SATELLITES
GOING LOCAL

SHARING GOOD PRACTICES

DIGITAL SOCIETY

2014 EDITION

eurisy

25 YEARS OF BRIDGING SPACE AND SOCIETY

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Dear Reader,

I am pleased to present you with the 4th issue of "Satellites Going Local: Regions, Cities and SMEs share good practice" — the Digital Society edition.

The 2014 edition of the publication collects 21 operational examples in which satellite information and services have been used to provide new products and applications in the fields of media, education, arts and culture, leisure, tourism, marketing and sustainable urban development. Its main objective is to raise awareness of how public authorities and SMEs can use satellite applications to improve their services and engage people. Moreover, the publication is also intended to promote the "Digital Agenda for Europe", the first of the seven Europe 2020 flagship initiatives, which aims to support citizens and businesses in getting the most out of digital technologies.

Satellite imagery, navigation and communication provide digital, ICT and creative industries with a whole new range of business opportunities for the development of innovative services which can benefit citizens, other SMEs and public bodies in Europe. The more rapidly satellite-based information and services are exploited in the digital sector, the faster will products and services be produced which meet people's needs, expectations and tastes.

We hope these examples will inspire many more entrepreneurs and public authorities to keep exploring the potential of satellite data to enhance smart and inclusive growth, conceiving and providing effective, innovative and, in many cases, "fun" services from within the EU.

Colin Hicks, *President, Eurisy*

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Eurisy's Members include most space agencies or governmental offices in charge of space affairs in Europe, and international organisations dealing with space matters.

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"European investments in satellite infrastructure through the Galileo and Copernicus programmes are providing an unprecedented access to satellite-derived information and services for tackling societal challenges. The resulting applications are expected to bring growth, jobs, and better quality of life for Europe's citizens. The European Commission DG Enterprise and Industry encourages all initiatives that foster SME entrepreneurship and innovation using Galileo and Copernicus services. In particular, we welcome the Digital Society edition of Eurisy's annual publication "Satellites Going Local – Cities, regions and SMEs share good practice". Indeed, the digital revolution can hardly be considered without Big Data, geolocation, and telecommunication. The success stories collected by Eurisy are the signs that European investments in space start to bear fruit."

Mauro Facchini, *Head of Unit, European Commission, Directorate General for Enterprise and Industry, Copernicus Services Unit - G2*

"The aerospace sector has already created multiple connections with other fields and there are still many more to find. Several technologies developed for or with satellites can address global needs through new, innovative applications and ICT. Creative industries have the great opportunity to take part in the development of these innovative applications.

The role of the Enterprise Europe Network is to create partnerships between companies and/or research centres and/or universities whatever the sector. This initiative by Eurisy is a perfect tool to enhance cross-sectorial collaboration between creative industries and aerospace".

Carolina Fernandes, *chairwoman of the Creative Industries Sector Group* and **Emilien Watelet,** *chairman of the Aeronautics and Space Sector Group, Enterprise Europe Network*

"Innovation is at the core of the Europe 2020 Strategy as the only answer to the current and future challenges facing society. A strong digital economy is vital for growth and competitiveness in a globalised world. Europe and Member States should step up their efforts to invest in digital products and services, including in the e-learning sector, in order to boost productivity and create new jobs. The EESC particularly values and supports Eurisy's efforts in showing how entrepreneurs and SMEs can develop innovative products and processes in a digital society by using a core strategic advantage created by Europe for its citizens and economy: the Galileo and Copernicus infrastructure and services."

Jacek P. Krawczyk, *President of the Employers' Group, European Economic and Social Committee*

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© arte

CINEMACITY: BRINGING THE CINEMA INTO THE STREETS USING SATELLITE NAVIGATION

The mobile app Cinemacity enables users to discover Paris through the lens of cinema, by combining walks around the city and geolocated movie excerpts

The company

ARTE is a European public cultural television channel created in 1992. Its originality lays in the fact that it targets people from different cultural backgrounds, and in particular French- and German-speaking audiences.

The creators of ARTE believed that a joint television channel would bring French and German citizens closer culturally and would promote integration throughout Europe. Creating a television channel for audiences who did not speak the same language was a first in the history of television and still is an exception in the global TV market.

The challenge

The Cinemacity project started in 2012. Its objective was to offer relevant content to users by taking into account the new uses of the internet and mobile devices, as well as to popularise Paris' film heritage. The main objective of the project was two-fold: to make culture more accessible on the one hand and to enhance the creativity of the channel on the other hand.

The satellite solution

Cinemacity, produced by the transmedia studio Small Bang for ARTE, is an application for smartphones and tablets which relies on satellite navigation to enable users to watch film excerpts right where they were shot in Paris. So far, over 400 excerpts and 23 thematic 'cinewalks' are available, helping users to discover the city through the lens of cinema. You can follow Amélie in Montmartre or spend Midnight in Paris with Woody Allen...

Cinemacity is also a creation lab which produces 'fiction-walks' on a neighbourhood scale, split into five episodes. They are original creative films produced by and for Cinemacity. Users are invited to walk from one episode to the next in order to follow the entire story.

Moreover, the application offers a unique participative and creative experience to users. They are invited to send their own "sweded" version of scenes shot in Paris, that is, remakes of the original movie excerpts with what is available at hand. The application is available in English, French and German.

The result

Cinemacity is designed to be an evolving application. Thanks to various partnerships, the Paris City Hall or the Forum des Images for instance, Cinemacity will be associated to several future events held in Paris, such as Paris Plages or the Nuit Blanche, directly in tune with on-going cultural life. In only a few weeks after its release in the beginning of July 2013, Cinemacity has become one of the most downloaded-culture and leisure-related applications in appstores (IOS and Android versions are available).

"Cinemacity is the best way to discover Paris through cinema and to discover cinema through the city."

Gilles Freissinier, Head of ARTE Web Department

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TRIMARAN INTEGRATES SATNAV IN 2D AND 3D GRAPHICS FOR OUTDOOR SPORTING EVENT BROADCASTING

A French SME developed an innovative service of GPS tracking, with timing, ranking and 2D and 3D views of competitors in outdoor championships broadcasting

The company

Trimaran is a small French SME created by Olivier Emery 20 years ago. Originally, the company focused on 3D animation for television and promotional corporate films. In 2007, Trimaran extended its activities by setting up a digital studio and specialising in visual design technologies for live information and sporting events, on TV and on digital media.

The challenge

TV broadcasting of outdoor sporting events is a highly competitive market where providers must continuously improve their service offer. While working with the organisers of sporting events (such as ASO for the Tour de France) and TV sport channels (the French channels Canal+ for WRC Rallye of France/Alsace), Trimaran identified an opportunity in providing them with 3D visualisation of competitors in real time, suitable to be broadcasted on TV, on large screens, internet portals, tablets and on smartphones.

The satellite solution

Trimaran thus launched GeoRacing, a professional live and replay viewing service, which relies on GPS tracking. Each participant in outdoor competitions – such as racing cars, sailing boats or sailplanes – is equipped with a GPS receiver which sends location data in real time to a server.

Trimaran converts the data into 2D or 3D graphic representations of the race ranking situation in real time, for live or replay broadcasts. The time-lags between competitors are calculated with high accuracy (1/10th of a second) and can be visualised in real mode or by simulating the situation linearly as if all competitors started at the same time ("ghost mode" for Rallies or Individual Trials).

The result

Trimaran successfully launched Georacing in October 2013 during the WRC-France-Alsace Rallye which was broadcasted by the French TV channels Canal+ and Sport+. The solution has also been successfully used during international sailing competitions such as the 2013 Tour de France à la Voile or the 2013 Stars Sailors' League Christmas regatta.

The service allows journalists to refine their comments by knowing what is happening to competitors in real time. By offering an innovative broadcasting solution for races, the small company was able to contract with big sports broadcasting channels. It is now expecting to expand its sales internationally.

"GeoRacing Virtual Timing helped me to tell the story of the 2013 edition of the WRC-France-Alsace Rallye, by informing me at all times of the time-lags among competitors."

Pascal Mathieu, Canal+ live Director

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TRIMARAN
3d ✷ effets visuels ✷ interactif

MICROCINEMA: ENHANCING THE OFFER OF SMALL AND MEDIUM-SIZED CINEMAS THANKS TO SATCOM

An Italian digital cinema company uses bidirectional satellite and ADSL communication to distribute films, broadcast live events and provide assistance to clients remotely

© Microcinema

The company

Microcinema SpA was founded in 1997 to support the Italian cinema industry and theatres by finding economically-sustainable solutions for film distribution. Since 2007, with a staff of approximately 30 people, Microcinema offers films, live events and alternative content to national digital cinemas and theatres around the world.

The challenge

Cinemas have been facing a number of problems related to the availability of new films, their distribution to remote areas and the wear of reels over time. In particular, small cinemas, that are mostly mono-screen, needed more flexible distribution methods than bigger auditoriums. To overcome these difficulties and ensure a consistent quality of films throughout time, the film industry had been looking for innovative solutions that would provide small and medium-sized cinemas with a flexible and affordable access to films and other cultural content. In addition, in the transition from film to digital, cinemas and auditoriums had a growing need for maintenance and assistance services.

The satellite solution

In 2007, with the support of the European Space Agency, Microcinema started using the Innovative Satellite Interactive Digital Entertainment (ISIDE) system. The company thus makes it possible for every cinema part of its network to access a catalogue of 300 HD films via a bidirectional satellite connection. Cinemas download films in real time, together with the requested certificates of use, paying only for the contents actually screened. Statistics on data usage and the number of tickets sold are stored in the database of the system and can be consulted on the reserved area of Microcinema's website. Moreover, the satellite solution makes it possible for such small cinemas to broadcast live events.

The result

Between 2009 and 2013, live event broadcasting in cinemas generated over three million in revenue reaching over 400 cinemas and 500,000 spectators all over Italy.

With more than 400 auditoriums connected to the satellite network, Microcinema is today a leading distributor of films and digital events. Cinemas can cut management costs and the limits dictated by traditional screening methods by making the programming of different types of content flexible, varied and adaptable. Furthermore, as opposed to reels, digital films have little environmental impact and preserve the same quality in time. Finally, cinemas are remotely assisted for maintenance and assistance services 24h/day, 365days/year thanks to the satellite and ADSL links.

"The satellite solution allows us to reach any auditorium in the world easily and efficiently, for content distribution (live and in replay) and for real-time maintenance and assistance services."

Silvana Molino, Microcinema

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E-LEARNING
EDUCATION

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THE CERBERUS GAMING PLATFORM: CROWDSOURCING OPERATIONAL MAPS

BlackShore created a crowdsourcing and e-learning platform using Earth observation. The platform is a playful learning tool and an effective way to produce maps collaboratively

European Space Imaging, WorldView2 © DortArt

Mapping Bantayan Island with Cerberus

The company

BlackShore is a start-up founded in the summer of 2007 by Hans van 't Woud and hosted by the ESA Business Incubation Centre in Noordwijk, The Netherlands. Blackshore develops creative communication and multimedia solutions based on animation, film 3D visualisation and computer graphics.

The challenge

To stay at the forefront of innovation, BlackShore decided to build an interactive platform combining e-learning, gaming and crowdsourcing. The company needed to create a playful and stimulating environment that would attract users and enable them to develop their skills while arousing their curiosity.

The satellite solution

BlackShore developed Cerberus, an online gaming platform using high resolution (50cm) satellite images. The game shows players how to identify and map pre-defined features such as obstructed roads, flooded or clear-cut areas. Working with satellite images to make useful operational maps for organisations

such as governments, urban planners or emergency services gives players a sense of purpose, in addition to being fun.

The result

Immediately after Typhoon Haiyan hit the island of Bantayan, in the Philippines, the company launched a serious game platform on Facebook. The game went viral and 1,200 players produced operational maps of the island in a record time. The maps were shared with relief support teams from Cordaid, a development organisation involved in disaster response. While enjoying the game in itself, people also got a sense of taking part in the relief efforts in the Philippines.

The first launch demonstrated the capability of the platform to provide operational maps in rush-mode and allowed BlackShore to develop new partnerships with agencies active in sectors such as the environment, education or crisis management. BlackShore will soon launch a game allowing players to discover the surface of Mars.
Thanks to Cerberus, BlackShore was awarded the 2012 Copernicus Masters competition for the most innovative idea on exploiting Earth observation data.

"Crowdsourced gaming is a new and very promising approach to attracting a large number of digital volunteers."

Marc van den Homberg, CORDAID

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LOOKING OVER THE SURGEON'S SHOULDER THANKS TO SATELLITE COMMUNICATION

©E:MC2

The E:MC2 Aesthetical Medical Centre uses satcom based-videoconferencing for live broadcasting of surgery as an innovative method to teach surgical techniques

The company

Dr Alexis Verpaele and Dr Patrick Tonnard, both internationally accredited surgeons and worldwide renowned for their achievements in the field of plastic surgery, have founded the E:MC2 Aesthetical Medical Centre in Ghent, Belgium. Both surgeons are also involved in providing treatment for patients in developing countries, as well as educational outreach, by organising courses, seminars and conferences in order to share their knowledge with peers.

The challenge

Since 1999, Dr Verpaele and Dr Tonnard have been organising conferences and seminars ("Coupure Seminars") on facial surgery techniques. The conferences, endorsed by the International Society of Aesthetic Plastic Surgery, address prestigious international faculties and an audience of surgeons with in-depth training in aesthetic surgery.

The main challenge was to perform live demonstrations of plastic surgery techniques that were accessible to a wide audience of surgeons, as a way to train them and to discuss these interventions in real time. However, conventional telecommunication connections were not reliable enough for real-time, high-definition, 3D broadcasts in remote locations.

The satellite solution

A satellite connection is used to enable the audience to follow surgery in real time and to be guided step by step through the procedures. The satcom connection ensures a much more reliable signal than a classic internet connection, allowing trainees to make the most of such experiences.

The result

Especially in surgery where image depth is important, the amount of additional information that 3D images offer is impressive. Using the 3D satellite broadcasting services, it became possible to bring a live experience from the private surgical facility of E:MC2 to a remote audience. Dr Alexis Verpaele and Dr Patrick Tonnard are satisfied with the system and are planning to use it consistently in future trainings and conferences.

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Coupure Centrum
voor Plastische Chirurgie

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©Media Centre

THE CITY OF HELSINKI PROMOTES E-LEARNING IN PRIMARY SCHOOLS THANKS TO LOCATION-BASED GAMES

Five primary schools in Helsinki explore new and playful learning methods by developing geo-located games for outdoor activities

The city

The Media Centre within the Education Department of the city of Helsinki is in charge of developing media education and e-learning by supporting teachers' ICT skills and media competences. The centre is also developing mobile technology projects with tablets and laptops, which include geoinformation.

The challenge

The Media Centre is always in search for innovative learning methods in order to advance teaching methods and standards in Helsinki schools. Between 2011 and 2015 the Media Centre is testing several solutions based on GPS technology for outdoor education for inquiry-based learning, which aims at implementing playful learning methods in primary schools.

The satellite solution

Action Track, a GPS-based learning game, was implemented at the beginning of 2014 in five primary schools in Helsinki. This solution, launched by the Finnish company TAZ, allows people without any special skills to create location-based activities, which can then be downloaded via a mobile application and played outside.

How does it work? Teachers use the ActionTrack web tool to select several locations on Google Maps, and upload multimedia material. It can be information about the place, interactive challenges, questions, or check-points. Pupils download this itinerary on their phones or tablets, and let themselves be guided in real time, thanks to the GPS system on their phones, by following an arrow, or pictures of things they must find and recognise along their route, or by using a compass showing on the screen. Once they get to a check-point, players can check in in real time by scanning a QR code indoors or by using GPS outdoors.

The result

Different types of projects were developed in each school. In the field of environmental education for instance, pupils can identify plants and animals during outdoor activities thanks to geolocated placemarks. In history, they discovered key facts on the Suomenlinna fortress, a UNESCO classified monument in Helsinki, by creating a mobile game based on geoinformation, which is now available to all visitors. Two projects were also implemented on the theme of "urban discovery". In the first one, pupils created a fictional story located in an empty area in Eastern Helsinki, which challenges users to find better ways to use the urban space, via a wide-scale geolocated role play. In the other, they developed a game enabling users to easily find essential services throughout the city, such as public transports.

Playful lessons are more motivating for students, bring variation to the school day, and encourage team work. Thanks to this new way of learning, the Media Centre is hoping to make teaching methods ever more interactive.

"Action Track enables teachers to create geolocated educational tasks and evaluate pupils. Location-based applications allow pupils to observe and annotate their environment on their own."

Juhani Kärki, Project Coordinator, Media Centre of Helsinki

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City of Helsinki

LA MOSCA: COME OUT AND PLAY! OUTDOOR CITY GAMES USING SATELLITE NAVIGATION

Outdoor games based on geolocation that friends or colleagues can play on mobile devices about the city

©La mosca

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The company

La mosca is a small Belgian company of eleven employees based in Ghent. Since October 2006, it provides location-based games in six European countries (Belgium, France, the Netherlands, Switzerland, Italy and Spain) to both individuals and companies. The games can be played among friends (The Target, Operation Freedy) or colleagues (Team Me Up, The Managers).

The challenge

Positioned on the outdoor games market, La mosca caters for private and professional groups. Different players have different objectives, from having fun together at a bachelor bash to improving relations among employees through team-building exercises. La mosca intended to develop a competitive and diverse offer of games for players to have fun in a team in the city, suitable for customers from six different countries.

The satellite solution

To enable people to discover cities, travel, learn, relax together or even train or do team-building outdoors, La mosca's games rely on satellite positioning and navigation. Outdoors, the spatial dimension of the game is essential, and GPS is indispensable to help people navigate, move and play better.

Players can book their preferred game online depending on group size, levels of action and discovery, expected team-building outcomes, location and duration. Currently, players must use mobile devices provided by La mosca to play, but smartphone versions will soon be available for iPhone and Android, for groups of up to 16 players.

The result

Around 50,000 people play La mosca's games every year – 300,000 played since the company started. As a proof of success, the small company is about to launch its games in the United Kingdom and in Germany.

Its high quality and fun games make La mosca competitive on the gaming market and appealing for small groups of individuals and big companies alike. For instance, Procter and Gamble uses to book the "The Managers" game for its team-building exercises.

"We are all competitors, and "The Target" was a beautiful challenge. Must try it!"
Team building players

LA MOSCA
COME OUT AND PLAY!

CONTACT

BH BY KINOMAP: SIMULATING OUTDOOR TRAINING CONDITIONS TO ENHANCE INDOOR TRAINING

Geolocated videos on a training application for fitness machines to replicate outdoor conditions on the machine motor, for an immersive training experience

©BHfitness

The company

BH fitness is the home fitness brand of BH Group, a Spanish company based in Eibar and employing 200 people in Europe. BH started business in 1909 manufacturing road bikes and has been creating fitness machines since the 1970's.

The challenge

To stay competitive in a highly innovative and developing sector, BH continuously improves the specifications and ergonomics of its fitness machines.
In 2001 BH developed the i.concept – an application that adapts to emerging sport habits and relies on new technology trends, especially new uses of mobile phones and tablets. In particular, the company identified an opportunity in making it more attractive and fun for city users to train indoors.

The satellite solution

BH Fitness worked with Kinomap, an online platform for sports and outdoors enthusiasts, to develop a dedicated immersive fitness application integrating geolocated videos that can be displayed on mobile devices on the i.Concept fitness machines.
The GPS data, recorded while shooting the videos, provides details on the outdoor environment, such as distance, speed, type of terrain, slopes etc. in real time. These same physical conditions are converted automatically in resistance and inclination effects by the i.concept fitness machine engine. Users can thus choose their video (it can be riding, racing, skiing or cycling) and re-enact the training conditions shown, on their training machine. They can also follow their progress in real time on the map of the outdoor circuit. Users can even take on challenges such as biking through the Alpes d'Huez, running the New York Marathon or racing on the Great Wall of China.

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The result

With its i.Concept, BH Fitness successfully integrated new technologies and trends reflected in their customers' lifestyles and habits. The development of this innovative application was possible thanks to a win-win partnership with Kinomap, through the joint-venture BH by Kinomap.

The immersive videos for the training application were officially launched in January 2014 and are already available in five languages. The company expects 10,000 downloads per month by the end of 2014.

"Bring the outdoors inside! Our customers enjoy geolocated outdoor videos indoors with a real training experience."

Fernando González de Zárate, Marketing Manager, BH fitness

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©RMN

GRAND PALAIS: REVIVING HISTORY BY PLAYING WITH SATELLITE NAVIGATION

An interactive game enables players to rediscover the origins of the Parisian neighbourhood created during the Universal Expo of 1900

The Grand Palais

The Grand Palais is a historic monument built on the occasion of the Paris Universal Expo in 1900, and dedicated to "the glory of French art". Some 40 contemporary artists worked at the statues, monumental groups and friezes embellishing the facades in a blend of styles characterising the Beaux-Arts architecture of the time.

Managed since 2010 by the Réunion des Musées Nationaux - Grand Palais (RMN-GP), the building receives two million visitors and hosts some 40 events every year. These include salons, exhibitions and happenings ranging from arts to fashion, photography, music, dance, cinema, theatre and sports.

The challenge

During the reorganisation of the buildings' archives in 2012 and 2013, a large number of pictures and iconographic materials were rediscovered and classified, documenting the construction of the Grand Palais and the years following the transformation of the area. In accordance with the pedagogic mission of the Grand Palais, its management started looking for innovative ways to disseminate such materials, while attracting a diverse audience to arts and history.

The satellite solution

Urban Gaming created an interactive game allowing players to discover the area surrounding the Grand Palais, including the adjacent Petit Palais, the Gare

des Invalides, the Pont Alexandre III and the Place de la Concorde. The game is based on a map on which different points of interest are geolocated and associated with quizzes, pictures and videos. Participants, divided in opposite teams of four or five, are given a tablet with a built-in GPS and are asked to find the points of interest in order to complete the highest number of challenges in a given time.

Trials are meant to drive attention to architectural details that would normally pass unnoticed and which reveal the origins of the area. For example, while on the Pont Alexandre III, participants are asked to find a sign of the floods of 1910 on the quay, or are shown an image of a woman at the beginning of the 20th Century and are challenged to take a picture of the same scene as it looks today. The game is especially designed to meet the needs of a heterogeneous audience (questions for children are included) and to foster interaction among teammates of different ages and backgrounds.

The result

The game has been launched in its French version during the "European Heritage Days" in September 2013. 60 participants including families, tourists, Parisians, young and the young at heart had the opportunity to participate. The enthusiastic comments of the participants convinced the management to offer the game again during the 2014 edition of European Heritage Days.

"The interactive game plunges visitors into the past, bringing back to life the fun and curiosities of history."

Caroline Dubail-Letailleur, Cultural Project Manager, Réunion des musées nationaux - Grand Palais

ARTS AND CULTURE

ALARIO FOUNDATION: SATELLITE TECHNOLOGIES AT THE SERVICE OF ARCHAEOLOGY AND EDUCATION

Satellite images and navigation contribute to building a virtual museum of ancient Greek and Roman sites in Southern Italy

©Alario Foundation

Biometric reconstruction of the skeletal remains of the Murecine Maid

The Foundation

The Alario Foundation aims at promoting the natural, cultural and historical heritage of Cilento, in the South of Campania, Italy. A UNESCO World Heritage Site, the area hosts the Cilento and Vallo di Diano National Park and important Greek and Roman sites, including the ruins of Paestum and of the city of Velia.

The challenge

To increase the number of visitors during the winter months, the Foundation wished to offer a full immersion experience in the places and the customs of the ancient civilizations of the region. However, it faced the problem of how to revive buildings and lifestyles past. How to enable contemporaries to visit cities of which only ruins remain? These questions led the Foundation to turn to other Italian cultural and research centres in search for solutions.

The satellite solution

In 2008, the Foundation inaugurated the permanent exhibition "Visione del Tempo – Tempo di Visione".
One of the four exhibition rooms hosts a 3D reconstruction of the Greek site of Locri on Google Earth images, developed by the University of Calabria. Through an avatar, visitors can explore a 3D virtual model of the site and admire the monuments as they appeared in the 4th Century BC. In addition, a smartphone application is available to visit the site on the spot: using satnav to pinpoint one's position, the user can visualise the ancient landscape and access explanatory texts, videos and images.

Another room hosts a 3D reconstruction of the ancient Roman road Via Flaminia and the Domus of Livia. The sites have been reconstructed by the Institute for Technologies Applied to Cultural Heritage (CNR-ITABC) through an Open Source 3D webGIS application, using satellite and aerial images to map the buildings and the landscape and satnav to calculate the distance in between. Visitors can move their chosen avatar between contemporary images and 3D reconstructions of the site in the 1st Century BC, and can also interact with objects and with the ancient inhabitants of the area.

The result

The exhibition, unique in the Italian context, attracts approximately 2,000 visitors per year. The use of avatars, augmented reality and mobile devices makes the exhibition appealing even for the youngest. Indeed, the project on Ancient Rome has received the Italian e-Content Award 2008 for e-Learning and Culture.
The virtual museum shows what is possible when applying modern technologies to education and archaeology. Not only does it allow visitors to experience an authentic immersion into the past, but it also helps preserve archaeological evidence that would otherwise disappear for future generations.

"Innovative technologies applied to the study of the past are an extraordinary trigger to stimulate curiosity towards history and local traditions."

Giuliana Raimondo, Fondazione Alario per Elea – Velia ONLUS

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Traverse Me
warwickcampus
map for pedestrians

©GPS drawing

JEREMY WOOD USES GPS TO CREATE ARTISTIC WORKS

Jeremy Wood, a British artist, explores new approaches to travelling and navigating by creating drawings relying on satellite navigation tracks

The company

Jeremy Wood is an artist and map-maker whose work is an expression of the poetry and politics of space. He created the one-man company GPS Drawing in 2000, based in Oxford, UK.
Jeremy Wood exhibits internationally and gives GPS drawing and mapping lectures and workshops in schools, universities, museums and galleries.

The challenge

Jeremy Wood wanted to investigate the expressive qualities of digitally tracing his daily movements to create an original approach to the reading and writing of places. One of his artistic challenges is to negotiate the complexity of public spaces on which he draws, and to bind arts and sciences together by using both drawing and technology to produce a personal cartography.

The satellite solution

Jeremy Wood started to explore the potential of satellite navigation for digital mark-making on water, over land and in the air. Equipped with a GPS receiver, the artist – sometimes together with people attending his workshops – explores open spaces, cities, parks, roads or footpaths. The geographical coordinates of the artist are recorded over the period of the exercise. The points are then joined along a line of movement, creating a dot-to-dot drawing. The outcomes depend on the available space and time as the more notable results usually appear after a bit of experimentation.

The result

Drawing with satellite navigation challenges our perceptions of scale and orientation, by allowing people to travel as a geodetic pencil. It engages the artist in an act of map-making by physically exploring his environment.

By conducting workshops at schools, universities and museums, Jeremy Wood gets the opportunity to engage with unfamiliar places where he would not have gone otherwise. Sharing his work and involving others in drawing and mapping using satellite navigation to produce unique artwork encourages him to keep moving.
Jeremy Wood's work is exhibited internationally and is part of the permanent collection of the London Transport Museum, the Victoria & Albert Museum, and the University of the Arts in London.

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"GPS drawing engages a range of creative applications and challenges perceptions of scale by travelling as a geodetic pencil."

Jeremy Wood, Founder, GPS drawing

FLUID FORMS USES SATELLITE IMAGERY TO MANUFACTURE UNIQUE ARTWORK BASED ON LANDSCAPE AND LOCATION

An Austrian SME uses satellite imagery and geolocation data to enable customers to generate 3D models of their favourite location and integrate them in the design of customised artwork

© Fluid Forms

The company

Fluid Forms was founded by Hannes Walter and Stephen Williams in 2005. At the time, they started from a first prototype of a digitally-produced object – a vase – developed in the Science Park in Graz (Austria). In 2008, the company moved offices to a studio in the creative district of Lend. Today, the two-man company sells many variations of personalised, digitally-produced objects online, worldwide, with 80% of sales going to the US market.

The challenge

Since the beginnings of the company, its founders realised that the "design-your-own" movement on the Internet, creative-coding, as well as digital production methods such as 3D printers, would dramatically change the way goods are designed, produced and made available to the market. The challenge they set for themselves was to develop new product design tools to enable customers to create more functional and more personal goods.

The satellite solution

Thanks to Open Street Map API, Google Maps, the topographic data made available by NASA, and a software system developed by Fluid Forms, customers can simply enter the name of their desired location and choose the exact detail of the landscape they want to be featured on their object. Within seconds, the distinctive landscape turns into a 3D preview of the object (jewellery, vases, lampshades, etc). The flowing appearance of the landscape reliefs is finally worked out in the desired material (gold, silver, wood, etc.). For customers to be able to compare the generated object with the real landscape, the order is delivered with a printed satellite image of the selected area. Customers can also personalise their objects (clocks, earrings, necklaces) with the street patterns of their favourite cities.

The result

Both the free satellite images used and the Open Street Map data powering this software make it possible for Fluid Forms to constantly launch and export new product design tools and variants of their objects in many different materials. Producing on demand allows the company to not have any over production and extra stocks to handle, thus avoiding extra costs. The market success of these products, especially in the US, has enabled Fluid Forms to now open physical shops to complement their online offer.

"We have learnt how to do a lot with what is already out there freely available, and this has greatly helped us achieve commercial success in our country and abroad."

Hannes Walter, Owner, Fluid Forms

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FLUID FORMS
YOUR UNIQUE DESIGNS

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ARROMANCHES 1944: SEE WHAT CANNOT BE SEEN ANYMORE THANKS TO AUGMENTED REALITY AND GEOLOCATION

©Biplan Agency

A mobile app combining GPS and augmented reality enables a local authority to promote tourism by reconstructing the region's fraught past while preserving historical monuments

The local authority

The Communauté de Communes Bessin, Seulles et Mer is located in the French county of Calvados. It encompasses the D-Day landing beaches of June 1944, and especially the artificial harbour of Arromanches, built by the Allies to enable the supply of troops landed in Normandy. Tourism around these historical sites in particular is a major resource for the Communauté. Indeed, the population varies from 9,500 inhabitants in the winter to 35,000 during summer time.

The challenge

As early as 2011, a study on the reorganisation of the touristic offer of the Communauté was launched in partnership with the local and regional authorities, as well as local museums, especially on the question of the integration of new technologies to promote it.
Indeed, 2014 is the year of the 70th anniversary of D-Day landings in Normandy. This milestone is seen as the last significant celebration of June 6, 1944, because surviving veterans are ever fewer. Moreover, the historical monuments deteriorate with time and weather conditions. It is especially the case of the Mulberry Harbour of Arromanches, damaged by waves and storms.
The Communauté needed to both continue to attract tourists' interest after 2014 and to preserve its historical heritage.

The satellite solution

ICTs were quickly considered as offering viable solutions to support these objectives. Moreover, in 2012, the French Ministry for Culture and Communication launched the call for projects "Innovative digital services in culture". This helped finance the development of Arromanches 1944, a mobile application that combines augmented reality, 3D and GPS to promote the sites. The project was submitted by the Communauté and TES, the local IT cluster.
The app is based on a geolocated itinerary connecting Juno Beach to Arromanches harbour, via Gold Beach. On their smartphone or tablet, tourists can witness under their eyes a reconstitution of the D-Day landing right where it took place, depending on their location. Films, sounds and visual effects are combined to revive the history of the region as well as the Arromanches harbour like it used to be at the time.

The result

Arromanches 1944 was launched at the end of 2013 and has already won the United Nations World Tourism Organisation Ulysses Prize for Innovation in Enterprises, rewarding Biplan, the agency which developed the app. An important communication campaign is planned this year for the D-Day 70th anniversary celebrations. Five million visitors are expected in the whole Normandy region.

"Arromanches 1944 is an innovative tool enabling tourists to discover and preserve the historical heritage of D-Day landings in Normandy."

Jean-Louis De Mourgues, President, Communauté de Communes Bessin Seulles et Mer

GEOTRAVEL: A ONE-PERSON START-UP USES 3D AUGMENTED REALITY AND SATELLITE NAVIGATION FOR A SUCCESSFUL TRAVEL APP

An Italian developer set up a promising new business by building a successful tourism application that allows users to discover cities intuitively, using 3D augmented reality and satnav

©AugmentedWorks

The entrepreneur

Davide Vincenzi is a 31-year-old Italian entrepreneur, who has been living and working in Ticino, Switzerland since 2011. On the side of his regular project manager and developer job, in 2010 he started to create mobile applications to fill in a market gap.

The challenge

Davide has always been interested in augmented reality technologies and understood that integrating them in mobile apps would potentially give them a competitive edge, especially in the tourism sector. He identified a gap on the market in terms of travel apps using augmented reality and able to guide users to points of interest in a city, in order to enhance the travelling experience. Not finding this app on the market, he decided to create it.

The satellite solution

Davide created GeoTravel, a 3D augmented reality application that enables users to create their own travel guides, anywhere in the world. Users who download the application can choose their points of interest, restaurants and other attractions among the 25,000 destinations and three million points of interest associated with Wikipedia articles.

Once on the spot, users point their mobile phones in the direction of the selected points of interest to see their name, location, distance, or corresponding Wikipedia entry. Thanks to the 3D augmented reality the users sees a layer of graphic information overimposed on their surroundings.

The result

The app was downloaded more than 100,000 times. It was so successful that Davide could charge for downloads. The success of GeoTravel enabled him to pursue his passion for creating innovative, fun and useful apps using 3D augmented reality. He founded AugmentedWorks, a brand under which he sells his other apps, such as the very successful "Find your car", which has already reached one million users.

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"A travel guide on steroids. Not only helps you get around more conveniently in a foreign city, it also takes advantage of AR technology to help you get to your points of interest faster."

Davide Vicenzi, Founder, Augmented Works

©Alive Surf School

ALIVE SURF SCHOOL EXPANDS ITS VISIBILITY VIA AN APP BASED ON GEOLOCATION AND AUGMENTED REALITY

A win-win partnership enables members of the Northern Ireland Activity Breaks UK cluster group to expand their marketing activities, while a small digital company benefits from new business references

The company

Alive Surf School owned by Ricky Martin since 2009 is located in Portrush, a small touristic coastal city in Northern Ireland. The school teaches surf to almost 5,000 people every year, mostly during summer time. One year ago, Mr. Martin created the Activity Breaks UK cluster group, a network organisation which gathers various tourism and leisure facilities from Portrush to join efforts on marketing and promotion activities.

The challenge

Alive Surf School is a seasonal business. Mr. Martin wished to expand and grow its business also in low season, but the small company did not have enough human resources and budget to develop marketing campaigns on its own. Through the Activity Break UK cluster group, Alive Surf School mobilised other tourism facilities (such as bars, hotels and snorkelling facilities), to provide information and promote each other. The challenge was thus to switch collaborative and promotional activities from an informal to a formal approach.

The satellite solution

One year ago, Mr. Martin created a partnership with Awakin, a Northern Irish digital SME, which developed

Go Explore NI, an informative, fun and free guide of Northern Ireland, to allow the members of Activity Breaks UK cluster group to be featured on this app. The mobile application integrates useful tourist information and contacts, as well as offers, deals, QR coupons and event information. After downloading the application, users can select and be easily guided to their points of interest, thanks to the navigation system embedded in their smartphones.

In addition, users of Go Explore NI can download or stream video tours of key sites of the Northern Irish heritage – such as Causeway, the Derry/Londonderry Walls or the Titanic construction sites – some of which integrate augmented reality.

The result

The partnership allowed Alive Surf School as well as all members of the Activity Breaks UK cluster group to leverage Go Explore NI as a new, cheap and effective communication and marketing tool, and to attract new visitors, including in the low season. By providing useful tourist information on a unique platform, the Activity Breaks UK cluster group is able to improve visitors' experience and make the whole area more attractive.

Finally, the small digital company which created the service benefits from featuring additional points of interest, contributing to the success of the app, which has already been downloaded 7,000 times.

"Alive Surf School needed a new way to connect with potential customers via a digital medium. Partnering with Awakin allowed Alive to use GPS technology and build a new client base through a simple, easy-to-use app."
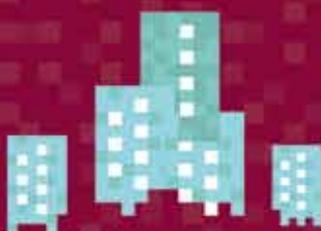
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AGENCY9 : DYNAMIC URBAN PLANNING WITH IMAGERY, GEOGRAPHICAL INFORMATION, AND 3D MODELLING

The Swedish SME Agency9 helps local and regional authorities improve urban planning thanks to an innovative solution based on gaming and 3D visualisation

© Agency9

The company

Agency9 AB is a Swedish SME founded in 2003 and specialised in 3D web-based solutions. The company holds patents for several technologies it developed. Its products were originally designed for the gaming industry. The company evolved towards urban planning solutions in 2009, when it started integrating GIS and spatial applications and 3D components to develop its main product, CityPlanner.

The challenge

Agency9 identified a market opportunity in adapting the 3D modeling technologies it had used for the gaming sector to the needs of land planners and local and regional authorities.

First, 3D spatial information is usually difficult for users to share and manipulate because of the technical limitations of computers and the need for specific software.

Moreover, urban planning projects are complex, with many land uses (such as transport, construction or road management) and stakeholders to consider, for whom communication is key in the success of the planning process. The target clients (planners, local and regional authorities) also wished to reduce the time, effort and red tape necessary for planning and building permits.

Agency9 was in a good position to leverage its gaming industry experience and to develop a solution both user-friendly and technically innovative.

The satellite solution

CityPlanner is a web-based application stored on the cloud that combines traditional geographic information, satellite and/or aerial imagery to generate and display 3D city models of astounding visual accuracy. The 3D models that rely on the gaming expertise of Agency9 were traditionally only seen in high-end video games. Today, planners can easily create, share and publish projects and spatial information from their regular web browser, without needing to install any additional software.

The result

Not only does CityPlanner help urban planners communicate better by benefiting from a very interactive tool, but it also allows them to engage citizens, get them interested in the planning process, and prepare them to the changes to come. Citizens can pin their comments and proposals directly on the map just by logging into their personal account. CityPlanner can also be used for a variety of planning needs, such as flooding forecasts for coastal cities, or studies on energy consumption of buildings for reuse of CO_2 emissions.

Since the creation of CityPlanner, the number of clients of the agency has rapidly grown. Agency9 now works with around 20 municipalities in Europe, mostly in Scandinavia but also including cities such as Hamburg, Berlin or Vienna. The agency also has resellers in Asia.

"Internet-based 3D visualisation is important to reach out to team members, stakeholders and citizens. Agency9 is committed to provide easy-to-use tools to support internal work and dialogue with the public."

Håkan Engman, CEO, Agency9

AGENCY9

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© CitéGreen

CITÉGREEN ENGAGES CITIZENS TO PLAY AND REDUCE THEIR CARBON FOOTPRINT

CitéGreen integrates navigation into a game that rewards environmentally-friendly gestures, like cycling, into points which players can convert into gifts offered by partners

The company

CitéGreen is a French start-up created in June 2011 by three young entrepreneurs. Located in Paris, CitéGreen is a communication SME using social media and the web to help companies, conscious consumers and public authorities reduce their carbon footprint in a playful way.

The challenge

CitéGreen developed an eponymous game which rewards citizens' environmentally friendly behaviour, such as recycling waste, saving energy or using shared or personal bikes. Players win points which they can redeem as gifts and vouchers offered by more than 60 partner companies (e.g food, fashion, leisure and cosmetics companies).

The company offers its game to French cities (Paris, Sèvres, Suresnes) wishing to attain sustainable development goals through playful and innovative methods.

In the case of cycling, CitéGreen needed a solution to precisely calculate the distance cycled by players and convert it into points. The cycling game, targeting both

people owning a bicycle or using public bikes, enabled the company to find customers everywhere in France.

The satellite solution

To evaluate the distance travelled by a cyclist, CitéGreen partnered with Moves, a tracking mobile application relying on satnav. Players download the app on their smartphone, thus enabling CitéGreen to calculate the points won. For instance, for each three kilometres cycled, players win five points. In addition, the game sets up challenges promoting specific behaviour that can win players additional points (such as cycling more than eight hours per week or cycling every week in winter time).

The result

CitéGreen has already reached 45,000 players and is currently building partnerships with other local authorities who also consider the game as an appealing tool to target specific sustainable development issues while providing a useful public service. The game has already reached 10% of players elsewhere in France, a figure which is expected to grow in the coming years.

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"CiteGreen was an excellent and inexpensive tool for Welcome Bio to get known by the public."

George Fisher, Welcome Bio, CitéGreen sponsor

BREMEN: PROMOTING BIKING FOR A SMARTER CITY THANKS TO A GEOLOCATED GUIDE

The German municipality offers the free use of a navigation-based cycling app for smartphones to locals and tourists to promote urban biking

© Jan Rathke

The city

Bremen is a German Hanseatic city of almost 550,000 inhabitants. Thanks to a flat landscape and its 700 km of cycle paths, Bremen has the highest bicycle traffic in Germany, making up to 25% of the overall daily city traffic.

Economic Development Bremen (Wirtschaftsförderung Bremen GmbH) is responsible, among other missions, for promoting and developing the city's attractiveness and quality of life on behalf of the municipality.

The challenge

Bremen needed a new and more advanced marketing tool, different from printed maps and brochures, to promote biking in Bremen to locals and tourists.

In 2012, the Senate of the Federal State of Bremen mandated Economic Development Bremen to promote both tourism and smart city mobility through the development of biking facilities and opportunities, in line with Bremen's strategy of being a "bike city".

The satellite solution

In June 2013, Bremen launched the project "Bremen and Bremerhaven, bike it!" with the financial support of the European Development Fund for touristic development.

Bremen City partnered with BikeCityGuide, an Austrian start-up which develops navigation software especially designed for cyclists. Bremen bought a license for two years, during which locals and tourists can download the application on their mobile device for free.

Thanks to the geolocation system the app relies on, users can easily navigate through the city and discover touristic points of interest or attractive bike routes. The application also integrates a vocal guide and is available in various languages.

In addition, Bremen bought a few thousands "Finn", a smartphone holder designed for bikes, and distributes them in a Bremen-branded packaging, supporting promotion and marketing activities.

The result

The Bremen bike city guide was launched in March 2014 and presented at the world's biggest tourism fair, ITB Berlin. In April 2014, Bremen organised an official press conference, inviting journalists and media representatives to test the application. Within 24 hours, the app was downloaded 2,200 times and received very positive feedback.

Easy to handle, free of charge and especially designed for cyclists, the Bremen city guide is a useful tool to promote city attractiveness and address both tourism and mobility objectives.

"The app is excellent at helping locals and tourists easily find the best cycling routes and discover the most interesting places in Bremen. It helps promote Bremen as a bike city with a high quality of life."

Klaus-Peter Land, Managing director ADFC Bremen, (German Cyclists' Federation, Bremen)

© luna

LONDON: AIRTEXT, A PUBLIC HEALTH ADVICE PROGRAMME

London offers its citizens a service based on satellite information which sends early pollution alerts and health advice for people vulnerable to air pollution, and to other environmental hazards

The organisation

AirTEXT is a consortium of the 33 local authorities that make up Greater London in partnership with the regional and national government – the Greater London Authority, the Environment Agency and Public Health England (formerly the UK's Health Protection Agency).

The challenge

London is often affected by peaks in air pollution. While air pollution and health advice was widely available, it was not actively disseminated. The consortium wanted to become proactive in informing vulnerable people about air quality, allowing them to prevent health issues and self-manage symptoms. The Consortium aimed at improving patients' quality of life and address health inequalities, while reducing National Health Service costs.

The satellite solution

AirTEXT is an air quality information service based on satellite data, available to people vulnerable to air pollution who subscribe to it. Automated alerts are triggered on days of elevated air pollution and sent daily to subscribers via text, voice message, or email. The service was launched across London in 2007 and is available on Twitter and social media via a smartphone application.

Alerts inform subscribers of the air pollution levels expected (moderate/high/very high) with alerts for UV index, pollen and temperature. A description of the

likely symptoms and advice on how to handle them is also provided. The range of new environmental alerts for UV, pollen and temperature has been of particular interest to healthcare providers. Cold weather alerts have been trialled in Islington (North London) in 2012/13 . Discussions are now underway with healthcare and emergency planners on the wider use of cold alerts on London and in developing heat-wave alerts too.

The project has been implemented by the airTEXT consortium initially under the ESA PROMOTE programme, then as part of the 7th framework EU project PASODOBLE, and more recently within the INTERREG IVB project JOAQUIN.

The result

AirTEXT research by the University of Brighton illustrated that 68 % of those with a medical condition would alter their behaviour in response to receiving an airTEXT alert message. Increased preparedness was overall the most common response with actions including remembering to keep inhalers nearby (27%) and taking an extra dose of medication to prevent symptoms (14%). Avoiding exposure was the second and third most popular answer including staying indoors (19%) and reducing strenuous exercise (15%).

Finally 87.4% of participants stated that the airTEXT service had raised their awareness of air quality issues.

"A useful additional tool in managing what can be a distressing 'invisible' chronic illness."

A citizen using airTEXT

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MARKETING

©Skeyemap

SKEYEMAP DEVELOPS NEW MARKETING OPPORTUNITIES THANKS TO AN INTERACTIVE GEO-PLATFORM

A Slovak SME integrates 3D models of buildings and panoramas within interactive geo-platforms using satellite images, to provide virtual reality-based marketing services

The company

Skeyemap is a three-year-old small company located in Banska Bystrica, Slovakia. The SME initially developed 3D models of buildings and panoramas to provide virtual reality marketing services to local authorities and tourism or leisure facilities. In 2012, the company started creating interactive visualisation solutions integrated in geographic environments.

The challenge

Skeyemap's clients need to be visible and provide the various types of customers and visitors they usually welcome with exhaustive information and accurate impressions of the location, surroundings and of the facilities, as their main selling points. The SME identified a market opportunity in providing its clients with the possibility to gather all the information needed by visitors (such as buildings, panoramas, landscapes, available services, etc.), — usually scattered among various sources — within a single interactive online geo-platform.

The satellite solution

Skeyemap uses Google Earth or Google Maps, combined with other open geographic data, to create an interactive interface based on tri-dimensional models of a given area. A dedicated website is created for each modelled area. In a very intuitive way, users visualise the area, as if they were there, target the objects they are interested in and zoom on them.

For example, one can virtually visit the Geopark of Banska Bystrica or the lake of Strba, in Slovakia. The level of precision enables users to experience a very realistic and accurate tour of the areas, with the exact point of view they would have from a given spot.

The result

By combining virtual reality and satellite data on a web platform, Skeyemap is able to provide a competitive edge to its clients. The SME was the first and unique company to provide such digital marketing services in Slovakia. Originally named 3Dmodel, the company recently expanded its client portfolio and capitalised on the success of the product to adapt its commercial image and change its name.

"Thanks to satellite information Skeyemap expanded its activities and became highly competitive on the marketing services market."

Jaroslav Piroh, Owner, Skeyemap

Skeyemap

©Raiffeisen Bank

RAIFFEISEN CLUB: DEVELOPING CUSTOMER LOYALTY WITH A SATNAV-BASED MARKETING APPLICATION

Evolaris supports Raiffeisen, an Austrian Bank, by providing it with an innovative way to build customer loyalty through location-based deals, rewards and other perks

The company

Evolaris is Austria's leading competence centre for mobile innovation based in Graz. It was set up in 2000 as a network of experts in different areas of competence, aiming to bridge the gap between the results of research and the economy. The network focuses on the conception and development of applications for the web and mobile devices as well as the evaluation of business models for an economically useful exploitation of mobile technologies.

The challenge

Among its other activities, the company identified an opportunity in the recent changes in how brands communicate with customers to sell their goods. Customer loyalty is the key to success in retail and the phone is becoming the preferred connecting tool between the points of sale and the advertising channels. In working for Raiffeisen Bank, and in particular with its Raiffeisen Club – a loyalty scheme for the young target group of the bank, evolaris' challenge was to devise a mobile solution to support customer loyalty though multiple channels schemes.

The satellite solution

Evolaris developed a mobile loyalty platform that integrates multiple channels (such as SMS, websites, social media, and apps) to provide the Bank with an integrated digital communication solution with the members of the Raiffeisen Club. In particular, the mobile phone app relies on the satnav embedded in smartphones to offer discounts, tickets to football games, concerts and other events, to members of the club, depending on where they are, through push notifications. Based on the distance to the customer's location, the app lists the events available and indicates the quickest way to get to them.

The result

The app created for Raiffeisen Bank is available for free since 2010. It is a successful tool for the bank to communicate to its younger audience and it continues to evolve. This innovative solution ensures that customers always have relevant information in their hands.

"Location-based services are the innovation we have been waiting for. We offer a number of location-dependent club activities. A simple and transparent overview is thus very important. This is where location-based services offer a tremendous added value."

**Herbert Horak,** Raiffeisen Club Austria

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EVOLARIS

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Eurisy has published "Satellites Going Local: regions, cities and SMEs share good practice" every year since 2011.

The objective of the publication is to encourage regions, cities and SMEs to make the most of European investments in space, by learning from their peers how to use satellite applications in many different sectors, and by following suit.

This publication, and its online counterpart – Eurisy's database of good practices – (www. eurisy.org/good-practices.php), is currently the only resource in Europe which systematically and regularly collects "satellite success stories" – examples of how satellite navigation, imagery and communication are used in practice, shared by the users themselves.

For previous editions, and more good practices in your country and field of interest, visit www.eurisy.org.
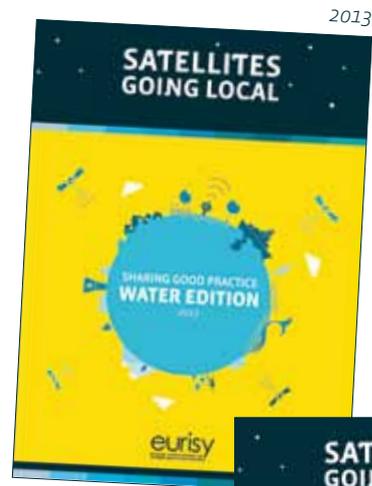
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2013

2012

2011

About Eurisy

Eurisy is a non-profit association of space agencies and government offices dealing with space affairs in Europe.

It is mandated and financed by its members to increase the access of society to the benefits of innovative satellite information and services.

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