Linked Data Based Framework for Tourism Decision Support System: Case Study of Chinese Tourists in Switzerland

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OVERVIEW

• Who Are We?
• Motivation and Objectives
• Framework of Tourism Decision Support System
• Conclusion and Future Research
WHO ARE WE?
WHO ARE WE?

- 80 staff members
  - 22 Professors
  - 18 Research scientists
  - 29 Research assistants
  - 11 Administrative collaborators and interns

- 92 scientific publications

- 343 projects (2014)

- CHF 7,44 millions (Turnover in 2014)
**MOTIVATION**

Change in overnight stays by main countries of residence by continent from 2008 to 2013

<table>
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<td><strong>Total</strong></td>
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Source: FSO – Tourist accommodation statistics

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OBJECTIVES

• To build a framework on Chinese social media platform with a large-scale qualitative analysis with linked data by using the technologies of Semantic Web and Natural Language Processing

• To provide important guidelines to design a decision support system based on the exploring Chinese tourists’ attitude and behavior towards Switzerland
FRAMEWORK FOR TOURISM DSS

Validation → Decision-making → Services → Interview

- New Data Form Generation
- Data Mining and Analysis
- Information Retrieval and Semantic Classification
- Multilingual Knowledge Extraction
- Data Acquisition
DATA ACQUISITION

• The **largest** and **leading** social media platform – Sina Weibo, a hybrid of Twitter and Facebook

• Data collection:
  1) **user’s profiles**: which contain user’s demographic information, and
  2) their micro blogs (**weibos**): mainly focusing on text message and Swiss location information
A WEIBO POST

User’s photos

User’s current location

Comments

User’s interpretation
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MULTILINGUAL KNOWLEDGE EXTRACTION

- Ontology based dictionary includes two languages: Chinese and English
- NLP algorithms: machine learning and controlled vocabulary (e.g. wikipedia, babelnet, babelfy)
INFORMATION RETRIEVAL AND SEMANTIC CLASSIFICATION
NEW DATA FORM GENERATION
NEW DATA FORM GENERATION
FRAMEWORK FOR TOURISM DSS

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DSS AND SERVICE

• Communication with the tourist destination managers and service providers

• Decision making support system for tourism destination managers and end users

• Validations
  1) Individual interviews
  2) Fous group interviews
CONCLUSION AND FUTURE RESEARCH

• Presented a framework towards a tourism decision making support system by adopting linked data approach

• Provided evidence on how semantic web technology can be used to manage tourism data to support decision making

• Future research should employing a large amount of data from Sina Weibo, to achieve a comprehensive view of how Chinese tourists perceive Switzerland and their preferences regarding products and services