Open source software for tourism promotion: Lake Poli School (LaPS) education project

Michela Arnaboldi (1), Maria Antonia Brovelli (2), Marco Minghini (2)

(1) Politecnico di Milano, Department of Management Engineering
(2) Politecnico di Milano, Department of Civil and Environmental Engineering (DICA) - Geomatics Laboratory, Como Campus
Lake Poli School (LaPS)

- Educational project carried out at Politecnico di Milano, Como Campus
  - Lake → Lake Como (Northern Italy), the popular symbol of the city
  - Poli → Politecnico di Milano, the university promoting the initiative
  - School → the initiative has an academic nature

- Born from the evidence of the practitioners and academics' difficulties in overpassing the boundaries of their disciplines/languages

- MSc course (5 ECTS) named Cross Boundary Processes, aimed at
  - entering real problems
  - giving fresh ideas to companies
  - connecting different disciplines
  - interacting with different cultures
Lake Poli School (LaPS)

- The course is opened to the brightest students (selection is done) of the 3 MSc Schools taught at the Como Campus of Politecnico di Milano, i.e.
  - Science Computing Engineering
  - Environmental Engineering
  - Management Engineering

- Students work in mixed groups (5-6 students/group), to each of which a business case proposed by a real company is assigned

- Group supervision relies on:
  - a reference tutor from university (junior researcher)
  - a company representative
  - the board of Professors (one for each MSc School)
Lake Poli School (LaPS)

- The course is organized into:
  - weekly meetings with companies and tutors
  - occasional seminars and teaching alignment, differentiated by disciplines and designed upon the students' needs
  - other activities related to the project

- Students' final evaluation is based on:
  - materials delivered during the course (project plan, intermediate and final project presentation, project report)
  - tutors' and Professors' evaluations
  - students' self-evaluations (every 4 weeks)

- A final workshop is organized, where:
  - students' projects are presented to an authoritative jury
  - the best 2 projects receive a monetary award
LaPS team

Team composition:
- Arman Shirani
- Gabriel Perez Russo
- Raphaël Nataf
- Daniele Oxoli
- Canan Eylül Kilsedar
- Marco Minghini

Management Engineering

Environmental Engineering
Science Computing Engineering
Academic tutor
LaPS project: Via Regina

- Via Regina defines a cross-border area between Italy and Switzerland
  - trade and **cultural route** since Roman times
  - transalpine system of **soft mobility** links
LaPS project: Via Regina

- Via Regina defines a cross-border area between Italy and Switzerland
LaPS project: Via Regina

- “The Paths of Via Regina” INTERREG project (Italy/Switzerland)
  - purpose: to valorise the cultural heritage of the area and foster tourism
  - beneficiaries: local communities, administrations, pilgrims, tourists
  - expertise involved: cultural heritage, land use and design, geomatics

- Partners
  - universities
  - local administrations
  - cultural associations
LaPS project: Via Regina

- **Mission**
  - promote a *slow tourism model* for valorising the historical paths of Cernobbio municipality (Italy) to be then replicated along the whole Via Regina

- **Vision**
  - strengthen the common identity of the involved areas through the protection and valorisation of the available *cultural heritage*

- **Objectives**
  - dissemination of knowledge
  - promotion of tourism

- **Final outcomes**
  - 2D desktop and mobile *WebGIS*
  - website/social media *promotion*
  - business plan
A special case of **sustainable tourism** focused on:

- environmental friendliness
- rediscovery of **local traditions and cultural knowledge**

**Slow tourism at a glance**

- **accommodation** (simple)
- **movement** (no car/plane)
- **gastronomy** (local)
- **leisure** (peaceful)
- **services** (provided in a relaxing atmosphere)
- **cultural sustainable movement** (no car/plane)
Data gathering

- Secondary data
  - Cernobbio municipality
  - Como municipality
  - Milan province
  - Iubilantes association

- Primary data
  - surveys
  - interviews

Awareness of paths
- YES 24%
- NO 76%

Awareness of slow tourism
- YES 17%
- NO 83%

People coming to Cernobbio
- Italy
- Europe (not Italy)
- Africa
- USA and Canada
- South America
- Asia - Pacific

Willingness to use a WebGIS
- very interested
- interested
- not very interested
- not interested
### Segmentation & targeting

#### Strategic segmentation

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Italy</td>
<td>18,19</td>
<td>21476</td>
<td>- familiar with the culture, willing to go beyond what foreigners can experience</td>
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<tr>
<td></td>
<td></td>
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<td>- willing to cut with their stressful life</td>
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<tr>
<td>Europe (not Italy)</td>
<td>51,32</td>
<td>60597</td>
<td>- belong to the same European culture</td>
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<tr>
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<td>- aware of environment protection and ready to adopt a sustainability behavior</td>
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<tr>
<td></td>
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<td>- willing to cut with their stressful life</td>
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<tr>
<td>Africa</td>
<td>0,33</td>
<td>386</td>
<td>- far culturally</td>
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<td></td>
<td>- less aware of the sustainable tourism concept</td>
</tr>
<tr>
<td>USA and Canada</td>
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<td>23547</td>
<td>- less aware of the sustainable tourism concept</td>
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<tr>
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<td>- less willingness to discover the mountain paths</td>
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<tr>
<td>South America</td>
<td>2,52</td>
<td>2978</td>
<td>- tend to visit the EU for short periods and embrace several countries in that time</td>
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<td></td>
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<td>- not very aligned with the Slow Tourism concept</td>
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<tr>
<td>Asia - Pacific</td>
<td>7,71</td>
<td>9103</td>
<td>- tend to visit the EU for short periods and embrace several countries in that time</td>
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## Segmentation & targeting

### Targeting

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<th>Attracted by discovering traditions and culture</th>
<th>Technology oriented</th>
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<td>Italy</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>2,5</td>
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<tr>
<td>Europe (not Italy)</td>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>1,6</td>
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<tr>
<td>Africa</td>
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<td>5</td>
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<tr>
<td>USA and Canada</td>
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<td>4</td>
<td>3</td>
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<tr>
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## Competitive analysis

Analysis of similar case studies promoting sustainable/slow tourism

- identification of strategic advantages, disadvantages, and best practices according to 6 established domains

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<tr>
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<th>Local traditions used as a marketing lever</th>
<th>Website</th>
<th>WebGIS</th>
<th>Technology features</th>
<th>Slow tourism facilities</th>
<th>Capability of raising international awareness</th>
</tr>
</thead>
<tbody>
<tr>
<td>French Case Study</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Italy Slovenia</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alpine Pearls</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Swiss Mobility</td>
<td>-</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Positioning

- Focus on 2 main domains:
  - tradition: use of cultural heritage and local traditions as a marketing leverage, and emphasis on the authentic aspect of the experience
  - technology: development of a website/WebGIS to enhance tourist experience
Data was collected/created from the following sources:

- Cernobbio municipality
- Iubilantes association
- Canton Ticino Office of Cultural Heritage
- Lombardy Region Web geoportal
- field surveys

And consists of:

- official vector cartography of Cernobbio municipality
- lodging and eating services, public services (transportation/offices)
- folkloristic and historical events
- cultural heritage
- hiking and mountain bike paths with relevant points of interest

Pre-processing required for both attributes and geometry

- a basic course on QGIS was given!
WebGIS architecture

CLIENT

- GeoExt
- Ext JS
- OpenLayers™
- jQuery mobile

SERVER

- GeoServer
- Apache Tomcat

User

Desktop

Mobile

Internet

Client

WMS
WFS

Google Maps
OpenStreetMap
bing™ maps
Desktop WebGIS

http://viaregina.como.polimi.it/laps
Desktop WebGIS

http://viaregina.como.polimi.it/laps
Mobile WebGIS

http://viaregina.como.polimi.it/laps/mobile.html
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Promotional strategy

- Physical channels (for tourists already present in the area):
  - brochures, posters & QR code in hotels, restaurants, shops, tourist offices, etc.

- Online channels (for attracting new tourists):
  - dedicated website (http://viaregina.co.nr — temporary!)
Promotional strategy

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- Online channels (for attracting new tourists):
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  - social media interaction
### Performance evaluation

- **Definition of indicators** to measure the achievement of the project goals

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<tr>
<th>Strategic Objective</th>
<th>CSF</th>
<th>KPI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accuracy of the data</strong></td>
<td>Quality of information</td>
<td>Number of errors reported</td>
</tr>
<tr>
<td></td>
<td>Information disseminated</td>
<td>Number of negative comments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of articles in newspapers &amp; blogs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of new articles published on the website</td>
</tr>
<tr>
<td><strong>Understanding and protection of territory</strong></td>
<td>Events promoted</td>
<td>Number of events</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of participants</td>
</tr>
<tr>
<td><strong>Promotion of tourism</strong></td>
<td>Number of people reached</td>
<td>Monthly visits to the website</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monthly likes on the FB page</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monthly followers on Twitter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of places with our flyer/poster</td>
</tr>
<tr>
<td></td>
<td>Number of tourists in Cernobbio</td>
<td>Number of tourists in hotels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of tourists in restaurants</td>
</tr>
</tbody>
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Conclusions

- Use of FOSS in **education** for a real, **multi-disciplinary project**:
  - LaPS work allowed to **overpass the boundaries** of the single disciplines
  - **integration** of multiple competencies (management engineers + GIS experts)
  - work developed in **cooperation** with the project researchers and stakeholders
  - WebGIS solutions have been used as a **basis** for the Interreg project
Conclusions

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- Winners of Lake Poli School!
FOSS perception

- What is your perception of FOSS after the LaPS project?
  - positive perception, powerful tools for any project, unlimited applications
  - expectation was to find less stable and less documented software, but there are instead a lot of resources, community discussions and almost no bugs
  - programming skills are crucial for using FOSS

- Was FOSS effective for achieving the goal? Were there any limitations?
  - using FOSS was fundamental, they brought simplicity and effectiveness
  - FOSS flexibility was a key element in the project, products could be customized according to the needs (e.g. the libraries were changed to get some results)
  - using FOSS allowed to focus the effort on the output more than on the means needed to reach the output
  - FOSS allowed to exploit some premade solutions developed by others
  - limitations are the need of an adequate programming background and sometimes the difficulty in finding help
FOSS perception

- Was the development of a **managerial framework** useful to integrate the FOSS GIS development?
  - management enables a **good planning, good use of the resources** and a **good control**, that are **essential to succeed** in any given project
  - management increased the **motivation**, provided a better project management, gave us **ideas** to reach the public and **understand** their preferences/opinions
  - thanks to management, we **developed the software in a better way**

- Is there any added value in using FOSS in **education and multi-disciplinary projects** like yours?
  - the easiness with which **results can be shared and enjoyed**, which made it clear to anyone (even people with different training and employment) how FOSS applications can be integrated into many areas
  - the facility to **access** them and to **learn** how to use them
  - the possibility to **customize** the software according to the needs
Acknowledgments

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