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Youth Spaces and the Alpine Tundra Regions (YOUSAT)



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Main Authors:

Pär Hansson (Swedish Institute of Computer Science)

Hannamari Saarenpää (University of Tampere)

Jonas Karlsson, Claes Verdoes (Idevio AB)

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Authors:

Pär Hansson, Anders Wallberg, Anneli Avatare (Swedish Institute of Computer Science)

Hannamari Saarenpää (University of Tampere)

Jonas Karlsson, Claes Verdoes (Idevio AB)

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Participants

Sweden

Pär Hansson, Karl-Petter Åkesson, Anders Wallberg, Anneli Avatere Nöu, Jonas Söderberg

Swedish Institute of Computer Science, SICS AB

Applied ICT Research

Jonas Karlsson, Claes Verdoes

Idevio AB

Map solutions company

Maria Skarve, Sylvia Nylin

Svenska Turistföreningen

Swedish tourist organisation

Finland

Hannamari Saarenpää, Frans Mäyrä

University of Tampere

ICT studies, evaluation, and design

Eki Karlsson

Suomen Latu

Finnish outdoor organisation

Norway

Jonny Remmereit

Den Norske Turistforening

Norwegian tourist organisation

Iceland

Björk Sigurgeirsdóttir

Þróunarfélag Auturlands

Development Centre of East-Iceland

Abstract



The Nordic wilderness is unique and sensitive resource, where the important tourism industry needs to exist within limits of nature's toleration. Actors in this region have problems attracting the younger generation, and knowledge of some of the major tourist organisations is low within the younger demographic. The YOUSAT project proposes that to address this issue and to help the industry develop new destinations, tourism-related players should become more active within the new social media spaces, user-generated content, in combination with new mobile location-based services.

Starting with theories around map-based mobile services with multiple information layers where users can create and share travel stories in groups, this two-year project has engaged users and tourist organisations in order to come up with service design recommendations.

This has resulted in a feature set then implemented as a prototype service on top of the mobile map-technology from one of the industry partners. In developing new interactive content the project has also tackled difficult issues such as solutions for lack of network coverage in these potentially remote areas.

Furthermore, different business models have been evaluated within the project, and will hopefully be carried on with the continued work on the prototype service.

Contact Person:

Pär Hansson

Swedish Institute of Computer Science

Box 1263

164 29 Kista

Phone: +46 8 633 1500

E-mail: par@sics.se

Executive summary

Main objectives

The YOUSAT project addresses the problem of attracting a younger audience to the Scandinavian alpine tundra region and similar Nordic regions for nature-based eco-tourism experiences. The main objective is to create tourism services directed towards the younger generation as well as services based upon user-created content. More specifically the objectives are to:

- engage user groups through participatory design methods
- provide recommendations on how to design services directed towards the younger generation as well as services based upon user-created content
- develop a new map-based experience-sharing service where users and providers can interact, share and innovate the destinations
- explore potential business models for better reaching a younger generation
- demonstrate the possibilities with mobile technologies and web 2.0 services to create more interactive services that blends into the social spaces of the younger generation
- bring nature-based activities, new technologies, and tourism closer together, while still considering local and nature interests to create a sustainable solution

Method/implementation

- Early user focus groups, questionnaires, and literature studies in Sweden, Norway, and Finland, involving several hundred people, has generated information on attitudes, mobile and social media usage and issues.
- Participating organisations' partners have been involved in focusing the project, and staff at locations in one of our focus regions have been involved in the background data process.
- Using designs and feature requests from our users' and tourist organisations' involvement, a new prototype service has been designed and developed as a collaboration between user studies partner, technology design partner, and map technology partner.
- User testing of prototype service has been performed and evaluated.
- Potential business models have been explored, for reaching the younger generation, and technologies like the developed prototype.

Concrete results and conclusions

- The use of mobile phones when traveling is natural for young people. Therefore a mobile traveling application supports the overall traveling experience well. Tourist organizations should utilize this potential and market their services either through some existing mobile service or come up with a new one.
- Sharing experiences is important and therefore supporting this benefits young people. A complementary web application is important for sharing traveling experiences. This can also work well as a marketing tool when people search for information while planning a trip or are viewing trips that others have made.
- Information layers on top of a map, as is the case for the developed prototype service, work well in this kind of traveling service. It is important for people to be able to see relevant content that is up-to-date when they need it. The possibility to create personal layers and locations add the value of the service.
- The theory and motivation for our prototype service has largely been supported by the user and organisation interaction, resulting in an interesting service we hope continue to grow into a sustainable product, hopefully by the project industry partner and its current 5M users.
- The potentially difficult issues around network coverage in the remote Nordic regions has been addressed by developing an offline map feature and downloader app for the mobile client used in the project, now available through e.g. Ovi store. However, the interactive layer content is not yet usable offline.
- When testing the business model our results have indicated that it is hard to rely on advertising as a single source of income.
- If ads are going to be used, the users prefer targeted ads before general ones. Targeted ads are almost seen as useful information rather than just ads. The users think that highly targeted ads is experienced as less intrusive than general non targeted ads. Interest-based targeting is just taking off and location-based ads are just around the corner, which would greatly improve the business model conditions.
- In-application purchases can be a new source of revenue and user generated content is a new possibility already having proved its effectiveness on the web.

Recommendations

- It is recommended that in the future, tourist organizations try to be even more visible in those media spaces that young people use like Facebook. This is to make sure that larger number of young people becomes aware of the traveling potentiality that Nordic areas possess.
- Young people search information a lot from the web. Therefore it would be

recommendable that tourist organizations include some sharing experiences/tracks etc. on their web site (or if they are available in some different service, at least a link to those). This enables peer to peer experience sharing which is often more effective marketing tool than if the material has been created by the tourist organizations themselves.

- Involving the users is recommended whenever tourist organizations are planning new services. This helps to make sure that the planned service meets the requirements of the target group. Also if the users are involved, they will feel more connected to the traveling organization and the service that is under development.
- The tourist industry in general has only scratched the surface when it comes to utilizing the power of user-generated content. The current practise generally involves very little more than sharing links through social networks and making comments.
- Although possibly a daunting task, the project feels there is a great potential in a mobile service integrating information from several players, such as tourist organisations, local business, and local authorities, in order to create something greater than the sum of its parts.
- With the rapid increase of geo-tagged information on the web in combination with GPS-equipped mobile phones becoming commonplace, tourist information needs to become positioned to an even greater extent.
- Be flexible when deciding what business models to use. The target group is used to on line business models.
- Use the opportunity the willingness of content sharing that exists in the target group.

Furthermore, in addition to this final report, more in-depth details can be found in project deliverables available at <http://www.sics.se/projects/yousat/> , for example:

- D6.2 Business model evaluation and iteration
- D6.3 Market report and the use of existing services



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Introduction

The alpine tundra regions in the Nordic countries are unique resources with sensitive nature. At the same time the tourism industry in the area is an important part of the economy, which needs to exist within limits of nature's toleration. There are already eco certifications and big international potential for eco-based scandinavian tourism products have been shown.

Actors in this region have problems attracting the younger generation. E.g. the average age of the visitor to Sylarna mountain lodge is above 40 years. There is a wish to attract the younger target group with consideration to nature and other local interests (e.g. reindeer grazing, snow kiting).

The traditional media channels are becoming less prominent for reaching this generation. There are suggestions for using a new model of different social spaces, more used by youth, rather than looking at specific technical solutions to overcome and analyze these problems, encompassing:

- secret spaces (e.g. mobile/SMS/IM¹)
- group spaces (e.g. Bebo/Facebook/Tagged)
- publishing spaces (e.g. LiveJournal/Blogger/Flickr)
- performing spaces (e.g. Second Life/World of Warcraft)
- participation spaces (e.g. marches, meetings)
- watching spaces (e.g. TV, concerts, theater, etc.)

We have two theories on the question of *what would attract youth to spend more time in the alpine tundra and similar regions?*

¹ Instant Messaging

Firstly, awareness or exposure to the existence of these opportunities has unused potential, indicated by traditional tourism industry in the alpine tundra regions not being present in any of the first four new media spaces above. This is a new and untapped opportunity for using new technology to attract a younger target group, improve the destination experience by localized information, and let the users create and improve the destination experience. Government is also pushing the fusion of IT research with the development of new experience concepts.

Secondly, we believe current existing and developing experiences are interesting also for the younger audience. There is a need to connect the target group with information and experiences on the traditional and new growing range of experience products.

As a consequence, the YOUSAT project wants to address these issues and work under the hypothesis that an important factor is the lack of means to share experiences and participate in friends experiences using the above mentioned social web technologies².

The first starting point for YOUSAT is a model for temporal and social structures for content sharing based around storytelling. An initial analysis reveals the stories people tell are associated with different social and physical structures. The two most important physical structures we have identified are places and paths. There are many places in the alpine tundra region with a very rich history, but also more up to date stories such as for example guest book entries by people visiting the cabins. Another obvious physical structure is paths, both existing paths but also tracks after those who walked outside the beaten track in another time.

The second starting point concerns the social structures of the younger generation, specifically the importance of the group and discovering groups. We identify three main activities that are important to support:

- publish, to create new content and make it available
- participate, to consume others creations
- socialize, to discuss, comment and contribute to what is already published

Designing new services should fully integrate into the different media spaces that the expected user group are already using, rather than creating new ones.

A third starting point is making use of on-the-go new mobile technology, for instance addressing the issue of network coverage in these potentially remote areas.

2 Social media is the use of web-based and mobile technologies to turn communication into interactive dialogue

Although focusing on the younger generation, any type of visitor to the region might be interested, as well as the different organizations that are active within the region, and also the secondary users in the extended social networks. The technology can also be used to address potential conflicts the tourism industry creates (e.g. protecting parts of nature and wildlife).

This report gives three perspectives on the YOUSAT project.

The first part addresses the background to the project in the tourism context, as well as the results of the studies performed within the project - both general studies and more specific prototype service tests.

The second part describes the developed concept and technologies, the two main parts being the service prototype and the offline map technology.

The last part contains a discussion around business models.

Tourism Report

Introduction

This section addresses the background to the project in the tourism context, as well as the results of the studies performed within the project - both general studies and more specific prototype service tests.

Background

We have two theories on the question *what would attract youth to spend more time in the alpine tundra region?*

Firstly, awareness or exposure to the existence of these opportunities is underutilized, indicated by traditional tourism industry in the alpine tundra regions not being present in many of the new media spaces mentioned previously where youth are more likely to present [6]. This is a relatively new and untapped opportunity for using new technology to attract a younger target group, improve the destination experience by localized information, and let the users create and improve the destination experience.

Secondly, we believe current existing and developing experiences are interesting also for the younger audience. There is a need to connect the target group with information and experiences on the traditional and new growing range of experience products.

There is also an environmental driver. E.g. the “Belgrade report” [2] states among other facts that mountain areas are especially vulnerable, and tools for coordination to lessen environmental impact are important, some are starting to be used, e.g. “zoning tools”³ to control wear in sensitive areas. Our suggested technology solution supports integrating information from users, authorities, and businesses. Further benefits include

- support healthier life-styles of young people
- reduce the gap between digital and traditional cultures
- improve environmental awareness and appreciation

³ Zoning tools are used as a planning instrument to channel visitors in an area whereby wear can be limited in sensitive areas. Different zones can have different guidelines stating what is permitted, which activities are suitable, what the physical environment looks like and what a visitor is likely to experience.

Organisations

The tourism industry has changed a lot the last decade, with the increased use of the Internet, e.g. OECD states the ability to handle the “Knowledge Economy” as one of the key tourism challenges [3].

We have also seen the tourism industry realizing more and more the importance of “the social revolution” [1] during the course of the project.

Consumers value the opinions from other consumers much more than from advertisers. The tourism industry can benefit from this and build relationships through social networks and social media with their consumers, i.e. engaging the community as a whole to enhance the interest of the market [4]. These findings support the project’s starting points, as does some internal brand surveys from our largest participating tourist organisation showing how knowledge of the organisation is radically lower at lower ages [5].

Furthermore, a questionnaire was sent out to the participating organisations with the aim to find out their knowledge and opinions about some existing services targeted for traveling and tourism and also to find out whether organisations are using social media to convey information (see D6.3 Market report and the use of existing services).

The services that all respondents use are Facebook, YouTube, Google maps and Flickr. Some of the respondents use Twitter, Panoramio, Geocaching, Tripit and TripAdvisor. There were also a number of services that many of the respondents had tested, but are not currently using. Some examples of those are Blog, Twitter, Wiciloc, EveryTrail, Panoramio, Geocaching, Bambuser, Resdagboken, Dopplr, GPSMapper, WikiTravel, and Tripadvisor. Even though the list of existing services was quite extensive (it contained 24 services), the respondents also listed quite a few examples of the services, outside this list, that they also know. These were Endomondo, SportyPal, Sport Tracker, Geocache.fi, foursquare, Gowalla, Dipity, and different forums. In the section “Existing Services” (see D6.3 Market report and the use of existing services, Appendix 1) the services are listed with a short description of their main features.

One thing that one of the respondents think is missing from these services is sharing the information/data through Facebook. Respondents also mentioned some other things that are missing from the services, like:

- The service should be easy to install on a mobile phone, and
- There should be a possibility to connect video or link video to YouTube.

One interesting comment is that most of the services require that you convince your friends to use them too. This comment has the same meaning as the comment stating that it should be possible to share the information on Facebook. Since Facebook is

so popular, there are many who can take part of travel stories without having to be a member of a specific traveling application.

Examples of services that they already have:

- Web pages
- Facebook
- Google AdWords
- Google Analytics,
- YouTube
- Forum
- Web-questionnaires
- Membership forms
- Placed geocaches located nearby restaurant and accommodation services.
- UT.no - shows DNT⁴'s trails and cabins around Norway
- Blog

Facebook and the organisations' home page are example of where visitors are informed about services and are encouraged even to share their travel stories there. One organisation uses Geocaching to describe places and to attract people to visit these locations.

The respondents were asked, how important certain features are for a traveling application. For this we used a Likert scale⁵ from 1 to 7; one being very important, and seven not important at all. The results are shown in the graph in Figure 1.

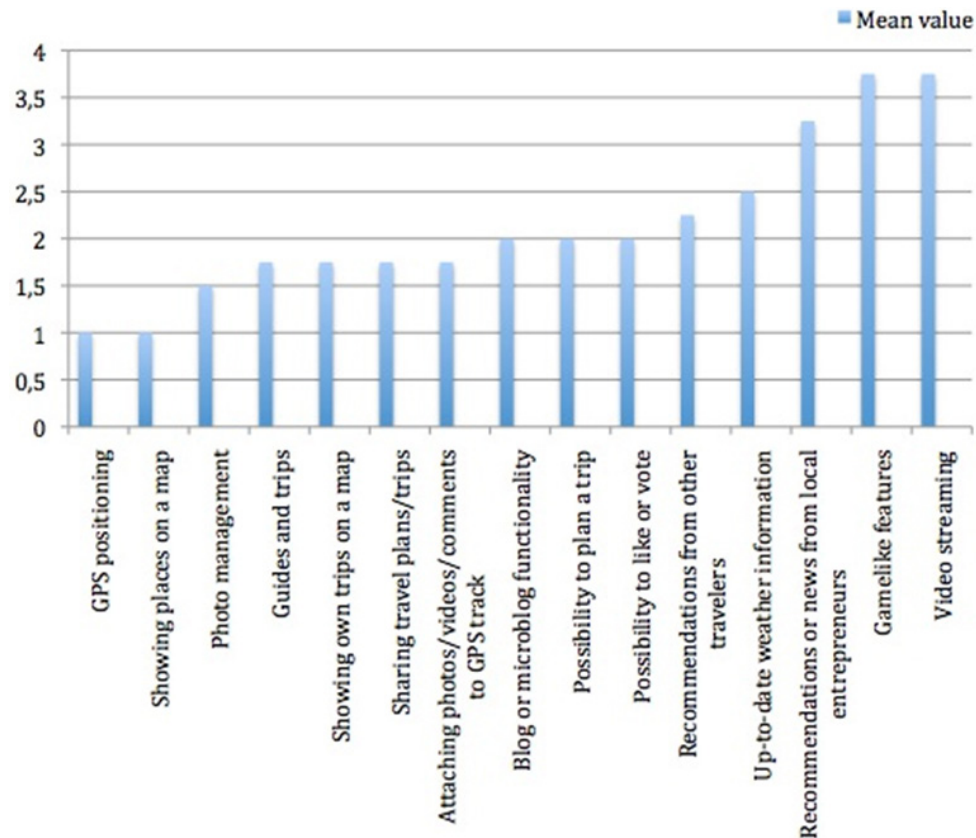
There were two features travelers found very important places on a map". There were also features that were important, such as Photo management, Blog or microblog functionality, Possibility to plan a trip, Guides and tips, Showing own trips on a map, Sharing travel plans/trips, Possibility to like or vote, Attaching photos/videos/comments to GPS track, and Recommendations from other travelers. Game like features were in the middle of the scale, not really important, but not unimportant.

There were different opinions on up-to-date weather information, two respondents found that it was very important and one found that it was rather important and one found that it was not so important. Two respondents found that video streaming was a very important function, while two thought that it was not at all important. There was also different opinions whether it is good to get recommendations or news from local entrepreneurs.

⁴ The Norwegian Trekking Association / Den Norske Turistforening

⁵ A Likert scale is a psychometric scale commonly used in questionnaires, where respondents specify their level of agreement to a statement

Figure 1 How important certain features are for a traveling application



A Likert-scale from 1 to 7 has been used where a value of one represents very important and seven not important at all.

The graph (see Figure 1) shows that there is no features that get the mean value “not important”. But the respondents have different opinions about some of the features. The list covers rather well the features that the users think the services should contain. There was one respondent who had suggestions for an additional feature that should be included, “Edit trips/tracks after a journey”.

It is interesting to note that most of the tourist organisations believe that the traveling services can play an important role to stimulate interest to travel to the Nordic region and also to get young people to travel to the Nordic region. Furthermore, they believe that social media can serve as a marketing channel for young people. The challenge is to find/develop a traveling service that supports the functionality that the tourist organisations wish.

The tourist organisations have examples on how young visitors in the Nordic region can be encouraged to write a travelogue to attract and inspire more young people to visit the Nordic region. One suggestion is that tourist organisations use the current social networks that young people already use. A good tip is also to attract young people with some kind of competition when they write travel stories.

User perspective

Early focus groups

Early in the project YOUSAT conducted a visit to the Jämtland/Sylarna mountain region on the border between Sweden and Norway with the goal to interview potential users and find out their current use of travel sharing services and other related topics. On a small scale, some initial theories were verified - the low proportion people of the "young adult" age group, most of which used several of the more well-known web-based social services, as well as being aware of, but not so much using, location-based technology. Facebook was by far the most used social application. Discussing sharing travel experiences and planning trips we found out that the most trusted sources were family and friends. Word of mouth was seen as important when finding out about new opportunities.

Questionnaires

During the summer and the autumn 2009 questionnaire studies were carried out, with the goal to get ideas for the application which would meet the requirements of the travelers. Both in the questionnaires and in the focus groups, there was a question about what would be an ideal application for traveling purposes. Some of the most mentioned features in line with the project goals were:

- Hiking route suggestions.
- Suggestions about beautiful and interesting nature locations.
- Accommodation- and nutrition services.
- Information about activities like daytrips to somewhere or dog sled riding.
- Information about renting services like where to rent mountain bikes or a kayak.
- Maps with up-to-date information.
- Opening hours
- Distances between locations

The questionnaire also confirmed the importance of sharing traveling experiences with others (usually to close people) in some way. Telling and showing pictures in person was still the most used method for sharing experiences but mobile phone was used quite a lot as well. For example, more than half of the people used SMS/MMS messages for sharing their experiences to others.

Scenario study

The scenario study was conducted after the questionnaire results were analysed. The idea of the scenario study was to try out different application ideas and highlight some features we thought could be valuable to have. The goal was to get a list of actual functionalities and features that could be implemented to our application.

We created five scenarios that are presented more closely in D3.1 Design Scenarios. The main themes of the scenarios were: planning a trip, contextual pictures and short comments, local daily information and recommendations, following someone else's trip, and exploring the area with a help of a game. The scenario study gave a lot of information and based on the results the ideal traveling application could contain at least some of the following features.

- Map that shows the user's current location (and distances to other locations).
- Attractions and other important places should be marked on the map.
- Up-to-date information that is related to the location like weather information, snow situation, opening-hours etc.
- Filtering possibility based on preset categories.
- Possibility to post short comments and photos to the web site.
- Comments shown on top of the map.
- The whole route should also be shown if possible.
- Visibility to others should be possible to control.
- Short comments could be edited later.
- Recommendations, although everyone did not think this functionality would be that useful. Some liked the possibility to have recommendations but others felt it is unnecessary and usually does not work properly.

User tests

The user test was conducted in early 2011 in Finland where potential end-users tried out the working prototype that was created during this project. The main goal of the test was to get information what the target group thought about the application and moreover the main features that it contained.

Participants' first impression of the application was positive. They felt that the idea of the application was unique, and that it would be useful to get information shown on top of the map as layers. The most important layers that were identified in this test, were related to getting some practical assistance while traveling (e.g. a list of nearby restaurants, shops, or hotels). Having Wikipedia articles, Flickr photos etc. available as a layer is a nice idea as well but the participants felt that these would not be that useful although some of them might check these layers out occasionally just for fun. Some people were interested in creating their own layer so that they could mark certain places into it. They preferred to keep that layer personal (or share with only certain people) to make sure that no one else can add locations that they do not personally like. Single locations people were willing to share.

Rating feature was likes although there was a comment that also the number of loading times should be shown as well. The attitude towards the recommendation feature was a

bit contrary which is in line with the results from the earlier studies. Some like receiving recommendations but others feel that they do not work properly and instead may irritate.

The web site everyone thought was a good addition to the mobile application. People liked the idea that they could share, view, and modify their travel stories and tracks using a computer. The Facebook connection received both negative and positive feedback. People thought that it is good that posts can be published also in Facebook at the same time but on the other hand there was a concern whether they could still control their privacy. Collaborative writing did not seem that familiar concept for the participants and they had some difficulties in imagining a situation where they would like to do so. However, people did feel that this idea is interesting and might work well for e.g. a small group that is traveling together.

This study confirmed that sharing traveling stories is important. All the participants said they share their traveling experiences at least occasionally. The participants felt that the idea of keeping a travel diary is interesting but so far none of the participants had kept one before. The reason for this was that they feared that it is too time-consuming. However, they felt that there is a demand for this kind of service.

The user study results are described in more detail in D2.4 The user study (see YOUSAT web site).

Other

Besides the above mentioned methods, we involved users also in smaller ways. Early on in the project, one focus group was arranged in Finland to four young people who were not currently that interested in traveling (or did not have the possibility to affect traveling choices). This study confirmed some issues that were noticed already in focus groups done in Sweden/Norway. Facebook is one way of sharing experiences but the most important way still is telling about the trip face-to-face.

Besides this, also two interviews were held in Finland where six existing services were gone through: Wikiloc, Resdagboken, GPSed, Track-n-share, Trip Tracker, and Locr. The goal of these interviews was to gather additional information about the existing services and what is good about them and what is not. One of the most obvious result from this was that the current services are not that easy to understand for first-time-users. Also searching ability was in some case lacking or insufficient although for people who want information about certain location, search is essential.

Conclusions and recommendations

Users have been involved with this project throughout the project and it was one of our goals to utilize user-centered methods to make sure that the project is heading the right direction. Based on the results, people are interested in traveling and seeing new locations. They also like to share their experiences especially with friends. The methods for doing so are still quite traditional for example none of the user study participants had kept an electronic travel diary before but instead they share their experiences face-to-face or by sending text messages.

The attitude towards new kinds of traveling applications was interested and everyone saw some benefits of having such an application and thought that there would be a market for something like this. The use of mobile device is very natural for young people and therefore it is a potential platform to be used also in this kind of service. However, it should also have a complementary web site which would enable viewing trips afterwards and also when planning a trip. Planning a trip was something that people already do actively online so having other's experiences (tracks, photos, comments) available online helps them to select those locations that are the most interesting to them. The web service also makes it easier to find new locations and therefore could improve the knowledge of Nordic rural areas and its traveling potential.

A list of unordered recommendations based on the user studies done throughout the project.

- The service should be connected to some already known service like Facebook but still this should not be mandatory requirement to be able to use the application. Some people do not like social services that much and prefer to have the service separate from them.
- Marketing of the application should be quite heavy since it is competing with a lot of other applications and services. Most of the existing services were uncommon at least for people who participated to the user study.
- Usability is extremely important when designing an application like this. It was mentioned several times during the different phases of the project, that if something is too difficult (e.g. posting a comment) they end up not using the service.
- It is good that the posts can be edited afterwards in the web. This enables writing only very short comments with a mobile phone and continuing the post later on with a computer.
- The service should have well designer privacy settings. Sharing travels with others is not a problem for most, but if that is done without the possibility to change that, it discourages people to continue using the service.
- There should be a complementary web application available that enables viewing and editing trips/posts afterwards.

- In the web application side, there should be a good search available for those who want to find information quickly.
- The first view of the application should take into consideration first-time-users and explain what can be done with the application and how.
- It is an advantage if the tourist organisations adapt to the services that young people are using and want to use.
- The tourism industry can build relationships through social networks and social media with their consumers, i.e. engaging the young people to enhance the interest for visiting the Nordic alpine tundra region.
- The challenge is to find/develop a traveling service that supports and stimulates the interest of young people to travel to the Nordic region. It needs to be done in collaboration with young people who are supposed to use the service and publish content into it.

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Technical Report

Introduction

This section addresses the technology-related work within the YOUSAT project. It aims at giving anyone from a developer to a top-level ICT decisions maker within the tourism-related industry some insight into the possibilities and issues surrounding mobile social technology as a tourist attractor. Also, the technology we propose can be seen as a meeting space for both user-created content, authorities, as well as local businesses. This section builds upon the initial theories behind the project as well as the knowledge from a survey of current related services, general mobile technology challenges, the YOUSAT vision, and Locago [1] and YOUSAT prototype development.

Background

The YOUSAT project addresses the problem to attract a younger audience to the Nordic alpine tundra region for nature-based eco-tourism experiences. We have suggested looking at how new social spaces [2] such as

- secret spaces (e.g. mobile/SMS/IM)
- group spaces (e.g. Bebo/Facebook/Tagged)
- publishing spaces (e.g. LiveJournal/Blogger/Flickr)
- performing spaces (e.g. Second Life/World of Warcraft)
- participation spaces (e.g. marches, meetings)
- watching spaces (e.g. TV, concerts, theater, etc.)

are underutilized and can be used to market and communicate experiences from this tourism sector to attract the younger generation. The main objective is to address tourism services directed towards the younger generation as well as services based upon user-created content.

A second objective is to develop a set of new map-based services for interacting and sharing experiences. Maps and cartographic information is a natural tool and resource while hiking and experience these regions. Tourist guides have been researched within academia for many years and there exists various solutions. The Idevio map streaming technology enables a unique way to deliver the same content to many different platforms

in a very compact form well suited for the latest generation mobile terminals, and with ambitions to work in remote Nordic regions without network coverage.

YOUSAT service vision

The first starting point for the project was a model for temporal and social structures for content sharing based around storytelling. An initial informal analysis⁶ reveals the stories people tell are associated with different social and physical structures. The two most important physical structures we have identified are places and paths. There are many places with a very rich history, but also more up to date stories such as e.g. guest book entries by people visiting a cabin. Paths can mean both existing physical paths but also paths made by those who walked outside the beaten track in another time. Also, by this point in Internet history, there is hardly need to point out the power of user-created content and the fact that some very successful web-based services are driven by it.

The second starting point concerns the social structures of the younger generation, specifically the importance of the group and discovering groups. We identify three main activities that are important to support:

- publish, to create new content and make it available
- participate, to consume others creations
- socialize, to discuss, comment and contribute to what is already published

Designing new services should fully integrate into the different media spaces that the expected user group are already using, rather than creating new ones, which is why our design advocates strong connections to existing social media services both for publishing/participation/socializing as well as for viral spread. This point also came up in the questionnaire results from the tourist associations (see Organisations section). Although focusing on the younger generation, any type of visitor to the region might be interested, as well as the secondary users in the extended social networks.

Furthermore, as opposed to many existing services, we have identified the possibility to create the content together as a temporary group, as a fairly unique feature.

Yet another important point the project makes is that a platform like the one we used can be seen as a tool for both user-created content, information-sharing from authorities regarding public services or nature-related, as well as a market for local tourism-related organisations and businesses (as opposed to an app with a closed database). E.g. the technology could be used to address potential conflicts the tourism industry creates (e.g. protecting parts of nature and wildlife, as mentioned earlier regarding the “zoning tools”), or create added value between businesses.

⁶ Readthrough of mountain lodges visitor “log books” in the Swedish/Norwegian Sylarna area in parallel with the first focus group study.

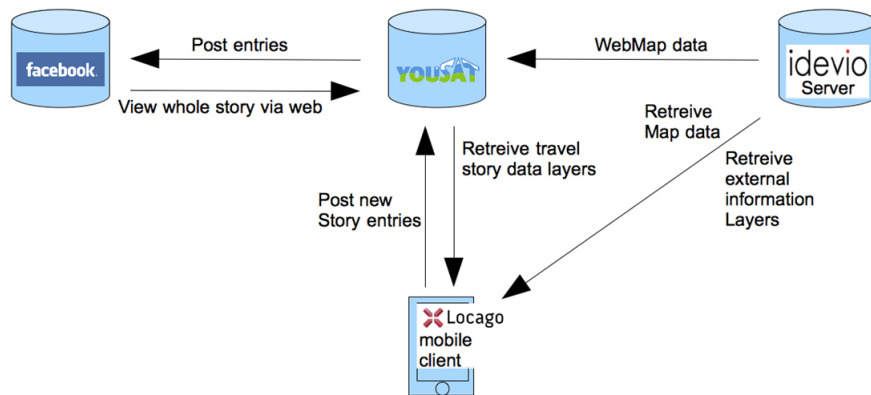
Literature reviews and surveying existing related traveling web services led to five design scenarios⁷. Out of these, our prototype service draws from three of these, aptly named “Pictures and Short Comments”, “Local Daily Information and Recommendations”, and “Someone Else Is Traveling”.

Furthermore, the increased importance of connections to the social web among tourist web services [3] during the course of the project, as well as the results of our tourist organisation questionnaires, align well with our vision, e.g. in that we see potential in making extensive use of several existing social web services, rather than trying to move people to a new space.

YOUSAT prototype

As a result of the initial project theories on regional issues, tourism challenges at large, social web trends, location-based mobile services⁸, user studies, and more, the project has created a prototype service presented here.

Figure 2: The YOUSAT prototype system components



The YOUSAT prototype system comprises the following components.

- **YOUSAT server**
Database-driven web backend managing and serving YOUSAT data to Locago client and TravelTeller web site
- **Idevio servers**
Idevio's streaming map data server and Locago static layers server
- **Locago mobile client**
The mobile client currently available as a java or android app, handling maps and interactive data layers.

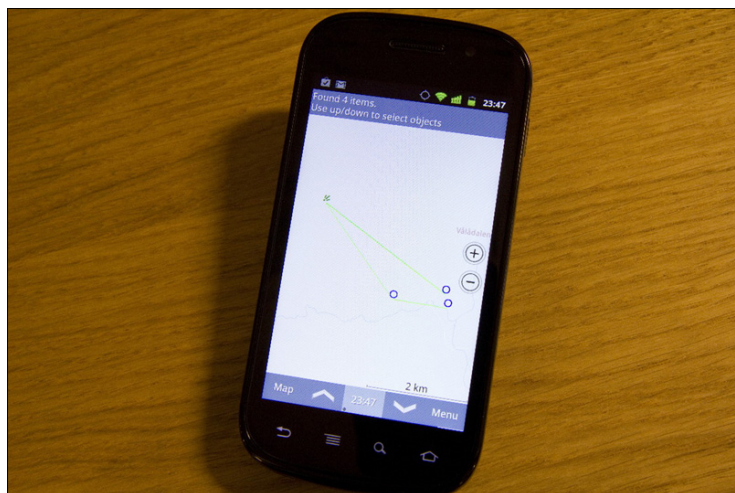
⁷ YOUSAT deliverable D3.1

⁸ Location Based Service (LBS), an information or entertainment service, accessible with mobile devices through the mobile network and utilizing the ability to make use of the geographical position of the mobile device.

A typical scenario could be as follows.

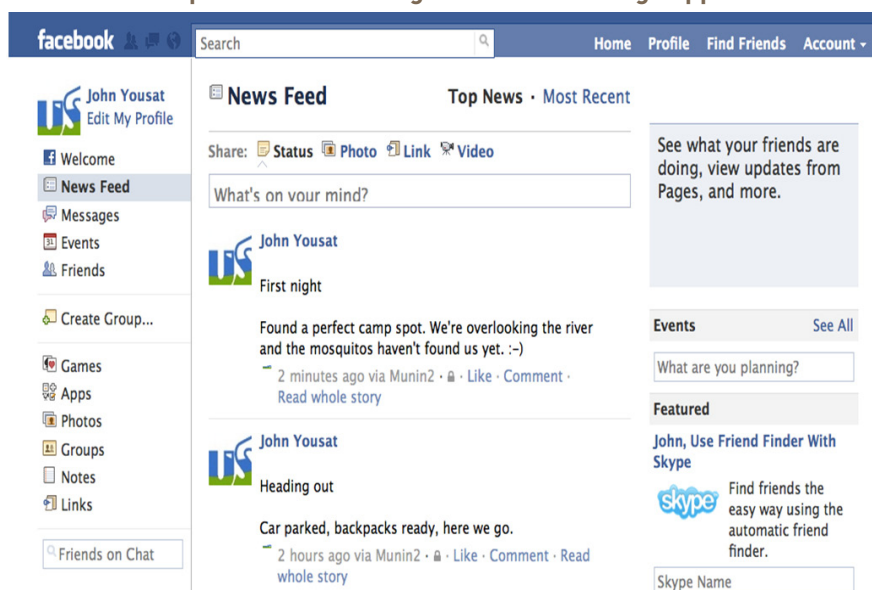
- A group of users starts Locago on their mobile phones and retrieves the “destination” layer from the YOUSAT server which loads the YOUSAT layer and map data and a tourist organisation layer from Idevio’s servers containing e.g. information about mountain lodges.
- A user runs the Locago app on a mobile phone while trekking (fig 3)

Figure 3: Locago app showing the YOUSAT layer in map view



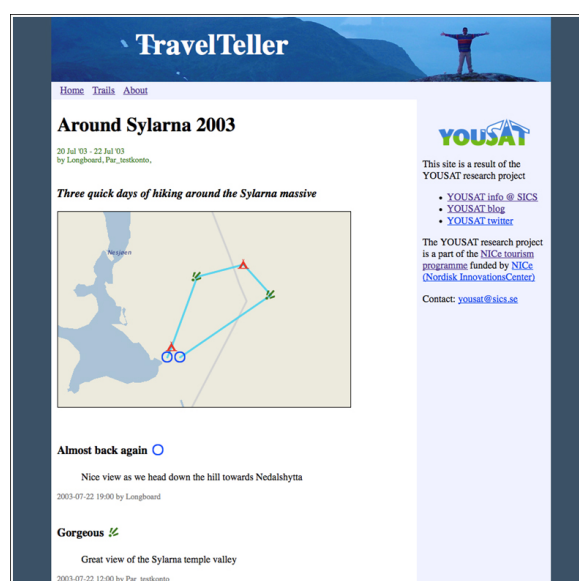
- One or more of the group find interesting locations and decide to write entries using the YOUSAT Locago interactive layer's form. When the entry is written, as a part of the group story, it is automatically posted to the social web (here Facebook, fig 4).

Figure 4: Facebook posts created using the YOUSAT Locago app



- The online network of friends who see the entry on the web, are encouraged to click a link to view the whole story (“Read whole story” in screenshot above).
- This takes them to the TravelTeller web site(fig. 5), showing the entire story content with trails and places marked on a map (using the Idevio RaveGeo Webmap javascript component). Login to TravelTeller via social web service login (currently Facebook connect) yields the possibility to edit/create content through the web interface, as requested in the questionnaires to tourist organisations.

Figure 5: The whole group’s travel story as shown in a web browser.



Issues and future of prototype service

The YOUSAT prototype is currently a fully working prototype. The project has taken this work as far as has been possible considering different project parameters. To deploy this service in its current state, the YOUSAT server needs only to be hosted and the YOUSAT Locago data layer officially published by Idevio.

However, drawing from the mobile app industry experiences, some new features should preferably be added to the Locago client, in particular to

- simplify login
- be able to create groups from Facebook contacts
- be able to configure privacy aspects (from user tests)
- be able to use camera (from focus group studies)
- perform searches (from user interviews)

The web site also has room for improvement, e.g. mentioned in user interviews and user tests were privacy management and search.

On the positive side of things, using Locago gives the application potential access to the currently five million users who have already downloaded Locago to their mobile devices. Idevio is currently assessing their business models for continued work with the application, which is their first case of a dynamic interactive layer.

To completely fulfill the YOUSAT vision there is a need to attract enough interest from tourist organisations and local business to make their information available as Locago data layers.

Regarding the more remote Nordic areas, the project has always had network coverage as an important issue. During the course of the project Idevio has addressed this by implementing an “offline mode” in Locago (see below). Currently this enables users to cache map/layer data before entering an area without coverage. However, to enable seamless application function, there is need for user-entered data to be cached until next network contact.

Locago offline mode development

In order to work in uninhabited regions a solution to the problems below need to be solved. A way to minimise the data transferred via the mobile network is to be found below.

Geo data problem

Most geodata is distributed as a mosaic of image tiles. Each level of zoom requires a new set of map tiles. To store a map tile distribution Terabytes [11] of storage space is needed. Even map tiles for a small geographical region requires more storage space than a ordinary mobile phone offers.

Wireless network coverage and bandwidth problem

One solution to the geo data problem above is to store the map data on a server and let the mobile clients download only the map tiles needed for the wanted region and level of zoom. This usually consumes a large amount of bandwidth (at least the bandwidth offered in a 3G network). So the demands of the network and the coverage are high in this solution. Due to the cost of roaming, when outside your home cellular network, many user do not use mobile services at all during a trip abroad.

Highly compressed vector maps

Using Idevio's RaveGeo technology, multi-resolution maps can be stored as compressed vector data, for rapid access and low-bandwidth streaming [12]. Instead of loading ready-made images, it's up to the client software, running on e.g. a mobile phone, to read the map data and draw the maps from scratch, using polygons and lines. While more demanding for the processor, this is generally not a problem for most modern mobile

phones. Idevio develops and sell components for reading and visualizing RaveGeo map data on a number of platforms, including mobile phones.

Locago, mobile maps

Locago is an end-user application combining RaveGeo technology and user-generated content to provide maps with dynamic overlay data. The data is presented in layers, such as Flickr (photos), Wikipedia (articles) and Foreca (weather forecasts). As long as the data is associated with a location, it can be presented on the map. A Locago layer may also be highly interactive, allowing users to manipulate the data in various ways, such as adding comments or sharing it in social networks. The support in Locago is general, and it's much up to the publisher of the layer to determine what can and can't be done, and what kind of interaction possibilities to provide. As a user you can add and remove layers as you go, depending on your current needs and interests.

In addition to RaveGeo map data being compressed, Locago also caches some of it locally on the device, making data costs for maps lower than e.g. tile based systems. Because of this, Locago is built as an online application, where the user optionally signs in to an account to keep track of his or her personal layers. Being an online solution, Locago could also make sure the maps stay up to date, requesting the updated map data when needed.

Offline maps in Locago

While map data traffic is minimized in Locago, costs may still be high when using Internet services outside your carrier's data network (e.g. when abroad), and at some places there's just no Internet access at all, due to lack of network coverage. The latter case is of particular interest in the YOUSAT project. To tackle this, Idevio has investigated possibilities to provide an offline mode for Locago.

Due to RaveGeo maps being highly compressed, there's no problem fitting world covering maps on the memory card of a modern mobile phone. The focus of the project has been on how to get the map data to the memory card in a controlled fashion, and how to set Locago up to read maps from the memory card rather than from the Internet. Since not everyone using Locago is interested in offline maps, we decided not to complicate the Locago user interface further, and instead chose to develop a new application: the Locago MapLoader, further described below.

There was already some support in Locago for reading map data from files. The file reading parts had to be fine-tuned and thoroughly tested, but the main development efforts was in making the offline maps feature a seamless experience that did not affect users not having any downloaded maps. The solution was to let Locago scan the memory card for downloaded maps during application setup, and ask the user whether

or not to use the downloaded maps. This way, people not using offline maps don't even notice something has changed.

Locago MapLoader

The sole purpose of the MapLoader application is to let users download and manage downloaded maps. To simplify this task, we wanted to allow users to download maps country by country, or even region by region for larger countries such as the US. The idea was to partition the data into smaller chunks that could be downloaded over a WiFi connection in a matter of minutes. RaveGeo map data is split up into different libraries, each library consisting of several files. Since the data isn't naturally partitioned by countries or regions, we had to go through the map data and decide which files belong to which region. While not difficult, this was a time consuming process that ran parallel to the application development process.

The MapLoader uses the aforementioned partitioning to present the regions in a tree-like structure, starting with continents, through countries, down to regions within countries. This felt like a natural way to browse the map database, and this is also how it's done in other map applications such as Nokia Map Loader[13] and MapDroyd [14] for Android. The user may select whole continents, or individual countries and regions before starting the download, and the GUI shows indicators for regions have already been downloaded and regions that have been selected for download. The application also keeps track of the amount of data to be downloaded, and the estimated download time, allowing the user to do something else while waiting for the download to finish.

Since downloading larger regions may take time we wanted to add the option of cancelling an ongoing download, but we also didn't want to throw away partially downloaded data. Therefore we added support for resuming a cancelled download. This happens automatically if the application discovers partial data, and works regardless of the reason for the download being aborted. Live testing on devices showed signs of files sometimes being corrupted when downloads were resumed. The exact reason has not been determined, and may very well be device dependent - especially in Java Mobile Edition [15] the file access specification is implemented differently by different manufacturers, and some functionality is even left out completely in some cases. To solve this problem we have added MD5 [16] checksum verification for downloaded files. When a checksum mismatch is discovered, the file is simply removed and rescheduled for download from start.

Even when using offline maps we wanted to make sure users can keep downloaded maps updated as they're updated on the server. To solve this, the MapLoader application checks whether or not updated maps exist and asks the user if he or she wants to switch to the updated database. Since newer map data can't be mixed with older data, already

downloaded data has to be removed before newer data can be downloaded. Switching to an updated database is optional, allowing users to make the switch when they're ready.

In addition to the download view, there's also a "my maps" view where you can browse and remove the maps you have downloaded, should you need to free space on your memory card.

Offline content

Maps are just one part of Locago, and there are other parts that still require Internet access. When Locago starts, the application connects to the Locago server to check for updates, and make sure the user account is valid and so on. Disabling this procedure in an offline mode would require some restructuring of the setup code, but it should be doable without too much work. Most of the work for a full offline mode is instead related to third party content, i.e. the layers.

Layers consist of two things: geographical data, often loaded on demand for a given area or location, and the UI documents where you configure and interact with the layer. When you have Internet access, the layer may load additional UI documents dynamically as you explore the layer and access additional information related to the layer. Such operations wouldn't be available in an offline mode, and the layer developer/publisher would have to create separate UI documents for online and offline mode, and all offline mode data would have to be downloaded in advance. Some layers might be very regional, and limited in the amount of associated geodata, while others are global. Downloading offline data for a regional layer might be possible, but for global layers there has to be a way of limiting the amount of data downloaded.

Just viewing offline data might be possible, provided some limits on the amount of data, but if the layer should be interactive, and if the user should be allowed to manipulate the data in various ways, you would have to deal with online/offline synchronization problems - if you comment on an offline article, how and when should the comment be published online? The Locago layer/UI API would have to be extended with ways of storing and reading offline data, and the layer has to be notified when a user switches between online and offline mode to be able to perform synchronization tasks.

The online/offline problem quickly becomes quite complex, and one would have to consider a few basic use cases and decide what kind of offline operations to support. The YOUSAT is a highly interactive layer that involves some interesting online/offline issues that could serve as a starting point for further discussions regarding offline support in Locago. That's however a topic on it's own, and outside the scope of this report.

Trends pertinent to the YOUSAT prototype

There are a number of general trends that have reference to the YOUSAT prototype and similar services. Websites, applications, games, etc. are increasingly making use of services that provide access to a user's social network, e.g. by using Facebook Connect and Google Friend Connect. In a way our social networks will become "portable" on the web, i.e. they are not confined within the system where they were created or established, but may be leveraged upon by other services. Privacy concerns have always been an issue regarding the accessibility of our online data. However, there is an increasing willingness to share information, e.g. location, current activity, and opinions, within the confines of a social network. Sharing of opinions and testimonials in public forums in the form of ratings and reviews have become commonplace. An early example being the customer reviews at Amazon.com. In the tourism business, site and hotel reviews are a natural and expected variant. A review of an existing predefined product is only the first step of user generated content though. There are several examples of web services where users create new and quite elaborate compositions of previously undefined information, e.g. sites catering for the creation and sharing of Windsurfing spot information containing location, ideal wind directions, suggested rigging areas, appropriate level of expertise, etc. Socially enhanced web services and features (like the ones described above) are becoming commonplace and expected. Gradually the term social media will have played its role and become irrelevant. Users will expect all sites and services to be social.

Another general trend pertinent to YOUSAT is of course the increasing use of technology in tourism activities. Mobile phones with large screens suitable for consumption of map data as well as built-in GPS receivers are becoming ubiquitous. In addition, their communication bandwidth are ever increasing making available the use of more complex networked services. Hardware features such as touch screen technology and a relatively open and accessible ecosystem of third party applications bolsters the creation of simple to use and powerful tools for the technology interested tourist. Including the widespread use of inexpensive digital cameras and video recorders this results in the tools needed for digitizing your memories, i.e. creating digital recordings of events as/when they happen, not at some later stage. For example, geotagging⁹ and timestamping photos automatically and adding comments more or less on the fly, letting you return to your experiences at some later date as well as sharing them within your network. Several companies, e.g. Foursquare and Gowalla, are providing applications and services that let people flag where they are. As of February 2011, Foursquare had over 6.5 million users worldwide, adding roughly one million a month. On September 1, 2010, the World Economic Forum announced the company as a Technology Pioneer for 2011 [17]. In 2010, Facebook also introduced its own version of these so-called check-in services, called Facebook Places. Location based services are not only about tagging photos and checking in to places though. Another use of geo-positioning

⁹ The process of adding geographical identification metadata to various media such as photographs and video

is searching for information on nearby places or objects. Google is of course active in this field. The search giant is enhancing its Google Maps for Android with a places feature that provides access to location tailored information. You can search for places, nearby shops or restaurants, etc and have the results displayed in the Maps interface. Like social networking, location-based services are still in their infancy. The combined “geo-social-mobile” services will be one of the battlefields in the coming years, with big combatants like Facebook, Google, and Apple, as well as smaller fast moving contenders.

Conclusions and recommendations

In this section we have described the more technology-related aspects of the work within YOUSAT.

On the background of our initial theories on using mobile social media spaces and user-generated content to attract youth, our work with users and organisations have led us to refine our concepts which we then turned into a service feature set for our prototype system, roughly comprising

- connect to existing popular social web services
- use maps and let users create content around a places-paths model
- let users create content together as a group
- enable presentation from many different players, such as tourist organisations, local businesses, authorities.
- and attract new users and present group stories in an appealing way through the web, linked from entries on social web services like e.g. Facebook

The main components of the current prototype are

- a web service
- managing content data and users
- exchange of data to and from mobile client, web client
- a slightly modified Locago mobile app (available as java or android app)
- Idevio servers supplying the map data and static information layers

Regarding the more remote Nordic areas, the project has always had network coverage as an important issue. During the course of the project Idevio has addressed this by implementing an “offline mode” in Locago, complementing their low bandwidth map data streaming. However, to enable seamless application function, there is need for user-entered data to be cached until next network contact.

Locago gives the application access to the potential currently 5 M users who have already downloaded Locago to their mobile devices. Idevio is currently assessing their

business models for continued work with the application, which is their first case of a dynamic interactive layer.

In the text a few trends have been described which related to the work in YOUSAT. The increasing use of social networks, not only within the systems where they have been established (e.g. Facebook) but leveraged in other systems as well. The increasing inclination to share ones information, e.g. location and opinions, within ones social network. The increasing use of technology in tourist activities and the process of digitizing ones memories. Not only bringing mobile phones with GPS capability and digital cameras and video recorders, but the creation of stories, logs, notes, ratings, and reviews.

Here follows a unordered summary of our recommendations on various levels.

- as a first step, which has grown dramatically during the course of the project, consider connecting tourist information to existing social networks, where the users are already active, rather than creating a separate space.
- consider using the full potential of user-generated content, letting users develop destinations. This does not however mean that there is no effort or cost involved - crowdsourcing can require resources put into offering an attractive community
- Social media and user created content provides the ability to not only put the spotlight, so to speak, on a few tourist attractions with high volume, but provide coverage of a large amount of non mainstream spots and activities. The term long tail [10] has been coined in retailing strategy for the notion that a larger share of potential sales lies within the sales graph's "tail", covering a large array of items with fewer sales, than in the graph's "head" covering the few items that are currently in high demand. This possibility of supporting and covering a large variety of travel destinations coincides with the trend where people look for more unique travel experiences.
- The use of user created content and the just mentioned increased opportunity to offer a wider range of destinations and experiences, also concerns one of the major tourism challenges which addresses the issue of lessening the environmental and societal impact of the focus on the top mainstream tourist attractions.
- Some of the technology is still in its infancy and under rapid development, especially regarding the social web services. This project has e.g. suffered from continously changing programming interfaces from one of the bigger social web sites.
- There is an obvious coverage issue in many of the "wild" Nordic regions. This needs to be considered when using this technology, as well as potentially high mobile data costs. There are solution which take this into consideration, like Idevio's low bandwidth streaming and offline map downloading.

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Business Report

Some of the challenges in the business perspective is to reach and engage the target group. Content sharing is increasing and young people are used to share.

Mobile applications is widely used and are starting to make peoples lives easier. These factors combined with the want of the tourist organisation creates opportunities for YOUSAT.

User generated content

Many organisations and business sees the social media space as new communication channel. The most successful uses these channels in both directions by engaging customers, members, voters or fans. But user generated content is seldom used and seen as a business opportunity in the social media space.

One example of user generated content from another industry is Threadless [20] . They let users design T-shirts online. The creator submits the design and users can start voting. The T-shirts with the most votes gets produced and sold on the site.

The tourist organisations can use content generated by the knowledge and skill of their members.

Some examples of useful content that can be used is:

- useful tips such as
- beautiful views
- shortcuts
- savings
- meal tips
- to do´s and not to do´s
- reviews
- find others with the same interests

Some of the content may be offered as a premium service to the members.

YOUSAT as a shortcut

One of the incitements of the app Locago and YOUSAT is the easiness of creation of and publishing content. The publisher doesn't need any skill in mobile application development skills. The only skill that's needed is some basic XML and HTML skill.

This shortens the time to market and saves a resources. The app Locago which is used as mobile platform is tested on most common mobile handsets that run Java or Android so technical testing is already done. This is usually a time and resource demanding process.

YOUSAT business models

The business model of YOUSAT is a living process and will be adjusted as the market conditions changes and new technologies is introduced.

The live testing of the business model with real users and real money has been performed on the Locago application.

Advertising

Advertising on websites, web pages and even mobile web pages is an established business but advertising within application is quite new. It has become an important source of income in many mobile applications. One example is the widely spread mobile game Angry Birds made by the Finnish company Rovio [1]. Angry Birds in a paid application in Apple Appstore and in Nokia Ovi Store. But in Android Market the app is for free but with ads.

In order to make money on general ads you got to have a great number of users. In order to increase the revenue from each ad you need to target is to each individual user. This kind of targering is still to be seen in the mobile ad networks.

The ads with most value today are targeted by the users interests, previous behavior and physical location[2]. The latter is call geo targeted ads and they are not very common yet. Some advertising networks as Smaato [3] and Navteq [4] are trying the system right now but only in North America. We have to wait before we see this kind of ads here in the Nordic region.

One of the obstacles when it comes to location based ads is that digital ads are not sold with a "location tag". So the the lack of location based ads is not a technical problem but a market problem.

Some other types of location based advertising is services like Groupon [5] and local clones like the Swedish "Let's Deal" and "Gruppi" has started to become successful. For example Groupon started 15 November 2008 and now has 35 M registered users [6]. This kind of local deal services may become a source of income in a YOUSAT app. The

relevance is very high in finding local deals on the map when using the application. In order to let local business participate in the system a function for adding local ads in the application may be considered.

Branded application

The YOUSAT application can be offered as a white label [7] application to e.g. the tourist the organisations or strong brands within the outdoor sector. Many companies have tried to distribute their own apps but we have not seen how many that really have succeeded yet [8].

In business case for YOUSAT in this case could be a start up fee and a yearly fee plus a small fee per user. YOUSAT will in this case be totally dependent of the success of the tourist organisations.

Freemium/premium application and content

The freemium [9] model is widely spread in the application stores. Applied to YOUSAT the basic functions is offered free of charge but the user can download and pay for a version with more features and content. This case can be combined with advertising in the free app.

The premium application can be a one off fee or a subscription for a period in time. Some successful apps have excluded the app store in the equation. One example of this is Spotify [10]. The Spotify app is offered for free in the app stores, but a premium account is required to use the application. The premium account can be bought on the companys own website. By acting like this Spotify avoids the 30% fee that the app stores generally charges to handle the payment. The experiences from the Locago app says that a user of the free application is more likely to upgrade to the premium application than user to download the premium app from start.

The app as a marketplace

In order to monetize the YOUSAT app even more assets and services could be bought within the app. As of today in-app purchases can be done within the Apple eco system [11], within Qt apps in the Nokia Ovi Store [12] and Android[13] apps (launched 2011-03-30. In-app purchases for Nokia OVI Java phones is said to come later this year.

One of the success factor is the easiness of the purchase. In the Apple and Android cases the user often has a credit card registered and connected to the app store. Nokia Ovi store uses operator billing [14] instead so there will be geographical limits within Ovi Store.

Examples of assets and services that could be bought within in the app is premium

maps, wifi access, area access (such as sauna access), fishing permits and premium digital guides.

Some studies say that mobile inn app purchases will generate more revenue than mobile ads[15].

Opportunity for users to monetize their content

One of the initial goals for YOUSAT was that users can share and contribute to the service with content. The content can be digital assets like a guided tour, a detailed map or a useful tip.

In order to encourage users to contribute to the content in YOUSAT they should be able to make some money on their content. One service that started to enable this kind of “revenue sharing” between individuals is Flatlr [16]. The revenue to YOUSAT in this case may be a transaction fee (a share or a fixed fee).

Choice of payment method

If the application is sold via an app store (e.g. Ovi Store, Apple App store, Android Market) their share usually is 30 percent. The same percentage goes for in application purchases via the app store too. One of the main advantages of selling an app via an app store is that they take care of the marketing and hosting.

If payment is to be made direct in the app via credit card or a payment service (such as PayPal [17]) the transaction fee is usually between a few percent up to ten percent.

The most common operator billing form is premium SMS [18]. The share charged by the mobile operators is usually over 30 percent.

Advertising networks share of the revenue stream generated by mobile advertisements varies between 10 and 30 percent.

Individual revenue sharing services is not that common yet but Flatlr charges 10 percent in transaction fee.

Testing the business model

During the field trials of the application Locago the ad funded freemium model has been tried out. As of today (March 2011) Locago have had more than 5 million unique users. The ads served in the app has been ordinary mobile banners without targeting. Each user of the free app will be aware of that he/she can upgrade to an ad free version for a small fee.

The ad networks that have been tested within the app is:

- AdMob
- Google Adwords
- GetJar
- InnerActive

To be tested:

- Smaato
- Navteq Location Point

The revenues from the advertising is steady but low. The interesting part is the conversion rate to premium is increasing. One of the facilitators has been operator billing within Ovi Store. The user can also pay for upgrades via credit card but the willingness to submit the credit card details via the mobile phone is very low.

Due to the lack of support of in app purchase for Java ME apps in Nokia Ovi Store and in Android Market this function has not been tested.

Choice of business model

The business model in the initial stages of YOUSAT may not be the same as later on.

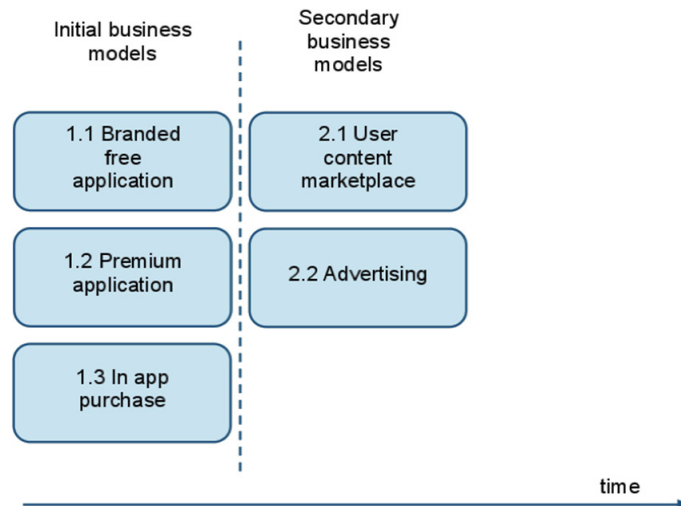
Advertising will not be the primary source of income from start. One needs a large number of users to server many ads so creating a large user base is critical in order to see some revenue from ads.

YOUSAT may use ads but the preferable highly targeted ads. If the ads are targeted in the right way the user does not see them as intrusive but rather as useful information. One example is if we know the some of the interests and the location of the user we can serve local ads that suits the user.

To let e.g. the tourist organisations brand and market the app will create a user base and create a economical opportunity to develop the concept and the application. This will also create an opportunity to market a premium application within the app. The revenue of the premium app can be a revenue share[19] deal between YOUSAT and the tourist organisations.

The opportunity to buy things and services within the application is a much wanted feature and can be an important source of income.

Figure 1: Adding more revenue streams later in time



Conclusion and recommendations

The initial business model includes branding, premium app and in app purchase. When the user base is large enough, and the technology allows, YOUSAT may add advertising and content selling between users.

The possibility to use the user generated content is an interesting opportunity for the tourist organisations. The local business can reach users via location based advertising in the application.

The general leanings of advertising and purchases within the mobile applications is:

- in order to generate some revenue from ads a very large user base is needed (millions),
 - ads can easily be experienced as intrusive if they are placed in the wrong context or served to individuals not intended for the ad,
 - a highly targeted ad is almost seen as a useful information than an advertisement.
- The ads can be targeted by:
- location
 - previous behavior according to previous served ads and shopping behavior
 - interests
 - demography and language
- In-app purchases will become more common and more used but the easiness purchase process is important. The possibility that a user will actually buy things within the app increases if it's very easy to use

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Youth Spaces and the Alpine Tundra Regions (YOUSAT)

The Nordic wilderness is unique and sensitive resource, where the important tourism industry needs to exist within limits of nature's toleration. Actors in this region have problems attracting the younger generation, and knowledge of some of the major tourist organisations is low within the younger demographic. The YOUSAT project proposes that to address this issue and to help the industry develop new destinations, tourism-related players should become more active within the new social media spaces, user-generated content, in combination with new mobile location-based services.

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NORDIC INNOVATION, Stensberggata 25, NO-0170 Oslo, Norway // Phone (+47) 47 61 44 00 // Fax (+47) 22 56 55 65
info@nordicinnovation.org // www.nordicinnovation.org // Twitter: @nordicinno // [Facebook.com/nordicinnovation.org](https://www.facebook.com/nordicinnovation.org)