Exploring the New Trends of Chinese Tourists in Switzerland

Zhan Liu, HES-SO Valais-Wallis

Anne Le Calvé, HES-SO Valais-Wallis

Nicole Glassey Balet, HES-SO Valais-Wallis

Address of corresponding author:

First and last name:	Zhan Liu
Institution line 1:	Institute of Information Systems
Institution line 2::	University of Applied Sciences and Arts Western Switzerland (HES-SO Valais-Wallis)
Address line:	Techno-Pôle 3
ZIP, place, country:	3960 Sierre, Switzerland
E-Mail:	zhan.liu@hevs.ch
Phone:	0041 27 606 90 05
Fax:	0041 27 606 90 00

Abstract

Switzerland is one of the most desirable European destinations for Chinese tourists, a better understanding of Chinese tourists is essential for successful business practices. In China, the largest and leading social media platform – Sina Weibo, has more than 600 million users. Weibo's great market penetration suggests that tourism operators and markets need to understand how to build effective and sustainable communications on Chinese social media platforms. The goal of this research is to understand Chinese tourists' behaviors and patterns in Switzerland by adopting a linked data approach on Sina Weibo, and to design a decision support system based on the findings.

Key words: Linked Data; Decision Support System, Behaviors Analysis; New Trends; Chinese Consumers; Switzerland

Contribution classification
Please tick (1) type of intervention, (2) stream of discussion, and (3) sub-stream of discussion to classify your contribution.

(2) Streams of Discussion: **(1) Types of intervention:**	X Tourism in/ from and to emerging countries: Challenges and implications, under special consideration of China	☐ AIEST's Advances in Tourism Research - Perspectives of Actors, Institutions and Systems
X Academia	**(3) Sub-streams:**	
☐ Practice	X Actors behaviour ☐ Systemic perspective	☐ Institutional settings ☐ other

1. Research Context and Goals

Decision making in the tourism domain often involves complex and dynamic situations. On one hand, the tourism related data sets often from various sources and difficult to compare. To overcome such situations, semantic web, and more recently linked data technologies have been developed to support the intelligent integration of tourism data. As a term to connect related data on the web, linked data is an important factor for improving the quality of natural language processing (NLP), such as user's interpretation from social media platforms. However, to date no significant amount of related studies have been published in the tourism domain.

On the other hand, and most importantly, decision makers must always broaden their investigations to include the nearest trends. Nowadays, Chinese tourists now increasingly want to travel by themselves or in small groups of friends to visit foreign countries. When deciding the place and direction, they often turn to online user-generated content available through social media to obtain information prior to their vacations, believing that other tourist's experiences to be trustworthy and useful [2]. Sina Weibo – the largest and leading social media platform in China – gained over 600 million users. Weibo's great market penetration suggests tourism operators and markets need to understand how to build effective and sustainable communications on Chinese social media platform.

Switzerland, as one of the most desirable European destinations for Chinese tourists, is strongly positioned as a steep and consistent quantitative growth market throughout the past years [1]. A better understanding of the Chinese tourist is therefore essential for successful business practices. However, there are far few studies have empirically examined over real outbound Chinese travellers' attitudes and experiences (e.g., on social media platforms). Research on linked data with behaviour analysis to support tourism decision making system in this field is also notably lacking.

The goal of this research is to understand Chinese tourists' behaviors and patterns in Switzerland by adopting a linked data approach on Sina Weibo, and to design a decision support system based on the findings, by answering three main research questions:

- **What are the characteristics of the Chinese tourists in Switzerland through the studies of natural language text based information?**

- **How do the semantic web technologies could be used to get a better understanding of Chinese tourists' preferences?**

- **How to design a decision support system by using linked data to match the business needs and increase the service quality for Chinese tourists?**

2. Literature Review

The study is mainly drawing upon the literature from two fields: 1) the user generated content and, in particular, the influences on tourism of such content from social media; 2) the tourism decision support system. We will also examine the existing studies, if any, that discuss Chinese tourism market in Switzerland.

3. Research Design and Methodology

To answer these research questions, we designed a methodological framework, as shown in Figure 1.
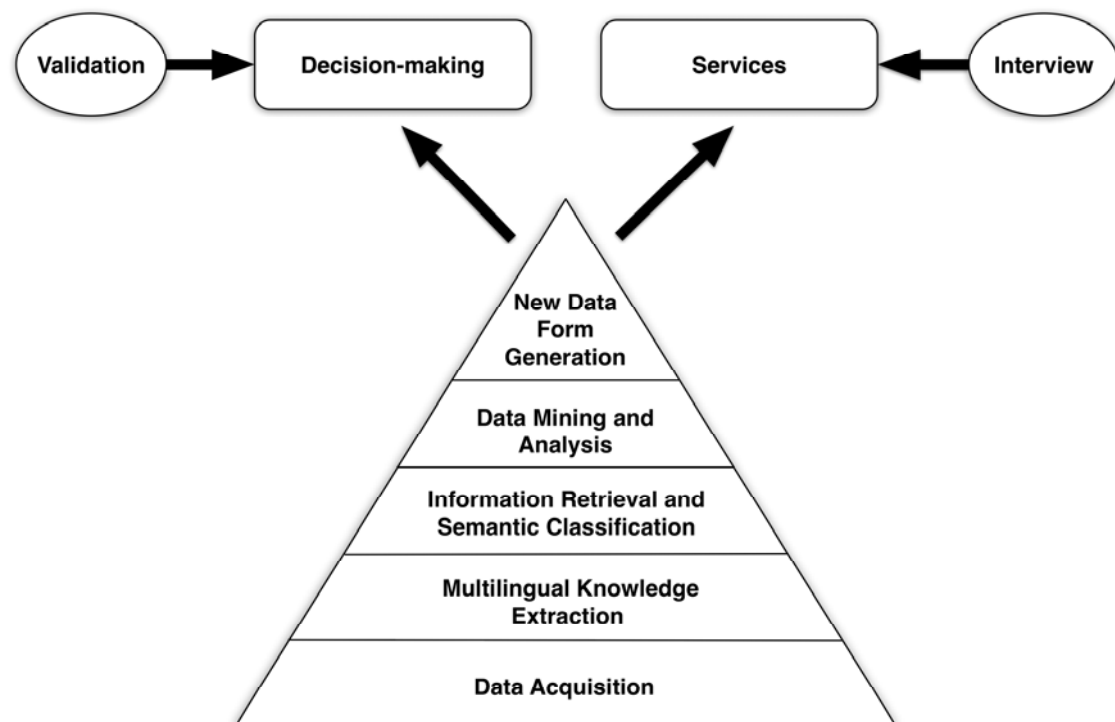

Figure 1. Framework of tourism decision support system

In the **data acquisition** step, we consider to collect two types of datasets via the Sina Weibo Open API: 1) user's profiles, which contain user's demographic information, and 2) their micro blogs (Weibos), mainly focusing on text message and location information. To match the business needs of this research, it is necessary to build an ontology-based system that includes two languages - Chinese and English. The objective of **multilingual knowledge extraction** is to create the knowledge from unstructured sources (user's text message) by using the technology of NLP. **Information retrieval and semantic classification** techniques will be used to calculate frequency of certain text, attempting to identify the most relevant elements of a corpus to satisfy the information retrieval. Ontology represents knowledge as a hierarchy of concepts within a domain, using a shared vocabulary to denote the types, properties and interrelationships of those concepts [3]. In this step, we aim to take one step further to develop a system that can analyze whole sentences that contain unstructured text from Weibo, and use a multilingual ontology reflecting the domain knowledge for a semantic classification of the user's interpretations of Weibo. Then in the step of **data mining and analysis**, we intend to follow Fayyad et al. [4]'s six common classes of tasks in data mining analysis. Thereafter, the **generated new data** in the form of visualisation is delivered to **DSS and services.** Moreover, we will conduct several individual **interviews** with key person such as managers in tourist agencies and potential partners, as well as some focus group interviews with real Chinese consumers to further understand and **validate** Chinese consumers' expectation, experience, behavior and new trends. The final step is to build the user interface to communicate with the tourist destination managers and service providers. The expected tourism decision support system will help the tourism destination managers set up the concept of tourism process, and provide them with important basis in forecasting tourism situations and guiding Chinese tourists in a reasonable and reliable manner. Users can set his/her preferences of the category and format of the data.

3. Important Challenges of this Research Project

The research project we plan to conduct will be valuable for the scientific community as well as for other groups like Swiss tourism offices, service providers and Chinese tourists. Rather, we met several challenges in doing this study. We discussed these issues as follows:

The **first** set of challenge comes from data collection from Sina Weibo: how to make a representative sample from a large overall dataset, both in terms of users and Weibo messages? Statistics showed that the majority of Weibo users are young people, but is it a good sample to represent all Chinese tourists in Switzerland? For the purpose of the research, our attention would focus on the contents related to Switzerland, including their text messages and location information. However, using the subject "Switzerland and travel" as the only keyword to search the Weibo database will not capture enough important information, because in many cases the user's Weibo only contains information that related to Switzerland implicitly, such as the name of a city in Switzerland, but does not explicitly mention the word "Switzerland" or "travel" in the text message. Then which keywords should we included? Should location information also be included?

The **second** sets of challenges remain in semantic interpretation for Natural Language Processing (NLP). In particular, how to extract the multilingual knowledge from very large collections of unrestricted natural language texts? How linked data based technologies could help us to handle the synonyms and ambiguity?

Lastly, most of the existing studies on Sina Weibo have focused on its commutative platforms based on quantitative statistical results. There have been very few studies that adopt linked data technologies on social media, especially qualitative analysis on Chinese tourists and their behaviour patterns in Switzerland. To this end, our research is an exploratory study, the lack of references or sources, make it difficult.

4. References

[1]   Switzerland Tourism, 2013. Research Report China: Market Analysis and Insight. Available at: http://www.stnet.ch/files/?id=63853

[2]   Yoo, K.-H., Lee, Y., Gretzel, U. and Fesenmaier, D.R. 2009. Trust in Travel-Related Consumer Generated Media. In Proceedings of Information and Communication Technologies in Tourism 2009, pp. 49-59.

[3]   Gruber, T. R. 1993. A Translation Approach to Portable Ontology Specifications. Knowledge Acquisition, Vol. 5, No. 2, pp. 199-220.

[4]   Fayyad, U., Piatetsky-Shapiro, G. and Smyth, P. 1996. From data mining to knowledge discovery: An overview. In Advances in Knowledge Discovery and Data Mining, U. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy, Eds. AAAI/MIT Press, Cambridge, Mass, pp. 1-34.