A virtual assistant for e-Tourism

Alessandra De Paola, Marco Ortolani
University of Palermo, Italy
alessandra.depaola@unipa.it

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Motivations and Goals

• The tourism industry is **rapidly evolving**
• Increasingly people prefer to plan **personally** their own tours
  o Visit **several** websites to make all necessary reservations
  o Typing personal data and **waiting** for confirmation
  o **Multiple payments**
• **Virtual assistants** as solution to offer personalized services to users through a **single system**
• **Integration** with e-tourism services provided by Smart Cities
Planning a Trip

- Flight Ticket
- Car Rental
- Hotel
- Guided Tour
- Museum
- Restaurants
- Events

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Recommender Systems

- Useful for delivering correct and accurate information
- Support for choosing products, services, events and places to visit, according to user interests
- Suggestions offered on the basis of user profiles and resources’ features
- User profiles built by observing and analyzing their previous choices
- Data Mining techniques
Recommender Systems

• **Quality** of the suggestions closely related to the **precision** with which resources and user preferences are described

• It is necessary to include **meta-data** and **semantic** information inside web pages

• **Goal**: Describe the **relationships** between the concepts

• **Solutions**: Semantic web & ontologies
Technological Issues for Tourism Industry

- Dichotomy between tourism portals and the rest of the Internet
  - Tourism portals offer **static** offers
  - **Fragmented** information from the rest of the Internet
- Main Issue: **lack of standards**
- **Goal**: interoperable systems
- **Solution**:

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“The Semantic Web is not a separate Web but an extension of the current one, in which information is given well-defined meaning, better enabling computers and people to work in cooperation.”

Tim Berners-Lee, James Hendler e Ora Lassila

- Documents enriched with metadata
- Intelligent software agents
- Automatic information processing
Past Experience

- POR FESR SICILIA 2007-2013, “On-Sicily” for the realization of a virtual assistant for improving the tourism industry in Sicily

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Virtual Assistant

- Effective if semantic web technologies are adopted by several actors
- Continuous interaction with the user via smartphone and mobile devices for on-line modifications of trip plans
- Artificial intelligence for adapting to needs of different users
Semantic Data Mining

- **Recognize** the users’ profile on the basis of their use of the application
- **Merge** information about the users, collected when they interact with websites

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Technological issues

• Issues dependent on the tourism sector
  ○ Lack of standards
    ▫ Adopted systems are not interoperable
    ▫ Different terms for same concepts
    ▫ Lack of structured information (only natural language)
  ○ Possible solutions: Ontologies
    ▫ Bridge between different models
    ▫ Unified terminology
    ▫ Wrapper for obtaining structured knowledge from non-structured web pages
Technological issues

- Integration with museum and cultural web services
- Continuity of user experience
- Interaction with pervasive systems deployed in sites of interest
Technological issues

- Integration with museum and cultural web services
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- Interaction with pervasive systems deployed in sites of interest
  - **Bluetooth Beacons**
    - Low energy devices
    - Broadcast their ID
    - Enable mobile app to provide the user with location-aware services
Technological issues

- Integration with museum and cultural web services
- Continuity of user experience
- Interaction with pervasive systems deployed in sites of interest
  - Bluetooth Beacon
  - NFC (Near Field Communication)
    - Proximity Bi-directional communication
    - Philips, LG, Sony, Samsung, Nokia
Technological issues

- Integration with museum and cultural web services
- Continuity of user experience
- Interaction with pervasive systems deployed in sites of interest
  - Bluetooth Beacon
  - NFC
  - QRCode
    - Optical label
    - Store information such as URL
    - Scanned by smartphone camera
References

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