
GALILEO
Masters

EUROPEAN
SATELLITE NAVIGATION
**COMPETITION**
**2007**

powered by T··Systems···

# THE RESULTS
## EUROPEAN SATELLITE NAVIGATION COMPETITION 2007

SYSTEMS
Ideas for better business
23–26 October 2007

ANWENDUNGSZENTRUM
Oberpfaffenhofen

Emilia Müller,
Bavarian Minister
of Economic Affairs,
Infrastructure,
Transport and
Technology

## Bavaria – Pioneering Satellite Navigation

Bavaria recognised satellite navigation as a trendsetting technology early and took a further step towards bundling the expertise, as well as the innovation and productivity potential with its cluster campaign `Allianz Bayern Innovativ´.
Bavaria is well positioned in the construction of satellites, as well as in the commercial usage of the potential of satellite navigation. The Free State of Bavaria has experience in the whole supply chain of chip development right up to telecommunications and local service providers, as well as a national and international network of research and application.
The Free State of Bavaria has taken a series of steps towards the commercial usage of satellite navigation. The development of innovative products and services again underlines the expertise in this area, in doing so it also indicates a particular chance for all SMEs.
Satellite navigation is a global theme. Strong competencies and networks will help Bavaria in an international environment. As a result of this, the Free State began early with the construction of an application centre for satellite navigation (Anwendungszentrum GmbH Oberpfaffenhofen, AZO) in the immediate neighbourhood of the German Aerospace Center (DLR) in Oberpfaffenhofen.
For four years, the international ideas competition, `European Satellite Navigation Competition´ (ESNC) has taken place under the direction of the AZO, and is held annually in partnership with 11 European high-tech regions and leading research institutes (ESA, DLR) as well as industrial partners (T-Systems, DHL). This network of regions and international experts vividly illustrates just how good Bavaria has positioned itself in this environment, and the leading role that Bavaria has acquired as a result. 150 ideas, evaluated by more than 70 experts Europe-wide, indicate the huge potential and the high level of competence of satellite navigation and its uses.

I congratulate all of the winners of this year's competition and wish them all the best and good luck with the implementation of their ideas!

Emilia Müller

Emilia Müller
Bavarian Minister of Economic Affairs, Infrastructure, Transport and Technology


Emilia Müller with the GALILEO Master Zaharia Dragos and Thorsten Rudolph

# EUROPEAN SATELLITE NAVIGATION **COMPETITION 2007**

powered by T · · Systems · · ·

Thorsten Rudolph,
Managing Director

Ulrike Daniels,
Project Management

Christian Stammel,
Business Development

## Intro

Let's admit it; we are a little bit proud: In its fourth year the European Satellite Navigation Competition has firmly established itself in the European innovation landscape. From our point of view the growing significance of this contest of ideas and visions is linked to three trends.

First of all, the number of entries presented again increased strongly. With altogether 250 registered participants the response was at its highest ever level.

Secondly the number of participating regions also showed pleasing growth. The competitive platform now focuses on the activities of currently eleven European high-tech regions. Altogether the engaged innovation clusters therewith represent around 600 expanding companies from the satellite navigation industry. The fact that in the year to come Queensland in Australia and Taiwan will join as new members underlines the status of this unique worldwide competence network of satellite navigation.

Furthermore, the third new introduction of this year's proposal round speaks for the increasing importance of the still young competition. Alongside the top prize of being the GALILEO Master, sponsor partners from industry and research have, for the first time, offered three thematically related special prizes. With T-Systems as the main sponsor and prize donator, the competition has gained one of the largest European suppliers of information and communication technologies. In addition, a big thank you is also due to the DHL Innovation Center of the Deutsche Post World Net and the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt), who have sponsored two other special topic prizes.

The bandwidth of the proposals received, as well as the winning ideas of the victors and, last but not least, the engagement of the sponsors all stand for a fundamental change in perception, which the European Satellite Navigation Competition also wants to promote to the best of its abilities in the future: Satellite navigation has long outgrown its former niche role. As a basic cross-sectional technology with an almost endless spectrum of imaginable applications and interfaces, it is rapidly developing into one of the most important industry sectors of the 21st century. Based on the creative impulses and the food for thought from the European Satellite Navigation Competition, Europe has the best chances to conquer for itself this vital future market thanks to useful services, convincing applications and practical portable devices.

The ideas and potential are there. Now it is imperative for them to develop. Let's give growth a chance together!

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GALILEO
Masters

# ESNC 2007
# GALILEO MASTER :: NICE - SOPHIA ANTIPOLIS / FRANCE

The Winner:
## Mr. Zaharia Dragos

The Idea:
## Algorithm, Procedure and Device for the Protection of Financial Transactions

### DESCRIPTION

At the present time the quasi-totality of financial transactions are performed using encryption algorithms. The most used algorithms are RSA and AES. However, it is estimated that the power of attacks performed against these algorithms doubles every year, resulting in the degree of protection offered by the used algorithms consequently decreasing each year. To face up to this phenomenon, the present project is proposing a new encryption procedure. This procedure is a mixture of already used encryption algorithms, time stamped elements and data delivered by Galileo. Time stamped elements involved in the proposed procedure are small amounts of data appended to the transaction (or its hash), which contain a piece of time information, as described in the standard ISO/IEC 18014. In addition, the linking procedure described by ISO/IEC 18014 is also used. Following the proposed procedure, the time stamp link is not performed together with any other time stamps (delivered in a predetermined time window), but with data measured and delivered by Galileo.

The pieces of data measured and delivered by Galileo need to have some essential features. E.g. they need:

- to have random characteristics (in order to be unpredictable)
- to have high as possible alternative values
- to have an autocorrelation function with predetermined features

In order to access some of these data, a Galileo receiver will eventually be needed in all places from where/to which transactions are performed.

### INNOVATION

The innovation features of the proposed procedure are: the 100% algorithmic structure of the existing solutions is replaced with a mixture, where the encryption algorithm is only one part of the process. This makes the procedure more immune to attack. The present procedure introduces strong technological limits concerning the type and number of entities able to perform successful attacks against it.

### TARGET MARKET

Financial institutions, banks and companies where their activity requests a strong level of data protection, companies specialised in secure data transaction and government agencies.

### CUSTOMER BENEFIT

- Improved transaction security with equivalent hardware complexity
- No need to continuously increase the security budget

ANTEQ

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The region

## Nice - Sophia Antipolis

The Nice - Sophia Antipolis satellite navigation sector is comprised of a high number of multinational companies, SMEs, research labs and international institutes, whose activities range from implementing infrastructure to developing end-to-end applications. The Sophia Antipolis leading science and technology park is home to 1,300 companies and 30,000 employees from 68 different nations. Sophia Antipolis has developed strong information technologies expertise, in a wide range of sectors: telecommunications, microelectronics, optics, software engineering, Internet, earth observation and navigation. In Cannes, an important space activities has expanded continuously thanks to the presence of Thales Alenia Space, one of the world's leading names in the space industry.

**www.sophia-antipolis.net**

The regional organiser

## Team Côte d`Azur

Team Côte d'Azur is the confidential connection to the Côte d'Azur, serving as a personal partner to investors to ensure a smooth start in the region or to accompany their expansion.
Team Côte d'Azur is experienced in helping corporations evaluate the potential of the Côte d'Azur region and the Sophia Antipolis science and technology park for their business set-up and expansion.
Team Côte d'Azur provides investors with assistance related to:

- A precise evaluation of what the Côte d'Azur can offer with regards to your investment project,
- Free and confidential assistance in preparing your relocation file: feasibility study, identification and follow-up of financial subsidies that could be obtained,
- More detailed information on the firms involved in the information technologies sector on the Côte d'Azur.

For R&D investment in Europe, think Sophia Antipolis, a worldwide IT cluster, where business, academia and bright talent combine resources to pioneer breakthrough innovation.

**www.investincotedazur.com**

The regional partners

## The Alpes-Maritimes County Council
**www.cg06.fr**

## Nice Côte d'Azur Chamber of Commerce and Industry
**www.ccinice-cote-azur.com**

## La Fondation Sophia Antipolis
**www.sophia-antipolis.org**

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# ESNC 2007
# WINNER OF THE SPECIAL TOPIC PRIZE :: T-SYSTEMS

The Winners:
**Mrs. Dominique Clarac and Mr. Thierry Fargas**

The Idea:
**NodboxSafeRoad**

## DESCRIPTION

NodboxSafeRoad is a technological gateway between road, navigation cartography, and embedded worlds, bringing about a technological breakthrough in active embedded safety. NodboxSafeRoad provides risk predictions to drivers during the preliminary phase of non-danger, bringing about a dramatic improvement of road prevention and prediction systems. NodboxSafeRoad analyses the potential risks regarding specific driver behaviour with vehicle speed, rolling conditions, road features, existing dangers and weather conditions. With NodboxSafeRoad, road management centres are able to analyse and precisely localise road dangers and dangerous conditions to turn the dangers into risks. NodboxSafeRoad provides electronic modelling of highly non-linear and complex problematic, real time ←1ms calculations and predictions. The system takes into account the infinite number of configurations (road, vehicle, condition, driving) and the existing data with a progressive and pragmatic implementation. The system provides inter-compatibility, convergence, integration of each future technology, upgradeability and adaptation of warnings by using available data and its confidence level; The system integrates empirical knowledge and the combination of quantified elements with a qualitative expertise; NodboxSafeRoad goes beyond the limits of the traditional Data Mining approaches, which hardly include the singular structural incidents.

## INNOVATION

NodboxSafeRoad is an innovative solution providing road surface adherence and very precise 3D road geometry. The system provides real time identification and qualification of loss or disrepair of the positioning signal provided by the satellite navigation systems. NodboxSafeRoad screens out and discriminates signal origins that are produced by embedded sensors in vehicles.

## TARGET MARKET

- Road management centres
- Local and regional road authorities
- Road data navigation providers
- GPS & mobile equipment manufacturers and operators
- ADAS market
- Automotive manufacturers and equipment suppliers

## CUSTOMER BENEFIT

- Improvement of vehicle positioning on the road
- Localised and adaptive danger identification (on navigation cartographies) and rules turning those dangers into risks
- Determination of offered adherence for each segment of road
- Weather incidence integration and global grip prediction for each vehicle
- Real time qualification of driving and trajectory incidences on rolling limits regarding road and vehicle
- Prediction of limits for skid, rollover, braking, lane departure and incursion on opposite lane
- Detection and prediction of human errors and equipment failure

NODBOX

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T-Systems
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**Dr. Andreas Roth**
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T-Systems
## The Decision

**What were the decisive criteria that influenced the selection of your special topic prize winner?**

*Our goal for getting involved in the European Satellite Navigation Competition was to tap into its creative potential, so the winning idea's level of innovation was a very important factor. The NODBOX concept is currently a one-of-its-kind, and a patent has already been filed.*

**The risk prediction system is oriented toward road traffic – what potential do you see in this area?**

*Considering how road safety requirements are constantly increasing, the idea's marketability is excellent. A system this innovative gives automotive manufacturers and suppliers a real chance to set themselves apart from the competition.*

**To what extent can the idea be integrated into existing T-Systems activities?**

*The automotive branch is one of our focus markets; we already have access to the market and high-grade internal competencies in this area. T-Systems could run the back-end systems for the entire solution, for example.*

T-Systems
## About T-Systems

T-Systems delivers high-quality services combining information and communication technology (ICT). The company's broad expertise in both fields makes the business customer division of Deutsche Telekom a preferred partner for multinational corporations, small and medium-sized businesses and public institutions. Over 160,000 customers from every industry worldwide benefit from the company's special expertise in providing integrated ICT solutions from a single source. T-Systems is the only company to offer its own complete ICT portfolio and to combine IT and communication technology to produce new solutions. In 2006, 56,000 employees in over 20 countries generated sales of 12.6 billion euros.

**www.t-systems.com**

# ESNC 2007
# WINNER OF THE SPECIAL TOPIC PRIZE :: DHL Innovation Center

The Winner:
## Dr. Giuliano Visintini

The Idea:
## Mobile Parcel: a Web 2.0 Based Approach to Postal Services

### DESCRIPTION

The deregulation of the postal market in the EU already increases the competitive pressure on logistics companies, and this trend will last for the next few years. Our solution enables a new postal business model allowing new services and more competitive operations. The solution is intended as an online service that can interface with the existing infrastructure of the postal carrier. It is based on two main modules: a tracking platform and a virtual community.
User Tracking Platform: a web based application supporting different types of localisation technology, such as GPS, Galileo, GSM cellular localisation and potentially further near field methods based on WLAN, Bluetooth, Zigbee etc. Additionally, it manages the mobile communication over the supported mobile networks. It can be accessed via a web browser or via different APIs, such as SOAP, HTML, SMS etc. It is connected to the Virtual Community via an internal framework interface.
Virtual Community: a web based application that allows users to register and access the service. It manages the user rights, the level of interconnection between the users, their virtual identities and is capable of requesting their position via the Tracking Platform, as well as the distance to a defined set of other users.

### INNOVATION

Our solution wants to support a change in the established processes, by following two objectives:

- Actively involve the customer in the delivery process, make him part of the "community" and delegate part of the process to him.
- Allow not just static, permanent addresses, but also virtual, temporary addresses, identified by a "personal ZIP code", the PZIP. These can be taken from user entries on the web or by mobile positioning technology. The virtual addressing also enables a further range of services because it better preserves the user's privacy than the current physical address method.

### TARGET MARKET

The target markets are postal service companies and parcel and transport companies. We expect the most appropriate focus to be on the parcel and courier market. We estimate there to be around 1.6 million vehicles in Europe and with a conservative assumption of a 5% addressable share of the parcel service customers, i.e. 5% of 50 m users or 2.5 m customers. So the overall potential market in Europe over the next 5 years is around 4 million users. We assume a measurable business advantage of € 2 per user per month. The European market value is expected to reach about € 100 m per year by 2012.

### CUSTOMER BENEFIT

For the customers: The solution allows the customer to keep his personal status updated e.g. for address changes, holiday, travel. Also, community participants can profit from a bonus programme.
For the postal carrier: One objective is the reduction of undelivered returns by re-routing to a temporary address or localising the customer. The delivery cost can be reduced by the community, where members can volunteer to pick-up parcels for their trusted neighbours and 3rd parties can subcontract deliveries.

ubinam

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DHL
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**Dr. Keith Ulrich**
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**Christian Stammel**
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**Michael Lohmeier**
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DHL
## The Decision

**What convinced you the most about the mobile parcel service concept?**

*At the DHL Innovation Center, it's in our nature to focus on things that are new and innovative. The "Mobile Parcel" concept is exactly that, and it underscores the DHL's image as an early mover. The current market simply doesn't offer anything like it.*

**In which of the DHL's business areas could the idea be used?**

*That was another argument in favour of Mobile Parcel: It can be applied in a cross-divisional way to benefit our Mail, Express, and Logistics areas, for example.*

**How important is the idea of virtual communities to your company?**

*The notion of an online community for receiving shipments is part of a global mega-trend. It will help us pursue a brand-new vision of service in shipment delivery, one that facilitates more tailored, flexible customer service and increases customer retention.*

DHL
## About DHL Innovation Center

DHL INNOVATION CENTER

With the DHL Innovation Center in Troisdorf, near Cologne/Bonn, Deutsche Post World Net (DPWN) is preparing to meet the challenges awaiting the world's leading logistics company. The DHL Innovation Center is a place for research, development and communication. Therefore it has three central areas: The laboratory, the showroom presenting the future of logistics, and the conference area. With projects from the fields of green logistics, RFID, sensor technology and geoservices, the DHL Innovation Center affirms DHL's role as an innovation leader in global logistics.

**www.dhl-innovation.com**

# ESNC 2007
# WINNER OF THE SPECIAL TOPIC PRIZE :: German Aerospace Center

The Winners:
## Mr. Lee Massey and Mr. Colin Wilson

The Idea:
## Landmine Archive and Retrieval System (LARS)

### DESCRIPTION

It is the tenth anniversary of the death of Princess Diana and the cause that she sponsored so publicly remains a currently insurmountable problem. There remain millions of landmines that have been laid in unknown locations and indiscriminately take the limbs or lives of 20,000 innocent men, women and children every year. The presence of landmines can deny people access to community resources such as water sources and agricultural land, creating or worsening poverty. Previously finding landmines was a difficult, time consuming and expensive task. Galileo and this proposed new system codenamed "LARS" will give operatives eyes, and direct to the mines with great precision.

The system consists of:

- Small ground penetrating radar mounted on a boom or remotely controlled model helicopter
- GPS reference markers, which are GPS devices mounted on metal plates
- A system to overlay the radar data on the Galileo map data
- System to identify mines within this data using their spectral signature
- A user friendly output showing exact positions of suspected mines marked in red; areas of uncertainty in amber, and safe areas in green

### INNOVATION

The "Landmine Archive and Retrieval System (LARS)" system uses GNSS data to accurately link the radar data to the real world, and give output in a user-friendly format. Once an accurate position of the reference points (provided by Galileo) is ascertained in the image, together with the position and height of the sensor (again from GNSS), the frame can be accurately georeferenced to a known map by matching geographically identical points in the image and known map. When using orthorectified map data as the base map, the resulting radar image will also be orthorectified. The mines, detected from the radar image using their spectral signature can then be displayed on an easy to read map. The results will finally be used to navigate personnel to or around the detected mines, using standard GPS navigation, linked to the Galileo network.

### TARGET MARKET

The target market for such a system is governments and organisations who work to remove the danger of landmines. This equates to approximately 35 countries and dozens of humanitarian organisations. The use of "LARS" is not limited to hunting land mines, the technology could be adapted quickly for searching for items that are different from the surrounding ground (shallow), such as mineral deposits, archaeological remains etc.

### CUSTOMER BENEFIT

"LARS" will vastly improve detection rates (particularly for small devices), reduce costs and allow great areas of land to be liberated, and save many lives. Its use of automated detection processing allows large areas to be swept quickly, efficiently and safely.

GeoUtile

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DLR / GATE
## The Experts

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**Simon Plum**
Project Director GATE
*German Aerospace Center*
*(DLR)*

**Walter Päffgen**
Director Galileo Operations
*German Aerospace Center*
*(DLR)*

DLR / GATE
## The Decision

**The German Aerospace Center (DLR) advertised its special topic prize for a Galileo-related application that can be tested in GATE, the world's only test and development environment for Galileo. How important are the specific characteristics of the Galileo system to the Landmine Archive and Retrieval System (LARS)?**
*For this idea in particular, the accuracy and integrity of the Galileo signal are crucial. These two aspects of the system constitute the core elements of the winning idea. The application's suitability for testing in GATE is also outstanding: The realistic conditions offered by the environment are ideal for further development of the technology.*

**What other aspects of the idea won you over?**
*For the DLR, this idea has a special kind of appeal: It's technologically highly advanced and deals with a unique topic area of global political significance. The innovation also clearly demonstrates the value future user groups can expect from the Galileo system. Not every user group will be working on the topic of minefields, but the idea's accuracy and reliability will be extremely important to most.*

DLR / GATE
## About DLR / about GATE

DLR is Germany's national research center for aeronautics and space. Its extensive research and development work is integrated into national and international cooperative ventures. As Germany's space agency, DLR has been given responsibility for the forward planning and the implementation of the German space program by the German federal government as well as for the international representation of German interests.

GATE is the only Galileo test and development environment worldwide where navigation is possible with realistic Galileo signals already today. Six transmission stations, distributed among six mountains in the German Alps, monitoring stations, various planning tools, and a competent consulting by the German Aerospace Center (DLR) are the components making GATE a unique test environment.

# ESNC 2007
# REGIONAL WINNER :: BADEN-WÜRTTEMBERG / GERMANY

The Winner:
## Mr. Gerhard Bernot

The Idea:
## Galileo Postman

### DESCRIPTION

At present postal deliveries are accomplished by employees. Employees are responsible for courier, express and postal services within their district. Routes and districts are assigned to individual employees or postmen. In practice, vacations, temporary or permanent unavailability or absence which becomes known on very short notice etc. are often difficult to handle. If an individual employee, who is responsible for a certain district, is absent from his job, the responsibility for the district must be taken over by another person or has to be divided between several staff members. Without ©Galileo Postman employees do not benefit from any additional navigation support. Up to now "the training phase" for new employees can take up to several days, which naturally affects productivity. The ©Galileo Postman enables quality control to ensure high quality in delivery services. Recipients may ask for a redirection of their deliveries or define a time slot, when and where they are best reachable. The ©Galileo Postman offers the possibility to create statistics that contain data which show e.g. the number of returned and late deliveries. If a parcel or any expected deliveries are sent to a specific destination, the addressee will receive an SMS on request, informing him/her beforehand when it will be worthwhile to check his or her mail box. The ©Galileo Postman also provides standard navigation functionality.

### INNOVATION

The ©Galileo Postman helps to optimize a postman's daily routine by improving his itineraries, setting waypoints and ensuring an efficient evaluation. Postmen are supported by multimedia information from POI as well as routes and planning of activities by satellite navigation. Thus new staff can be trained more quickly and work more efficiently on new routes. The ©Galileo Postman is very easy to use and no in-depth technical knowledge is needed. It is obvious that all these advantages will also help trained postmen to increase their efficiency.

### TARGET MARKET

Possible customers for the ©Galileo Postman are post offices, parcel services and any kind of courier services. Users of the ©Galileo Postman will be postmen, employees of parcel services and e.g. bike couriers. Approximately 1.8 million postmen are potential users world-wide, in Europe there are approximately 900,000 postmen. The costs amount to € 100/ ©Galileo Postman annually. This will result in annual sales of € 180 million world-wide (€ 90 million Europe-wide).

### CUSTOMER BENEFIT

At the beginning there is an instant tracker, which can be used for all new routes. This feature needs no configuration at all. Furthermore a stage planner will be provided with which the postman can plan his ideal routes. Routes may also be suggested by other employees in exactly the same way. A further feature of the ©Galileo Postman is the function to find alternative routes. This may be helpful, if the postman has to reschedule his route. Also transferring districts to other employees or restructuring is an easy matter as a new postman will easily be able to find the itinerary.

BERNOT Information Technology

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The region

## Baden-Württemberg

Internationally renowned corporations such as DaimlerChrysler, Porsche, Bosch, SAP, Zeiss and Würth and many multi-national corporations have chosen to make Baden-Württemberg the centre of their business operations. Baden-Württemberg also benefits from a powerful backbone of small and medium-sized enterprises. Economic and social development in Baden-Württemberg relies to a large extent on the efficiency and competitive edge of its SMEs. Traditional driving forces behind the economy of Baden-Württemberg have always been the dynamic and export orientation of the state's core industries, such as mechanical and automotive engineering, electrical engineering, information technology and metalworking.

Baden-Württemberg

The regional organiser

## IHK | TTR

IHK
The twelve Chambers of Commerce and Industry in Baden-Württemberg represent the interests of around 534,000 companies and are service providers to the regional economy. As a public legal body, it also regulates state duties and acts as an expert partner and advisor in economic matters for ministries, courts and authorities.

TTR
The shortest way to get where you want to go. Moving from a brilliant idea to a successful product is not just labour-intensive – it also takes time. At Technologiepark Tübingen-Reutlingen (TTR), we're looking to speed up this process by creating an environment where turning ideas into marketable products is easier and faster than ever.

IHK

TTR
Technologiepark Tübingen-Reutlingen

Tübingen Reutlingen Zollernalb Region NeckarAlb

The regional partner

## Constance

The international region of Lake Constance is considered to be one of the European regions of the future. It is one of the top engineering locations in Europe. A high percentage of small, flexible and highly specialized technology businesses combined with excellent services strengthen the entire region and help create perfect conditions today and in the future. Acting regionally always means acting internationally: cross border co-operations between Germany, Austria and Switzerland are one of the assets at Lake Constance.

KONSTANZ
Die Stadt zum See

Gallileo-Initiative Bodensee

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# ESNC 2007
# REGIONAL WINNER :: BAVARIA / GERMANY

The Winners:
## Dr. Hans Geiger and Dr. Ernst Pechtl

The Idea:
## eye-Phone - the Advanced Object Recognition and Knowledge Tool

### DESCRIPTION

Imagine Mary, a visitor to Italy, enjoying a glass of wine on the terrazza of a ristorante on the shores of Lago di Garda. When looking to the opposite shore, she notices a huge, bizarre rock: "Oh, look, what is that?" Mary takes a picture with her smart phone, which is equipped with a special piece of software transforming it into an "eye-Phone". Mary marks the rock with the cursor and clicks "Identify". A few seconds later she reads on her display: "This is the Rocca di Manerba". She wants to know more and clicks "More information", and after a few seconds she reads: "Here, the Romans in 354 a.d..." Her smart phone has learned that she is interested in history and therefore does not provide geological, but historical information, which is retrieved from image archives combined with internet databases and sent to the eye-Phone. Her smart phone contains the unique "Apollo" software, which, for the first time in history, is capable of identifying any object in an image – architecture, landscapes, arts, technical objects, animals, plants etc. and even people – without tedious training or manual interaction. The eye-Phone combines GPS/Galileo positioning data with object recognition for fast and reliable identification of objects. Compared to a usual smart phone, three components have been added: GPS, Apollo software (fits easily on the chip) and angle sensors.

### INNOVATION

The innovative "Apollo" technology used by the eye-Phone is capable of identifying virtually any object in a digital image - from any angle, in different or bad lighting conditions or in a poor quality image. The eye-Phone's unmatched capabilities promise a wide range of applications in business and private use, in security, education, science, and tourism, etc. The combination of Galileo/GPS positioning data with the advanced retrieval functions of the eye-Phone achieves high reliability and speed - even with very large image archives.

### TARGET MARKET

Target customers for the eye-Phone are users of smart phones and digital cameras. Comparable growth rates as for smart phones can be expected (500% in 4 years); this will lead to annual sales of more than 100 m units within 4 years from the start.
Target customers for the Apollo technology are manufacturers of smart phones as well as telcos, which provide the appropriate services.

### CUSTOMER BENEFITS

- Instant recognition of architecture, art, technical objects, landscape, plants, animals, etc.
- Easy handling since "Apollo" knows from the GPS data, where the user is and from the compass and elevation-sensor, exactly in which direction she points the camera. From the camera data "Apollo" knows the focus length. So "Apollo" easily ecognises when the user takes a total viewpoint, or focuses on details
- Access to a growing global data base
- Personalisation of the information provided, as "Apollo" recognises users' preferences

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Tourismusamt München © Bild: Rudolf Sterflinger

The region

## Bavaria

The economic region of Munich is one of the top business locations in Europe for aviation, astronautics and satellite navigation, boasting 234 companies and 7 renowned research institutes. With a turnover of € 4.7 billion in 2006 and over 15,000 employees in industry and research, aerospace and satellite navigation make a major contribution to the economic power of Munich as a business location. Employees in these industries are highly qualified and specialised, 60 percent of the staff in aerospace and 83 of those in satellite navigation are university graduates. As a classic high-tech, research-intensive industry, aerospace is constantly providing other industries with significant technological impulses. Satellite navigation, while still young as a commercial industry, is emerging as a sunrise industry with the potential of becoming a key player in the coming years.

**www.bayern.de**

source: IHK für München und Oberbayern

The regional organiser

## Anwendungszentrum GmbH Oberpfaffenhofen (AZO)

AZO was founded as an incubator to expand Oberpfaffenhofen, an important aerospace location, into a cluster focusing on European satellite navigation. The Free State of Bavaria has subsidised this project with Ð 3.57 million, which included the foundation of the incubator and the construction of a building used by the Application Center for Satellite Navigation. AZO focuses on providing companies with optimal conditions for establishing innovative products and services based on GNSS more quickly on the market. The incubator gives start-ups six months to develop their business ideas into tangible business plans and provides extensive office space at the Oberpfaffenhofen airfield, in direct proximity to the German Aerospace Center e.V. (DLR) and the future Galileo control centre. Since the creation of AZO, 33 company founders have completed the start-up phase, leading to the creation of over 450 jobs.

**www.anwendungszentrum.de**

The regional partners

**SYSTEMS**
**www.systems.de**

**European Space Agency (ESA)**
**www.esa.int**

**German Aerospace Center (DLR e. V.)**
**www.dlr.de**

**District Government of Upper Bavaria**
**www.regierung.oberbayern.bayern.de**

**Invest in Bavaria**
**www.invest-in-bavaria.com**

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# ESNC 2007
# REGIONAL WINNER :: GÖTEBORG / SWEDEN

The Winner:
## Mr. Erik Steinmetz

The Idea:
## Mobile Phone Coverage Maps in Combination with GNSS

### DESCRIPTION

More and more mobile phones are today equipped with GNSS hardware and software to turn the phones into handheld navigators. My idea is to make further use of all this already existing technology to facilitate reconnection to the mobile net in poor coverage areas. In the first generation mobile technology NMT the coverage was not a big problem and due to the low frequency each base station covered a large area, but with today's technologies GSM and 3G (UMTS) the coverage has become a larger problem. This depends on the choice of frequency in order to obtain a higher data rate, which means that each base station covers a much smaller area, which finally results in a large amount of base stations being needed to reach full coverage. Therefore it is not economically viable for the telecom companies to implement full coverage. GSM today has area coverage of 60 -70 % in Sweden and 3G is planned to have coverage of 40% when the systems are fully implemented. The main idea is to use mobile phone coverage maps in combination with the GNSS technology. When the mobile phone loses its connection to the mobile net (3G, GSM) the phone should point out the closest direction and at which distance the connection could be re-established. To make it even more user-friendly the mobile net coverage maps could be shown together with a map over the surroundings (including topography and road information etc.) on the phone display. With the map function the user could not only find the closest way back to coverage but also the easiest way.

### INNOVATION

This idea relies on GNSS and, thus on Galileo. The application could use all the GNSS systems and which means that it will use Galileo and the other two systems as a complement. As mentioned before, the application should be used in poor coverage areas, as for example in the north of Scandinavia. In these regions situated very far north, satellite geometry is not as good as for example in the equator regions. By using more satellites (possible with all three GNSS working together) the probability of having good satellite geometry will increase in these regions.

### TARGET MARKET

This application could be very important in emergency situations in poor coverage areas, e.g. in the north of Scandinavia. It could be useful for all people that stay in these areas as locals, hikers, tourists, commuters etc. As not all mobiles phones are provided with GNSS technology today, it could also be very useful to implement this application into handheld GNSS navigators and car navigators.

### CUSTOMER BENEFITS

In case of emergency it is of great importance to be able to call for rescue as soon as possible. If for example your car stops or you have an accident in one of these areas you might walk in the wrong direction, resulting in a much longer time until you can call for rescue. In a situation like this, this application could be the difference between life and death. It is also possible to expand the function so that it can provide information about the closest regular phone connection and hospital etc.

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Photo: Lindholmen Science Park

The region

## Göteborg

The Göteborg region is the gateway to the Nordic and Baltic countries with approximately 50 million inhabitants. 70% of Scandinavia's total industrial capacity is located within a 500-kilometre radius of the Göteborg region, equidistant to Scandinavia's capital cities: Oslo, Copenhagen and Stockholm. The Göteborg region is one of the fastest growing regions in Northern Europe and an increasing number of companies have turned their eyes to the Göteborg region lately. Today the region has more than 1,700 foreign-owned companies. That marks a dramatic increase over the last few years. Once the site of three of the world's most important shipyards, Göteborg's Lindholmen area is being transformed into a stunning ICT village. At present, it is the largest construction project of its kind in Northern Europe. At its heart lies the Lindholmen Science Park, focusing on telematics, mobile Internet and edutainment. Göteborg shares the honour of being the number one location in the world for telematics and comes in seventh in Europe as the top Northern European location for wireless activities.

**www.businessregion.se**

BUSINESS REGION GÖTEBORG

The regional organiser

## Business Region Göteborg

Business Region Göteborg AB is a non-profit company that works to strengthen and develop trade and industry in the Göteborg region. The company represents the thirteen municipalities that form the Göteborg region. Business Region Göteborg AB is a wholly-owned subsidiary of Göteborg's Municipal Administrative Management Company (GKF AB), which in turn is wholly-owned by the City of Göteborg. Business Region Göteborg AB works for increased growth and employment in the Göteborgs region's 13 municipalities. The company provides support to both existing companies and start-ups in their ambitions to grow. Among its other activities, Business Region Göteborg AB runs several business-development projects aimed at promoting growth in strategic sectors with a focus on strong regional industries. Business Region Göteborg AB is directed towards companies in the Göteborg region with a purpose to grow and support companies that want to set up business operations in the region. Business Region Göteborg AB's comprehensive goal is to contribute to strong growth, high employment and a versatile region economy.

**www.businessregion.se**

BUSINESS REGION GÖTEBORG

The regional partner

## Chalmers University of Technology

Chalmers is a university of technology in which research and teaching are conducted on a broad front within technology, natural science and architecture. Our inspiration lies in the joy of discovery and the desire to learn. Underlying everything we do is a wish to contribute to sustainable development both in Sweden and world-wide. Chalmers has become strong within several areas of science, and some of our research leads its field internationally. We wish in particular to develop and strengthen our research in the fields of bioscience, information technology, environmental science and nanotechnology. Chalmers is a pioneer in Europe in the field of start-up companies, and has built up an efficient system of innovation in order to find applications in research into the formation of companies.

**www.chalmers.se**

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# ESNC 2007
# REGIONAL WINNER :: HESSEN / GERMANY

The Winner:
## Prof. Dr. Gerhard Guettler

The Idea:
## Galileo Ecodrive - Using GNSS in an Anticipative Mode to Save Energy in Car Driving

### DESCRIPTION

It is proposed to use the information about a road's geodetic height profile, gained from a satellite navigation system, to reduce a vehicle's fuel consumption. The system uses actual and prospective data of the movement of a car (or truck, bus, train) to control and optimize the loading of the battery, the operation of the auxiliary devices and the motor and gearbox management. The actual and the anticipated geodetic height of the car's position are known from a navigation system like Galileo when a map with height information is used. Knowing the actual driving speed, the future "location (height) vs. time" trajectory can be well "foreseen". So the vehicle's energy consumption is optimized by using in-time and future information of route, cruising and motor activity. By this knowledge intelligent rules for operating and controlling the auxiliaries through "virtual control setpoints" are derived. This concept considerably enhances modern strategies which load the battery when the vehicles brakes. Since the parameter space for optimization is significantly enlarged there should be enough space to further reduce fuel consumption. Also, energy consuming devices connected to a vehicle are addressed such as a refrigerator for frozen food or a cement mixer on a motor truck. The vehicle's energy consumption is perfectly synchronized with its uphill and downhill motion: when driving uphill an extra "energy credit" is drawn from the battery since it is foreseeable when and to what amount the credit can be paid back through the upcoming downward motion.

### INNOVATION

The concept proposed here is supported by two German patents (DE 10 2005 005 002 and DE 10 2005 024 403) which Dr. Guettler received in 2007 and his pending (announced) European patent No. 1688297. Its basic innovative character is to augment the control of a vehicle's operation by substantial knowledge about its movement in the near future, and therefore not only relying on its actual driving parameters. The prediction is near to certainty or at least can be described by a well defined distribution of probabilities. The predictive quality is held at a high level by updating in short time intervals.

### TARGET MARKET

The concept is useful as an add-on for upper and upper medium class (UMCC) and medium class cars (MCC) from the start and for all other vehicle types in a later phase. Also trucks and buses will benefit from it. In Europe, 15 Mio cars are produced yearly and the stock is about 150 Mio units. The relevant market segment is seen at 1 Mio new cars, buses and trucks p.y. in the beginning. Scaling effects could increase this figure to several million vehicles p.y. through a successful commercial launch.

### CUSTOMER BENEFIT

A conservative estimate of the savings potential per car is one complete fuel tank filling or some 80 to 100 € per year. At present fuel price levels, this would justify a selling price of 300 to 500 € for the complete system or a production cost at 50 % of this amount.

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The region

## Hessen

Hessen is the fifth largest federal state in Germany and holds the third position with regard to the gross domestic product per inhabitant. Located in the heart of Europe, the region is characterised by an excellent infrastructure with various traffic hubs for air (Frankfurt Airport) road, rail and Internet. The region of Hessen is very strong in logistics, IT, automotive, biomedical, optical and production technologies. Hessen is heavily involved in new media technologies, a considerable amount of IT/software providers are located in Hessen. Hessen is repeatedly the top region in Germany for multimedia. With its high density of innovative IT-companies/enterprises and its unique infrastructure (the central data transfer hub DE-CIX, which carries over 90 % of the German and more than 35% of the European internet traffic is located in Frankfurt), Hessen provides high potential for the development of satellite navigation based applications, services and products. The Hessian Ministry of Economical Affairs supports the development, deployment and usage of new technologies and the technology transfer.

HESSEN

The regional organiser

## cesah

The centre for satellite navigation in Hessen fosters the development of satellite navigation applications. Cesah is a partner of the European Space Agency (ESA) and the European Space Operations Centre (ESOC) in the Technology Transfer Programme and collaborates with the other ESA incubation centres in Noordwijk (The Netherlands) and Frascati (Italy).
The Unique Selling Proposition of cesah is the focus on "positioning / navigation" and "business development" – in terms of technology integration and gross technology transfer respectively. Cesah supports the intelligent linking with other high technologies and the creation of sustainable added value business models. An essential asset of cesah is the expertise and competence network of it's shareholders (State of Hessen, City of Darmstadt, TU Darmstadt, University of Applied Science, VEGA IT, T-Systems Enterprise Services and INI-GraphicsNet Foundation), it's strategic partner ESA as well as key partners from major industries in the Rhine-Main region.

cesah
Centrum für Satellitennavigation Hessen

The regional organiser

## Hessen-IT

Hessen-IT is the programme of the Hessian Ministry of Economical Affairs supporting the Hessian information and communication technology (ICT) sector in their market development, as well as small and medium-sized enterprises (SME) in their efficient and creative use of ICT. Hessen-IT provides information via online databases, news releases, brochures and workshops etc. Hessen-IT furthered and accompanied the satellite navigation activities in Hessen from the beginning and continuously supports the space incubator cesah, the centre for satellite navigation Hessen, by organising workshops and congresses, offering an information and communication platform. Together with cesah, Hessen-IT supported and organised the regional participation in the European Satellite Navigation Competition.

Hessen IT

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# ESNC 2007
# REGIONAL WINNER :: LOMBARDY / ITALY

The Winner:
## Mr. Amedeo Lepore

The Idea:
## ASCLEPIO: a Personal Health & Safety Assistant

### DESCRIPTION

The goal of the ASCLEPIO project is to realise a Personal Health & Safety Assistant with innovative features. It will be a sort of PDA with a localisation unit accomplished by a hybrid system that uses the Galileo, GPS or RFID signals. A further idea for such a system is to use RFID transponders to create a guided way for blind people. The adopted RFID tags are passives, namely they do not need a battery and can be installed everywhere, like city parks, street corners and indoor environments. A Bluetooth antenna is able to detect RFID transponders, read its stored data, and send this information to a smart phone provided with a map database. Through Bluetooth headphones, the person receives information about the way he wants to go, in order to avoid obstacles. The Personal Health & Safety device uses the RFID signals, if Galileo or GPS are not available. The statistics related to first aid requests show that a timely intervention can considerably increase the survival probability and minimise the injuries subsequent to the seizure. The basic idea of this alternative scenario is to provide a device to the subject at risk that controls the subject's living parameters at a distance and to localise him with very high precision. In case of a heart attack this device, provided with a mini computer, sends a message to a control centre using UMTS or WIMAX network containing information about the illness, as an electrocardiogram, and his location in order to alert the nearest first aid team.

### INNOVATION

The market already provides such telemedicine systems but the proposed idea allows the injured person to be localised more precisely, using a Galileo localisation device rather than GPS. Furthermore, the RFID based localisation system allows the device to work and to guide a blind person in indoor environments as well. Its innovation consists of the integration of multiple sources, as a Galileo and RFID network, to precisely estimate the position.

### TARGET MARKET

A study of the European society of cardiology shows that mortality is less than 10%, if first aid intervention is well timed. Public corporations dealing with health care as first aid structures and hospitals can adopt such device in order to plan their intervention in a well-timed way, heavily decreasing costs. Visually handicapped persons can use this system as well, and they can become more autonomous, without needing a continuous assistance by another person.

### CUSTOMERS BENEFIT

Public corporations can improve their quality of service without hardly increasing costs by adopting the ASCLEPIO device; heart patients can improve their quality of life because their living parameters are continuously controlled by the proposed system as well. If structures such as underground stations, hospitals, and universities adopt a localisation mechanism based on RFID network, blind people can autonomously reach these places.

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Photo: Ulrike Zöllkau

The region

## Lombardy

The Lombardy region is one of the 21 regions of Italy with its own constitution on which the Lombardy "Consiglio regionale" and the Executive Government are based. The Lombardy area covers 23,861 square km. (7.9% of Italy). The Lombardy region has 12 provinces, 1546 municipalities and a population of 9,450,000 inhabitants; the capital city is Milan. The region has a GDP (PIL: Prodotto Interno Lordo) of 245.8 corresponding to 22.2% of the total for Italy. Lombardy appears to be Italy's leading region in terms of innovation; it is in a good position with respect to the international market. Lombardy has got a strong research and innovation system and human capital (12 Universities & private R&D centres), resulting in regional systems of knowledge: strong promotion to the transfer of research to the business system.

**www.regione.lombardia.it**

RegioneLombardia

The regional organiser

## Navigate Consortium

Founded in Milan in 1989 by present Chairman Umberto Giovine and by ABB Asea Brown Boveri, Navigate Consortium's first mission was to combine its partners' forces in order to compete in international tenders.
Navigate Consortium is currently engaged in a series of projects involving various aerospace technologies ranging from telecommunications, remote sensing, satellite navigation connected with the European programmes GMES, FP6 and Galileo.
Navigate Consortium is a member of Oregin (Organization of European GNSS Equipment and Service Industries).

**www.navigateconsortium.it**

NAVIGATE CONSORTIUM

The regional sponsor

## Merlino Technology

Merlino Technology s.r.l., established in 2002, thanks to several prestigious joint projects with research institutes, academic laboratories and leading aerospace companies, has developed tools and resources that make the company the leader in the ICT sector. Our many years of experience in aerospace system planning and development have provided us with the required background and knowledge to broaden our expertise sectors by implementing various computerised solutions. Merlino Technology s.r.l. specialises in planning, the setting up and the distribution of integrated systems, developed to offer innovative products for satellite safety, infomobility, video surveillance and robotics. In a young and dynamic atmosphere, driven by ever-increasing market needs, which impose high quality standards, Merlino Technology s.r.l. researchers engage everyday in several industrial research activities to improve their products and services. The quality of the products and services has been the core vocation of our company since the beginning. We always work hard to create advanced technologies which can improve the life, the quality of the environment and make space closer to human beings, driven by the ambition to reach unthinkable goals.

**www.merlinotechnology.com**

MERLINO TECHNOLOGY

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# ESNC 2007
# REGIONAL WINNER :: MADRID / SPAIN

The Winner:
## Mr. Rafael Olmedo Soler

The Idea:
## Volumetric Navigation System

### DESCRIPTION

A Volumetric Navigation System defines a system that combines positioning, navigation and volume information in order to provide assistance to all the parties involved in managing and conducting surface vehicle movements, (controllers, drivers, pilots, ...), or autopilot surface movements. Thinking about the problem of managing surface movements in an airport, airplanes and land vehicles, they have to share a specific area. Galileo technology will allow absolute reliability and relative positioning of all these to be attained. Associating volume and orientation information to each vehicle, will allow the management of georeferenced volumes, which will improve the utilisation of the space, covering even the movements of land vehicles under the wings of an aircraft. The system will also consider other fixed or moving objects, such as buildings or terminal fingers. In order to develop the system, each vehicle will be provided with positioning and attitude sensors, and will be defined by a body reference system, a geometric volume consisting of a mathematical expression of the reduced envelope of the body, and its dynamical performances and characteristics. Each vehicle will be provided with a communication module in order to send its own information and receive information from other moving objects, or a local control station. Other fixed objects like buildings, natural obstacles, or specific areas could be considered as special, restricted or forbidden areas, depending on the type of vehicle. In this sense, GIS data and tools would add great value.

### INNOVATION

Volumetric Navigation introduces the idea of combining the navigation and volume information of vehicles in the real world. Navigation may be understood as the art and technique of reaching one point from another in an efficient way. When considering scenes in which large vehicles are involved (airports, harbours, civil works, etc) it will also manage volume information of the vehicles (aircrafts, boats, etc) and other mobile or fixed elements (fingers, cranes, drawbridges, buildings) and will mean a real improvement in the efficiency of the navigation.

### TARGET MARKET

The system may be used in scenes that involve movements of large vehicles in local areas, like surface movement in airports, cargo or transport terminals, docking activities, boats traffic and moorings in harbours, local water areas, or large vehicles involved in civil works. Considering this, the target market may be defined by civil or state responsible or other operators of airports, harbours, or cargo and transport terminals, and public or private companies or organisations, whose activity could mean the deployment of large vehicles in local work areas, such as large civil works vehicle companies, firefighters departments, etc.

### CUSTOMER BENEFIT

The key benefits are in terms of the reduction of accidents in terminal areas that support congested traffic and large vehicles, the improvement in the efficiency of navigation in congested areas, and improved pilots or driver behaviour and compliance with traffic regulations.

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The region

## Madrid

The region of Madrid is the centre of excellence for the aerospace sector thanks to the presence of the leading sector companies and the most relevant research and training institutes. Madrid Regional Government has officially declared the aerospace industry as a strategic sector. 74.9 % of Spain's aeronautic engineers work in Madrid. It has the largest Aeronautic Engineering School; top-class non-university programmes and the most prestigious post-graduate and business schools. Over 60% of the aerospace sector employment and 62% of its annual turnover in Spain is concentrated in Madrid, including key institutions that increase technology transfer and leverage technological cooperation: INTA - National Institute of Aerospace Technology; CIEMAT - Centre for Energy, Environmental and Technological Research; aeronautical and telecommunications engineering schools.

Comunidad de Madrid

The regional organiser

## IMADE

IMADE, the Madrid Development Institute, is an organisation under the aegis of the Region of Madrid Board of Economic Affairs. Its main objective is to promote development in the region through initiatives that encourage economic growth and job creation. The institute also promotes the development of a network of Scientific and Technological Parks in the region of Madrid. The principal objective of these parks is to promote the generation of technological knowledge in different areas, based on the integration of scientific, technological and industrial interests. They also seek to improve company competitiveness through innovation and technological development; in particular through the creation and growth of new technology-based firms.

Instituto Madrileño de Desarrollo
www.imade.es

The regional partners

## Park and Cluster Network of the Region of Madrid

IMADE implements the Park and Cluster Network of the Region of Madrid. This Network is being institutionalised as the primary tool serving Madrid's companies with a technological base or in strategic sectors for purposes of technology transfer, creation of innovative companies, international projection of the region and its companies, and the development of shared resources.

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# ESNC 2007
# REGIONAL WINNER :: PRAGUE / CZECH REPUBLIC

The Winners:
## Mr. Andreas Zachariah and Mr. Nick Burch

The Idea:
## Carbon Hero

### DESCRIPTION

With Carbon Hero we have developed a mobile based application that tells its user their personal environmental impact due to travel. We set about developing a system that uses a keyring sized sensor to pick up the location and speed of the user, and a mobile to do the magic. Furthermore, taking advantage of the new wave of GNSS-enabled mobiles dispenses even with the need for the keyring sensor. With almost no user input, the mobile runs the Carbon Hero programme, which with its specialist database and algorithm sets out to determine the mode of transport the traveller is using. Predetermined $CO_2$ load factors reflect the varying environmental impacts different forms of transport create. These are then output to the user in a near live fashion on their mobile. The user can then compare their daily, weekly even monthly performance should they wish by way of graphics and text. A fully scalable idea with a huge captive audience and no compromise in privacy. The product can detect train, bus, tube, car, foot powered and even plane travel! Already being capable of capturing airplane travel to over 1,000 international destinations. The pressing environmental issues upon us now, do not call for an evolution in habits, but a revolution. Carbon Hero empowers the individual reminding them of their own contribution, and how as part of a larger system they can be part of a revolution to affect change.

### INNOVATION

A revolution in providing a direct connection to the user by using the mobile phone to communicate the environmental impact that their travel choices make. In utilising GNSS to assist in establishing the form of transport by way of a proprietary algorithm and then applying reference load factors to sum the $CO_2$ of a journey.

### TARGET MARKET

Consumers, corporations, governments etc. are all seeking to better understand and frame the environmental debate. But there is a lack of relevant, individual and reliable data to facilitate a more thorough debate and foundation from which to act upon.

### CUSTOMER BENEFIT

Informed and empowered customers, who themselves are able to make changes in their habits and see the benefit on the environment and world at large are better engaged as change agents. With greater knowledge comes responsibility and we can already see that the consumer is driving corporations and political agendas by their increased awareness.

Carbon Hero

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The region

## The Czech Republic

Space exploration and research have a long tradition in the Czech Republic. The Interkosmos 1, launched on 14 October 1969, was the first satellite carrying instruments developed in the former Czechoslovakia. Several dozens of Czech instruments and systems have been employed during the following twenty years in space projects containing near Earth environment investigations and planetary missions as well. The Czech Republic is a place of excellence for aeronautics, space technology, satellite navigation, earth observation / remote sensing, geo information systems and aerospace research. More than 40 Czech companies are engaged in the space and communication business. The key sectors of national space activities are astronomical studies, magnetospheric, ionospheric and atmospheric research, remote sensing and the Earth observation, microgravity research experiments as well as a competitive industry production, including small satellite construction.

The regional organiser

## Czech Space Office

The Czech Space Office is a non-profit association, created in November 2003. The Czech Space Office mainly acts as an information and advisory centre on space activities, including international cooperation, as a contact point for the communication with ESA and as the national contact point for Galileo. Furthermore the CSO represents the Czech Republic in the International Astronautical Federation (IAF) and provides input information for the Czech professional institutions and experts, as well as for foreign organisations interested in space activities in the Czech Republic. CSO also supports the development of space science, facilitates the space industry development and implements space applications. Education and student activities are also part of the CSO's activities. The office closely cooperates with the Czech Ministry of Education, Youth and Sport, which is a governmental body responsible for space activities in the Czech Republic.

The regional partners

## Ministry of Education, Youth and Sports of the Czech Republic

**www.msmt.cz**

## Ministry of Transport of the Czech Republic

**www.mdcr.cz**

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# ESNC 2007
# REGIONAL WINNER :: SOUTH HOLLAND / THE NETHERLANDS

The Winner:
## Mrs. Selene Kolman

The Idea:
## bliin YourLIVE: Social Networking on the Move

### DESCRIPTION

bliin is a GPS enhanced mobile - and online - social network. It enables live tracing of individuals and location-based content, community and commerce services. Users can locate and follow friends on a map in real-time, upload geo-tagged media: 'Shares' – photos, videos, audio and text – to Google Maps or other mapping services. Shares are geo-tagged to the location of capture. Using their mobile phone or desktop PC, users can navigate areas around them in search of friends, family members, colleagues or other users, and view their location, shares, and third party location content. bliin has been in public beta since April 30th, 2007.

### INNOVATION

bliin leverages the power of the Internet with location based technologies. Different from other emerging navigation services, bliin is unique in providing a user-generated points of interest (POI) database. Furthermore the bliin software is based on the open platform – any handset, any model, any browser any PC – and it operates carrier independent worldwide, anywhere where mobile phone or internet services are available. By utilising satellite positioning systems, bliin members enjoy a real-time, on the move social networking tool to find and discover geo-tagged interests.

### TARGET MARKET

bliin's potential worldwide market is the cross section of its 3 main business drivers:

- Users in online communities & social networks (1 billion+)
- Access to (flat fee) mobile internet (Japan: 66%, EU: 34%, US: 21%)
- Penetration of GNSS devices

All 3 drivers show a steep upward trend, if not 'explosive growth'. Surveys have found that (in the US) 49% of mobile phone users want GPS-enabled navigation technology built into their next cell phone. A conservative estimate of bliin's target market will reach 1 billion potential users by 2010.

### CUSTOMER BENEFIT

- Open internet ... any browser, any handset, any model, any PC (J2ME, Windows Mobile, Windows, Mac)
- Carrier independent, worldwide coverage
- Live! ... Always there: real-time, on the move user-positioning and location sharing on a map
- POCKETbliin: turns mobile phone into a personal social net work radar
- bliinGPSXS: software allows positioning from within the desk top browser
- Localised search: Users create & share bliins to search, and monitor locative based content around them
- Design: bliin's interface is intuitive and strongly recognisable
- User-generated POI database

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The region

## South Holland

Zuid-Holland (South-Holland) is a bustling, multifaceted province. It is home to 3.5 million people, who inhabit an area of around 2,900 sq km. This makes it the most densely populated of the twelve Dutch provinces. Lots of people, lots of activity. Zuid-Holland has around 130,200 registered businesses. The province also boasts various centres of knowledge and expertise, including three universities in Leiden, Delft and Rotterdam, the TNO research laboratories, numerous innovation centres and of course ESA's European Space Research and Technology Centre (ESTEC). South Holland is the country's most important province in terms of economy, agriculture and the provision of services. Innovative clusters are concentrated, amongst others, around horticulture ('Greenports'), water- & delta technology, transport & logistics and health & life sciences. The ambition of the province of South Holland is to become a leader in innovative business.

**www.zuid-holland.nl**

The regional organiser

## Kennisalliantie

The purpose of Kennisalliantie Z-H (Knowledge Alliance) is to add further impetus to innovative industry in the province of South Holland. The Kennisalliantie is funded by and cooperates with over 30 partners, representing regional and local governments, research and educational institutes, and various multinationals and entrepreneurs in the region. The creation of new alliances resulting in new products and services is our goal, giving rise to new innovative industry in the province of South Holland (www.kennisalliantie.nl). Knowledge, expertise and entrepreneurship in the areas of aerospace, composites & ICT are abundant in our region. For this reason Kennisalliantie Z-H has enthusiastically picked up the opportunity of organising this year's European Satellite Navigation Competition. Other important regional facilities for space-related industries are the European Space Incubator (www.esa.int/ttp) and the fifteen-hectare Space Business Park (www.spacebusinesspark.com).

The regional partner

## European Space Agency (ESA)

The European Space Agency (ESA) is Europe's gateway to space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world. ESA is an international organisation with 17 member states. By coordinating the financial and intellectual resources of its members, it can undertake programmes and activities far beyond the scope of any single European country. ESA's job is to draw up the European space programme and carry it through. ESA is designed to find out more about Earth, its immediate space environment, our Solar System and the Universe, as well as to develop satellite-based technologies and services, and to promote European industries. ESA also works closely with space organisations outside of Europe.

**www.esa.int**

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# ESNC 2007
# REGIONAL WINNER :: UNITED KINGDOM & IRELAND

The Winner:
## Mr. Eric Goodyer

The Idea:
## MobiAssist - Supporting independent lifestyles through mobile telecare

### DESCRIPTION

You and I are now living longer lives and one of the key Government and EU policy initiatives is to support the older generation in leading self-sufficient lives that many are currently unable to live today. They estimate that by 2020, 25% of the EU population will be over the age of 65 and could still face many obstacles that challenge the elderly today. Through Mobile TeleCare, we aim to enable them to live an independent lifestyle [European Commission is investing over € 1bn into research and innovation initiatives]. MobiAssist will develop a concept that is far reaching and is mobile, unobtrusive, usable and discrete. It will provide users with enhanced peace of mind and confidence to leave their homes as it continuously monitors their personal well-being. MobiAssist will only summon assistance when key indicators move to critical status i.e. in potentially life threatening, or urgent situations. In the event of an emergency, a personal care plan, designed by the care provider to suit the individual user, invokes an agreed strategy for response. Physiological sensors monitored through this service can range from observing the user's heart rate by wearing a wristband through to a glove that includes an oximeter and a level sensor to detect a fall. Devices designed around this concept will include an embedded mobile module that automatically dials out, connects and uploads the alarm plus patient data. The assisted technology utilised to develop the concept will enable users to enjoy the independent lifestyle the majority of the population takes for granted.

### INNOVATION

MobiAssit takes the home-telecare concept to the next logical level; many commentators consider mobile telecare to be the foundation for the next generation of devices that will evolve from the market. The MobiAssit developments that we propose will be more than simple 'tracking' devices for users outside of the home - that technology is already being developed. In order to increase usefulness when compared to current technologies, we aim to combine mobile phone technology with a distributed network of personal physiological sensors.

### TARGET MARKET

Main beneficiaries are likely to be older or vulnerable people, and patients that have been released from primary care into the community. This technology can help give these people the independence to improve the quality of their lives as well as reducing the strain on social and health care services and community care providers. 1.5 million people in the UK currently rely on telecare products to give them the confidence they need to lead an independent life. Research conducted by the Telecare Services Association found that 90% of people want to be self-sufficient in their own homes.

### CUSTOMER BENEFIT

MobiAssist has the potential to release scarce resources in the health and social care services thus reducing waiting lists and releasing beds so they are available for more needy users. The design aims to enhance older and vulnerable people's quality of life by improving their physical and mental well-being. It provides them with safety and backup to enable them to be part of society by enabling increased interaction with friends, neighbours and relatives.

dmu.ac.uk DE MONTFORT UNIVERSITY LEICESTER
MobiAssist HEALTH

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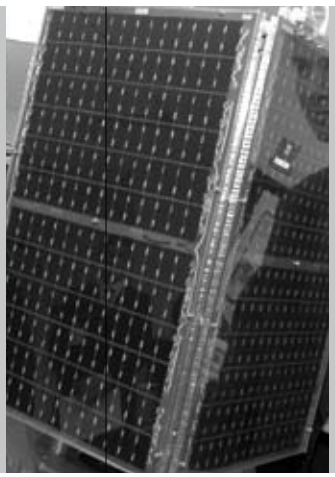
www.dmu.ac.uk

The region

## United Kingdom & Ireland

With a turnover of € 29 billion, investment in research and development of over € 3.5 billion and 270,000 employees, the UK aerospace industry is the second largest in the world. In 'space' the UK contributes € 9.7 billion in turnover and is the world's leading capital market for financing satellite applications; it also houses the world's most profitable global mobile satellite communications provider and Europe's most successful satellite based TV broadcaster. With such a pedigree in 'space' the UK is seeing its activities spilling over or being the catalyst to much wider markets in improving performance, production and leading to the creation of new applications. The environment and transport alone are estimated to benefit indirectly by Ð22 billion per annum, with the wider range of services and efficiency to infrastructure that new technology will provide through utilising 'space' capability. 'Space' is a market area that is truly impacting society today and for the future; therefore development of innovative ideas is paramount to the European economy.

The regional organiser

## HBIC - European Space Incubation Centre (UK)

HBIC is an independent company providing business support, project management and knowledge exchange to knowledge based businesses around ICT, space, aerospace and biotechnology across the UK and internationally. It is the European Space Incubation Centre (UK) [ESINET], through the European Business Network and European Space Agency; this has seen it establishing collaborations with a diverse range of partners in areas of technology transfer, knowledge transfer and access to finance / funding to assist in the exploitation of space technology.

- Business development can range from assisting with funding, IP and corporate development to start-up and early stage companies
- Managing EU-wide projects on behalf of the UK to enhance businesses with technological ideas around ICT, environmental, space, aerospace and medical
- Knowledge exchange programmes that utilise a mature network of national and international partners
- Managing the purpose built Business & Technology Centre which houses technology businesses

**www.hertsbic.co.uk**

The regional partners

EADS Astrium **www.astrium.eads.net**
East of England Development Agency **www.eeda.org.uk**
East Midlands Development Agency **www.emda.org.uk**
London Development Agency **www.lda.org.uk**
East of England Development Agency **www.seeda.co.uk**
British National Space Centre **www.bnsc.gov.uk**
Scott & York Intellectual Property **www.scott-york.com**
Department for Transport **www.dft.gov.uk**
Location & Timing KTN **www.locationktn.com**
Thales **www.thalesgroup.com**
Mobile Data Association **www.mda-mobiledata.org**
The Institute of Engineering & Technology **www.theiet.org/**
Royal Institute of Navigation **www.rin.org.uk/**
Aston Science Park **www.astonsciencepark.co.uk**

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The region

## Wallonia

With a territory of 17,000 km and over 3,400,000 inhabitants, Wallonia is one of the three regions of federal Belgium: the French speaking region close to Brussels, with autonomy and power mainly in the following sectors: economy, external trade and employment, but also in the areas of applied scientific research, transport, energy and regional development. The space activities in Wallonia are driven by the cluster Wallonie Espace. This association gathers 26 industries, universities, and laboratories concerned with space research and development in Wallonia and in Brussels representing a turnover of € 1.2 billion. The space application activities since September 07 have been managed by a subgroup of Wallonie Espace, called WASA (Walloon Association for Space Applications) located in Redu (Transinne). The aim of this association is to stimulate and coordinate all of the actors developing technologies in the fields of space applications such as Galileo, GMES and telecommunications. The Walloon region, including Brussels, demonstrates significant resources in high technology as well as in advanced research, and, since the 60's, has pushed ahead the competences of universities and industries to serve the space programmes in Europe.

RÉGION WALLONNE

The regional organiser

## WSLlux (Wallonia Space Logistics Luxembourg)

WSL (high tech incubator that assists start-up firms, whose technologies are usually the result of spatial R&D projects) and Idelux (a company dedicated to the economic development of the province of Luxembourg in Belgium) are presently opening an affiliate to be called WSLlux in the heart of the Walloon region, close to the ESA REDU station. With the support of Idelux, some infrastructure shall be made available to host new businesses in the field of space applications (Galileo, GMES, and telecommunications). The aerospace industry receives the full support of the Walloon government through the "Marshall Plan", aiming at revitalising the regional economy. WSLlux will benefit from the experience acquired by WSL in successfully incubating about 30 new companies since the year 2000.
Companies to be hosted in WSLlux shall be part of a science park to host companies active in the space industry.

The location of this project is optimal:

- 1 hour drive from Brussels (in particular the NATO and the EU offices)
- 45 minutes drive from Luxembourg
- Easy access to France, Germany and the Netherlands

**www.wsl.be**

wsllux
WALLONIA SPACE LOGISTICS LUXEMBOURG

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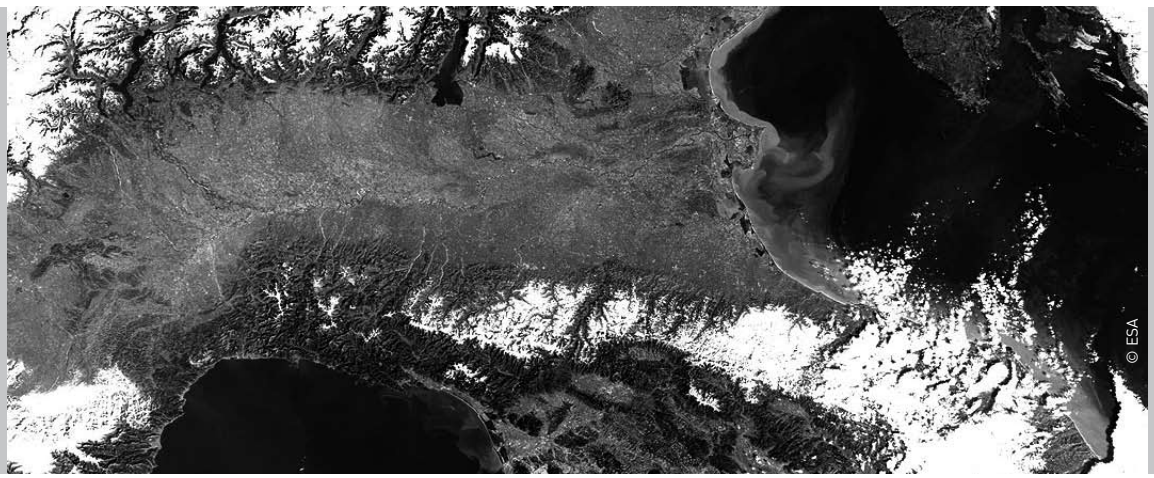


# The European Space Agency's Technology Transfer Programme

The ESA Technology Transfer Programme (TTP) aims to stimulate the beneficial and commercial uses of space technologies for non-space applications. This includes the transfer of software, hardware, know-how and the application of satellite systems on Earth.

The TTP operations can be divided into two lines of business. Firstly, TTP identifies technology transfer opportunities and performs feasibility studies. Secondly support is provided for the commercial development of the technology transfer through new venturing.

## Transfer of Technology Services and Applications

A network of technology brokers, operating throughout ESA Member States and Canada, conducts most of the actual technology transfers. This Technology Transfer Network (TTN) is managed by MST Aerospace GmbH and matches technology requests from the non-space industry to technologies developed within European space programmes. The TTN operates a virtual market place to offer organisations the ability to search for technologies and to submit their market demands. At present more than 300 technologies available for transfer and licensing are stored in a database and more than 450 requests from European non-space companies are included. There is also the opportunity to submit technology transfer proposals directly to the ESA TTP office through a permanent open call for proposals.

## New Venture Support

In addition to the TTN TTP also provides support specifically for entrepreneurs who seek to adapt space technology for a non-space market through ESA Business Incubation. There are three incubators at ESTEC (Noordwijk, The Netherlands), ESOC (Darmstadt, Germany) and ESRIN (Frascati, Italy). All three incubators offer start-up companies operational services, easy access to ESA's technical specialists and seed funding opportunities. These incubators are also linked to ESINET, a European network of 36 business incubators specialising in both space and non-space applications, which is managed by the European Business and Innovation Centre Network (EBN). Further to this ESA has taken the initiative to promote the establishment of a venture capital fund. The focus of the fund will be on investing in start-up and early stage companies using space-related technologies or satellite applications in non-space applications.

**www.esa.int/ttp**

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# SYSTEMS – Ideas for better business

Five halls, four days and four hot topics – these are the changes that you can expect at SYSTEMS in the autumn of 2007. The exhibition revolves around ICT solutions that can help to optimize business processes and tap new fields of business. Besides its tried-and-tested orientation to small and medium-sized enterprises, this year's fair will place even greater emphasis on the range of information for technical decision-makers.

## Four days of nothing but IT solutions

As a strictly business-to-business exhibition for the ICT sector, SYSTEMS 2007 focuses on the most important trends related to the commercial use of ICT in commercial enterprises and the public sector. Besides the exhibition in the five halls and a simultaneous multifaceted program of conferences and other events, the fair also features several new information and networking events for business and technical decision-makers. The key hot topics at the 2007 fair include innovative software concepts such as SOA and SaaS, mobile working, Open Source solutions and IT security. Another new feature: an extensive range of training and certification courses. They range from the BITKOM Academy's CIO-oriented seminars, Linux certification courses and practical workshops for Windows server administrators to one-day conferences for divisions such as sales or marketing or legal departments. Thanks to the new courses in the „SYSTEMS Academy", attending the fair can be combined with ongoing personal education.

## Exhibition platform for innovations

SYSTEMS sees itself as an exhibition platform that actively promotes innovations and presents them to a broad-based audience of industry professionals. For four years, SYSTEMS has hosted and organized the ideas competition for the most innovative applications in the satellite navigation sector. The European Satellite Navigation Competition Awards Ceremony is being presented within the scope of SYSTEMS again this year, as well. Winners from throughout Europe will also have their own exhibition sector – Navigation World – at SYSTEMS 2007, giving them a chance to present their award-winning innovations for satellite-based applications to the ICT industry and to technical and commercial decision-makers from all other branches of industry.

**www.systems.de**

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KTMC Kompetenzzentrum

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Fraunhofer IIS

**Helmut Blomenhofer**
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**Joseph Kolbinger**
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**Prof. Dr. Werner Enderle**
GNSS Supervisory Authority

**Dr. Wolfgang Berns**
FTI Systems Ltd.

**Dr. Hermann Buitkamp**
TÜV Süd AG

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Business Region Göteborg

**Per G.Lundh**
Saab Ericsson Space AG

**Jörgen Hansson**
Chalmers Innovation

**Jan Johansson**
Onsala Space Observatory,
Chalmers University of Technology

## Hessen / Germany

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cesah GmbH Centrum für Satellitennavigation Hessen

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Technische Universität Darmstadt

**Prof. Dr. John Dow**
ESOC European Space Operations Centre

**Bernd Geiger**
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**Wolfgang Kniejski**
INI-GraphicsNet Stiftung

**John Lewis**
VEGA Informations-Technologien GmbH

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Merlino Technology s.r.l.

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GMV

**Daniel de la Sota**
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Hispasat/Proespacio

**Alvaro Urech**
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**Antonio Pérez Yuste**
UPM-Universidad Politécnica de Madrid

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**André Denis**
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Czech Space Office

**Martin Sunkevic**
Czech Space Office

**Karel Dobes**
Czech Space Office

**Miroslav Svitek**
Czech Technical University

**Martin Pichl**
Ministry of Transport of Czech Republic

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Kennisalliantie Zuid-Holland

**Bruno Naulais**
ESA Technology Transfer & Promotion Office

**Prof. Dr. Bernhard Katzy**
Universität der Bundeswehr München & Leiden University

**Niels Krol**
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ESA Technology Transfer & Promotion Office

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**Richard Mackie**
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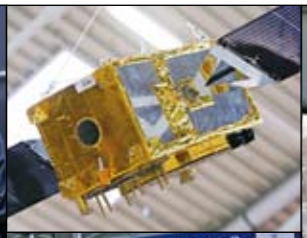


## NAVIGATION WORLD 2007

SYSTEMS MUNICH



## AWARDS CEREMONY 2007

MUNICH












# KICK-OFF
ESNC 2008

EUROPEAN
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Phone: 0049 (0) 8151-4470-0 | www.vier-jahreszeiten-starnberg.de

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**New ventures, new products, new services**

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- → Presentations of the European SatNav community
- → Expert panels
- → Workshops around the new Special Topic Prizes

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**www.galileo-masters.com/kickoff** or **www.anwendungszentrum.de/kickoff**

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