eybl, A. & Ulrich, J. (2008): Selling Accommodation Packages in Online Auctions -The Case of eBay. In: O'Connor, P., Höpken, W. & Gretzel, U (eds.), *Information and Communication Technologies in Tourism 2008*, Springer, New York: 291-302.

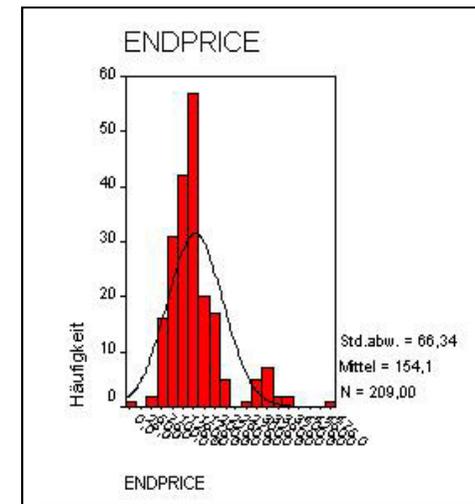# Online Auctions in tourism

Success and revenue forecast

- *Short-term lodging*

Accommodation Packages	Sample Share	Success Rate	Avg. Success Rate at eBay	Average Final-Price	% Share below Market Price
4 star, 2 person, 1 night	8%	94%	46%	80.50 €	47%
4 star, 2 person, 2 nights	29%	90%	46%	154.10 €	29%

For 20% of sold items auction end-price lies above avg. market price

Combination of *English* (i.e. open bids; final price = last bid) and *Vickrey* type (i.e. sealed bids, final price = 2nd highest bid)

Fuchs, M., Höpken, W. Eybl, A. & Ulrich, J. (2008): Selling Accommodation Packages in Online Auctions -The Case of eBay. In: O'Connor, P., Höpken, W. & Gretzel, U (eds.), *Information and Communication Technologies in Tourism 2008*, Springer, New York: 291-302.

Online Auctions in tourism

Explanation Model: e-Bay Success Factors

eBay API XML SOAP
Interface
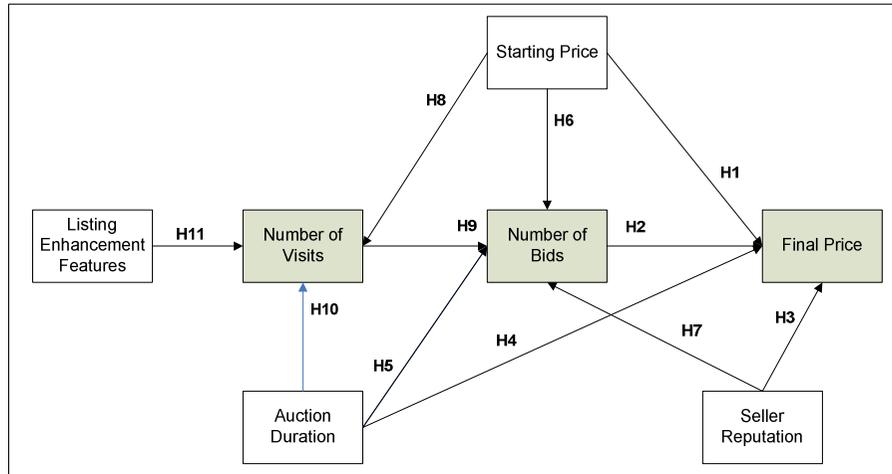
Auction features

Start price, final price,
#bids, listing features…

Product features

Type of accomm., #Pax,
overnights, services…

Seller features

Username, origin,
reputation…

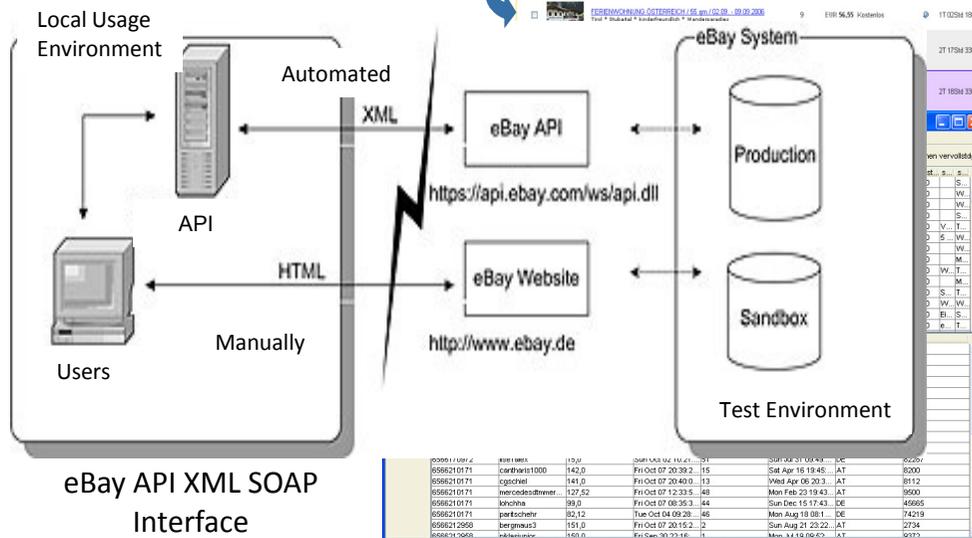**Bid history**

Bid #, -sequence, time,
bidders origin…

Auction data since 2009-2010

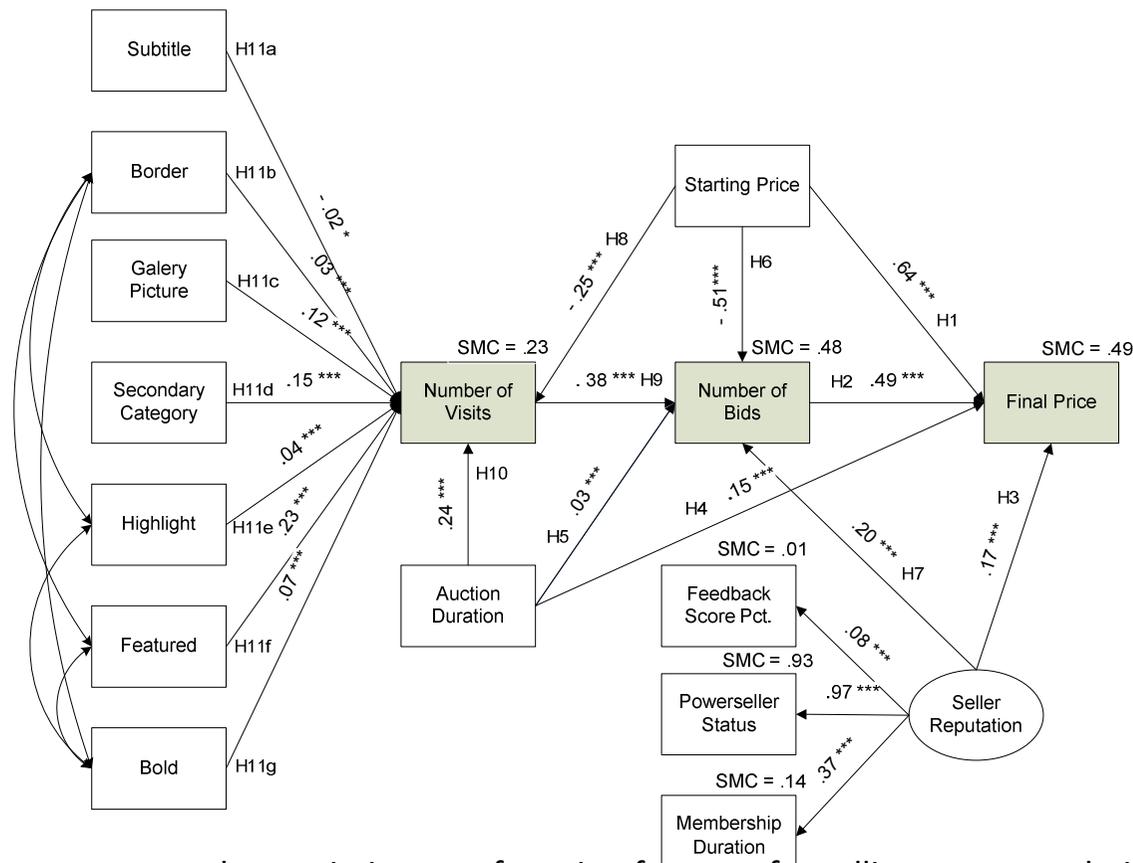short-term lodging category AUT

➔ 23.814 Auctions

➔ 69.859 Bid histories

Online Auctions in tourism

Determinants affecting final price at eBaY®

Model Fit:

Normed-χ^2 = 2.874
AGFI= .998
NFI= .997
TLI= .998
RFI = .996
RMSEA = .012
SRMR=.003

- ■ **...** used to optimize set of auction features for selling accommodation packages
  - ● *seven day* auction duration
  - ● *starting price* 79 €
  - ● *gallery picture*, featured, sec. cat (i.e. 10.6 €)

 Fuchs, M., Eybl, A. & Höpken, W. (2011): Successfully Selling Accommodation Packages at Online Auctions – The Case of eBay Austria, *Tourism Management*, 32(5): 1166-1175.

Online Auctions in tourism
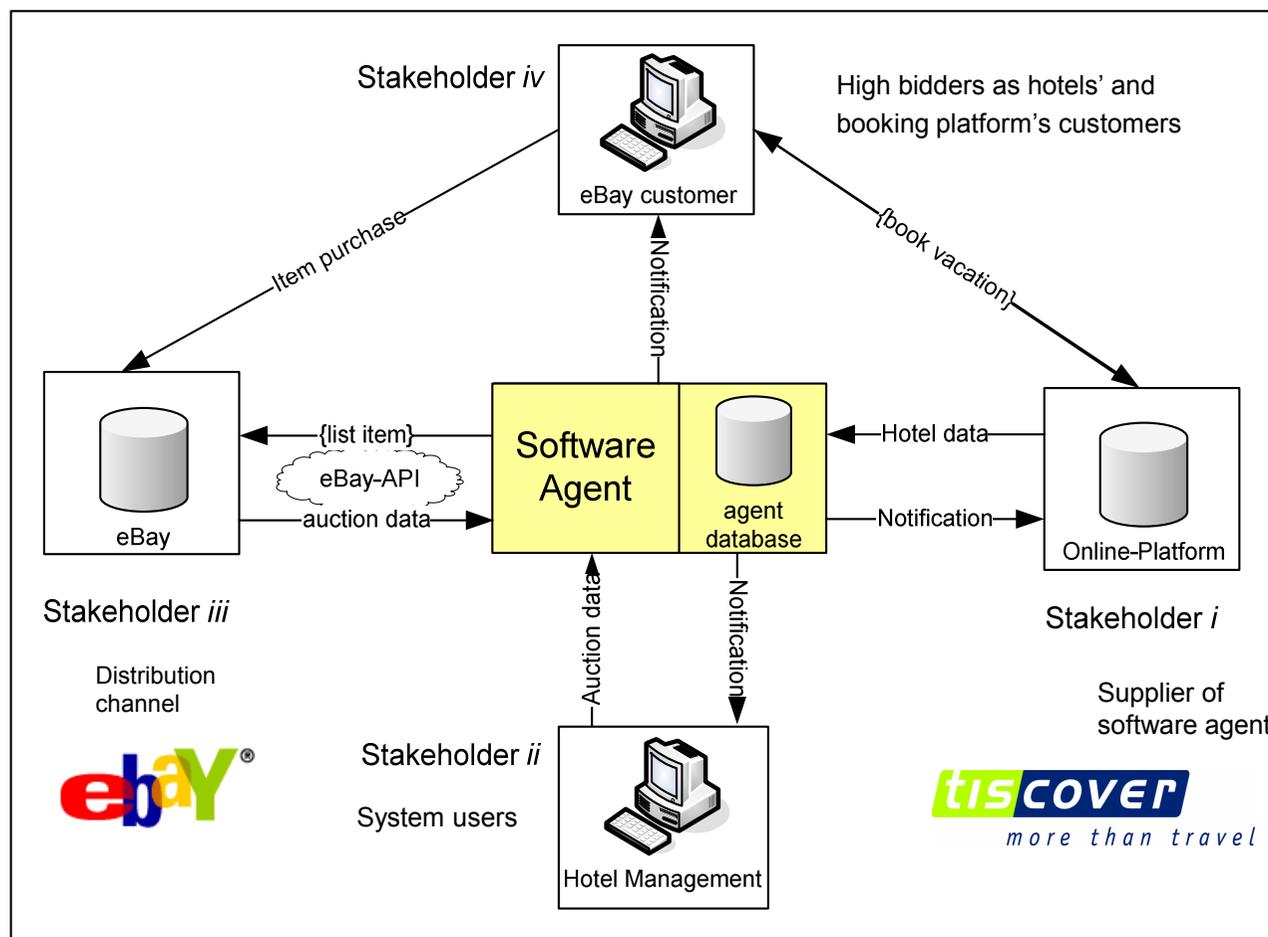
Software Agent for Selling Accommodation Packages on eBay
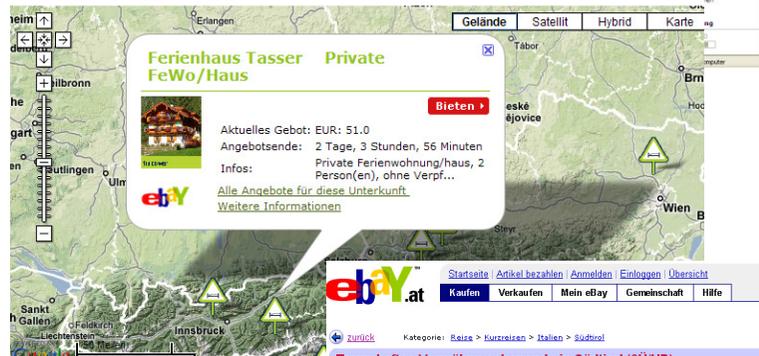
Benefits for hoteliers

• Optimized **auction design** (profit gain)

• Common account generates sales to get *Power Seller* status (reputation)

• **Automation of transaction processes** (safes time and effort)

• **Convenient front end interface** (3- clicks away from sale generation ⇔ web form)

Fuchs, M., Höpken, W. Eybl, A. & Ulrich, J. (2008): Selling Accommodation Packages in Online Auctions -The Case of eBay. In: O'Connor, P., Höpken, W. & Gretzel, U (eds.), *Information and Communication Technologies in Tourism 2008*, Springer, New York: 291-302.

Online Auctions in tourism

Room type

Overnights

Validity

Starting price

http://www.tiscover.at/ebay

Market Relaunch: eBay Connect
Berlin Juni 2007

Conclusion: Major E-Tourism Trends

- **ICT enhanced tourism experience**
  - Memorable for all travel stages ⇔ high-touch technology **empowers customer** (i.e. co-creation, one-to-one engagement, personalisation)

- **Online reputation & E-Branding**
  - Brand management in Web 2.0 is co-created through on-going interactions among brand users establishing a common understanding of brand concept

- **Social Transformation**
  - *Generation X* (baby boomers >1950): 21% world population ⇔ '**digital travellers**'
  - *Digital natives* (20th century kids): co-create and interoperate **in all tourism market** *spaces*

- **Content & Context**
  - **Rich content** authenticate experience ⇔ narrate story, new features: cloud computing, image recognition
  - **Social Media - Location Based - Mobile (SoLoMo) Marketing**

Buhalis, D. (2013) Content, context, co-creation and other eTourism predictions for the next 20 years
March 7, 2013 By Special Nodes 5 Comments 181 Tweet6 +1117 Share17 Share613Share

Conclusions: Major E-Tourism Trends

- **"Service of Now"** ⇔ **Real Time**
  - Enabled by M-SM, sharing of experiences, opinions, sentiments about brands **during consumption stage**
  - **Proactive engagement with customer** (e.g. instant adaptation & personalization, immediate recovery of service failures, delight)
- **Augmented Reality (AR) and Gaming**
  - Real-world elements augmented by computer-generated sensory input (context-based sound/visual) ➜ tourists' current **reality perception is enhanced**
  - **Mobile gaming** immerses tourists on-site through exciting storytelling, role-playing and social interaction with other players

Buhalis, D. (2013) Content, context, co-creation and other eTourism predictions for the next 20 years
March 7, 2013 By Special Nodes 5 Comments 181 Tweet6 +1117 Share17 Share613Share

Future challenges for eTourism Research

- **ICT biggest force affecting Travel and Tourism**

  - Empowered tourist *= Tour Operator*

  - *Ultimate travel portal:* Unlimited online medium offering broadest spectrum of information generated within business network and **user community**

- *Interdisciplinary eTourism Research*: **Methods** to create **knowledge** to understand interrelation between…

  - **Technology**
    - The Web (web-structure mining = topology), **intelligent e-*business*** (**DMIS**) and *end user* **applications**

  - **Content**
    - Reinforcing self-propagation
      - **Web-content mining, Automated Sentiment Detection**

  - **Users**
    - Attitudes and behavior as co-producer
      - **Web-usage mining**, trust, privacy, TAM, e-Branding, cooperation & adoption behavior

Management Science	→	Business Model	→	Service
Information Science	→	Business Process	→	E-Service
Computer Science	→	Technical Process	→	Web Service
		Information System		
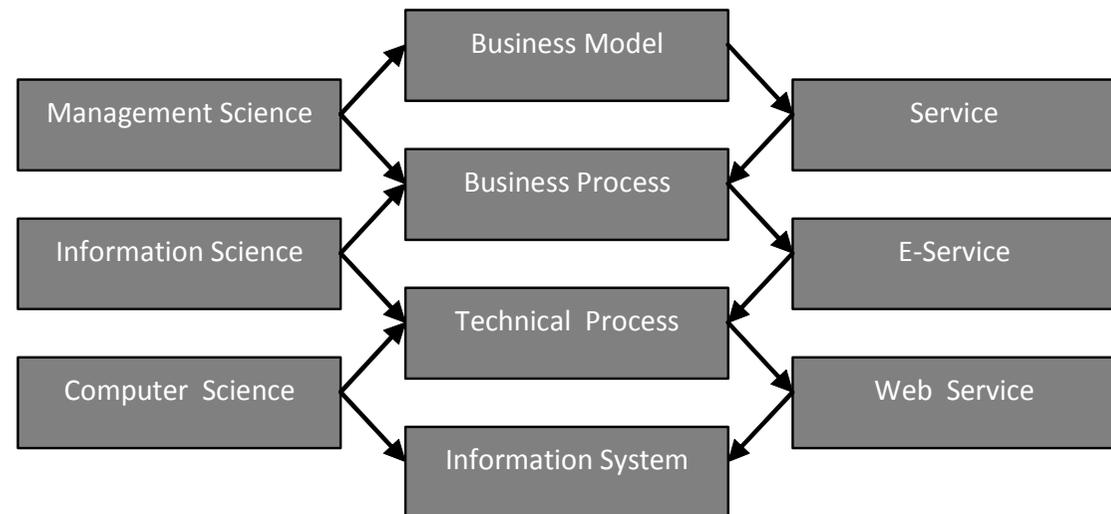
Servce Oriented Arcitecture (Werthner 2008)

Thank you! ☺

Literature

Beer, Th., Rasinger, J., Höpken, W., Fuchs, M. & Werthner, H. (2007): Exploiting E-C-A Rules for Defining and Processing Context-Aware Push Messages. In: Paschke, A. & Biletskiy, Y. (eds), *Lecture Notes in Computer Science - Advances in Rule Interchange and Applications* (RuleML 2007), Springer, Berlin & Heidelberg: 199-206.

Buhalis, D. (1998): Strategic Use of Information Technologies in the Tourism Industry, *Tourism Management*, 19(5): 409-421.

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