

EUROPEAN
SATELLITE NAVIGATION
COMPETITION

THE RESULTS 2015

12TH EDITION

LAUNCH YOUR BUSINESS

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SMART MOVING



INDUSTRY APPLICATIONS



SMART CITY



SECURITY



EMERGENCY RESPONSE



TOURISM & TRAVEL



TRAFFIC MANAGEMENT

organised by



under the patronage of



special prize partners

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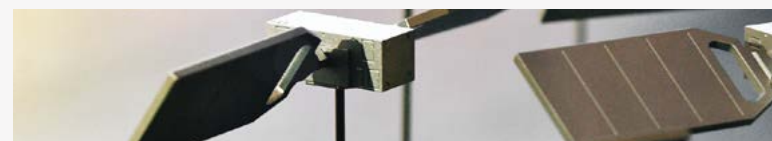
United with all our partners, we share one common goal: promoting innovation and entrepreneurship along the GNSS value chain to benefit the citizens of Europe and beyond.

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VOICES FROM OUR SUPPORTERS



“Galileo is cultivating its place in the GNSS market. So can you.”

Matthias Petschke
Director for the European Satellite Navigation
Programmes of the European Commission

Galileo was at the start only the seed of an idea. But this idea soon took root and became an R&D programme, and from there it grew into an operational programme. Now, as the roots grow stronger, it is about to become a reality. We have been steadily moving ahead during the first ten months of 2015 with two more successful launches, in March and September, and from next year we should see the first blossoms as the initial services are made available. In a similar fashion, entrepreneurs rewarded by the European Satellite Navigation Competition have often started with an idea that they've turned into reality, and seen their innovation become a business success. The European Commission is tasked with making Galileo a reality. This goes way beyond launching a satellite constellation, beyond putting the ground infrastructure in place, and even beyond providing working, consistently accurate and reliable navigation signals across the globe; it also means stimulating potential users. Therefore, we aim to help and encourage innovators wanting to use EU satellite navigation technology, embodied by EGNOS and Galileo, as they develop their ideas.

One way we do this is via the Commission funded Galileo-EGNOS Prize Award Scheme (GEPAS), that builds upon the well-established European Satellite Navigation Competition (ESNC) infrastructure. Since its launch in 2004, the ESNC has fostered innovation and application development for Europe's own GNSS infrastructures. I would like to once more congratulate the ESNC's organiser, Anwendungszentrum Oberpfaffenhofen, for proving the effectiveness of its network at global level and for boosting entrepreneurship in the application of satellite navigation. The Commission's support via GEPAS has helped increase the number and quality of ideas submitted and led directly to ESNC's European partner regions and sponsors awarding more attractive prizes. The objective is clear: to boost the rate of innovations brought successfully to market.

With the Commission's support since 2011, 60 teams of innovators have been backed through co-financed prizes. We have also supported one of the largest space-related incubation programmes to be established as part of the ESNC, which now comprises more than 40 incubation centres. In addition we've introduced 16 new European partner regions that have not previously been engaged in the European GNSS programmes. I would like to encourage you to continue investing in new ideas, even if this can be at times challenging, but the results speak for themselves. I am, therefore, once again looking forward to a fresh batch of innovation that comes from a successful new ESNC, the EU's seed factory for GNSS ideas.

Matthias Petschke



“Satellite navigation – a key technology of the digital age”

Alexander Dobrindt
Member of the German Bundestag, Federal Minister of
Transport and Digital Infrastructure

Satellite navigation is a key technology of the digital age offering enormous opportunities for growth and prosperity to Germany and Europe. The potential added value of associated innovations, such as automated and connected vehicles, spatial data-based services and sensor technologies, point the way towards a digital economic miracle. This is why, together with the European Union, we are developing Galileo – our own global satellite navigation system under civil control. We are thus strengthening Europe's independence as the world's largest economic area, ensuring the informational sovereignty of the Union's Member States and building a digital European centre of excellence, safeguarding tomorrow's growth, prosperity and jobs in our country.

Satellite navigation has an incredibly wide spectrum of applications today – from optimising traffic flows and preventing congestion through rapid medical assistance in emergencies and a higher level of efficiency in agriculture to high-precision map systems. e.g. for automated and connected driving. All this makes satellite navigation an attractive growth market with a lot of potential, particularly for innovative start-ups, but also for small and medium-sized enterprises.

This is exactly where the European Satellite Navigation Competition (ESNC) comes in. It provides a public platform to the creative community in order to help promising ideas turn into solutions that are commercially mature and generate added value for society. The analysis is clear. In recent years, this competition has become one of the most important driving forces for forward-looking satellite navigation applications. This year, the success story continues with a real record: 515 visions were presented. More than ever before. I am particularly pleased that the special prize for the encrypted Galileo Public Regulated Service (PRS), which was developed in cooperation between my Ministry and the Ministry for Economic Affairs and Energy, met with great interest. I would like to thank the Anwendungszentrum GmbH Oberpfaffenhofen for hosting the competition and all the regions and partners who participated. As host of the Satellite Masters Conference, I would like to congratulate this year's winners. I look forward to exchanging ideas and visions of the future of satellite navigation.

Alexander Dobrindt





"GNSS Is Key for Digital Entrepreneurs"

Thorsten Rudolph
Managing Director
Anwendungszentrum GmbH Oberpfaffenhofen



When we started the European Satellite Navigation Competition in 2004, we had a vision to spur the commercial use of satellite navigation signals and services in everyday life. Today, we see this vision has become reality. Car navigation, mobile location-based services, and even global financial transactions would not be possible without satellite systems. Furthermore, high-precision positioning data and time synchronisation now provide the backbone of the digital economy, including the Internet of Things, machine-to-machine communication, and Industry 4.0. These key future technologies in particular hold great potential for young, innovative companies – a fact impressively reflected in this year's ESNC submissions.

In 2015, the ESNC once again hit a new all-time record with 515 innovations submitted by entrepreneurs from more than 40 countries. This adds to the success story of the competition and brings its totals to 272 winners awarded, 3,343 ideas submitted, and more than 10,000 participants over the past 12 years.

We would like to take this opportunity to thank our 240 international experts, who took the time to thoroughly evaluate the submissions and carefully choose this year's winners.

Special thanks is also due to the German Federal Ministry of Transport and Digital Infrastructure (BMVI) for taking over the patronage of this year's competition and hosting the second Satellite Masters Conference at their premises. The conference will provide a unique opportunity to connect with the world's leading network for space applications and will showcase some of the most brilliant awardees of the ESNC – both from this year and editions past.

Through their dedicated support, our regional partners – including national space agencies, ministries, space clusters, universities, and incubators comprising more than 130 stakeholders – form the backbone of the global ESNC network. Particular thanks go out to our longstanding partner regions, which continue to be truly pivotal in making the ESNC a success every year: Austria, Baden-Württemberg, Barcelona, Bavaria, the Czech Republic, Flanders, France, Gipuzkoa, Greece, Hesse, Ireland, Israel, Lithuania, Madrid, the Netherlands, Norway, Poland, Switzerland, the United Kingdom, the Valencian Community, and Wallonia. We are also grateful to have Asia, Galicia, and Romania on board as new partner regions.

Meanwhile, more than 90% of this year's entries were submitted for a special prize in addition to one of the regional prizes. These innovative applications prove the potential the ESNC offers in providing solutions to specific commercial needs. This year's special prizes were awarded by some of the most relevant institutional stakeholders: The European GNSS Agency (GSA), which reached a new all-time high of 192 submissions with its focus on applications for European GNSS; the European Space Agency, which presented the ESA space solutions® Prize; the German Aerospace Center (DLR), which was looking for innovations in the context of "Navigation: A Core Driver in the Digital World"; and the BMVI in association with the Federal Ministry for Economic Affairs and Energy (BMWi), which focused on the Galileo PRS service. Further prizes were conferred in connection with the GNSS Living Labs and the University Challenge.

Additional thanks are due to the European Commission (EC) for supporting us and our partners over the past four years through the Galileo-EGNOS Prize Award Scheme (GEPAS). We have also been delighted with the huge amount of media interest and would like to thank our media partners for spreading the word about the ESNC.

Last but not least, I would like to congratulate all the winners in the 2015 competition and wish you all the best in realising your excellent services, products, and applications! I would be happy to see you obtain support from one of the incubators in our Europe-wide network – which, of course, includes the ESA Business Incubation Centres.

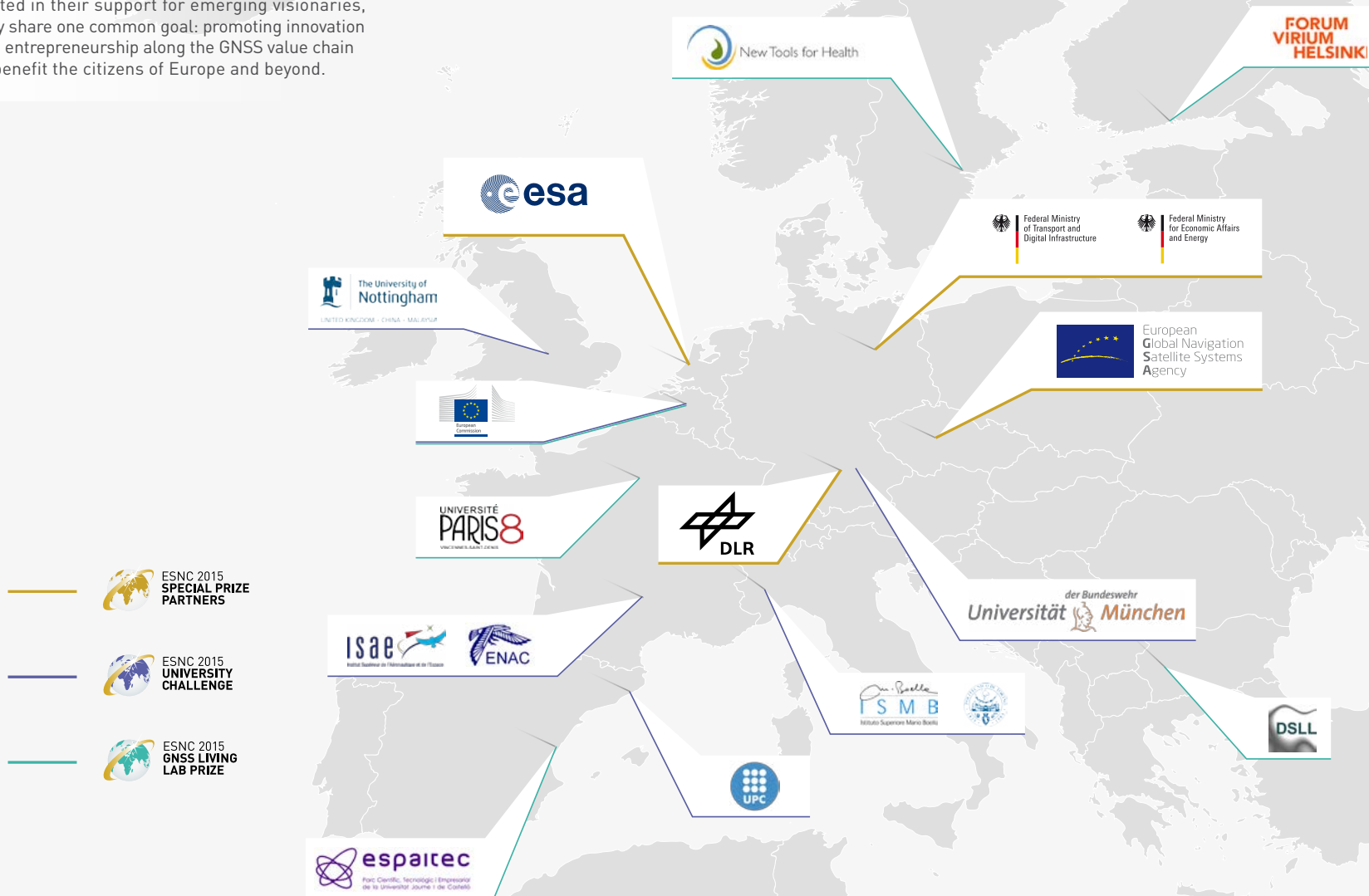
We are already looking forward to the next iteration of the ESNC, which is scheduled to run from April to June 2016.

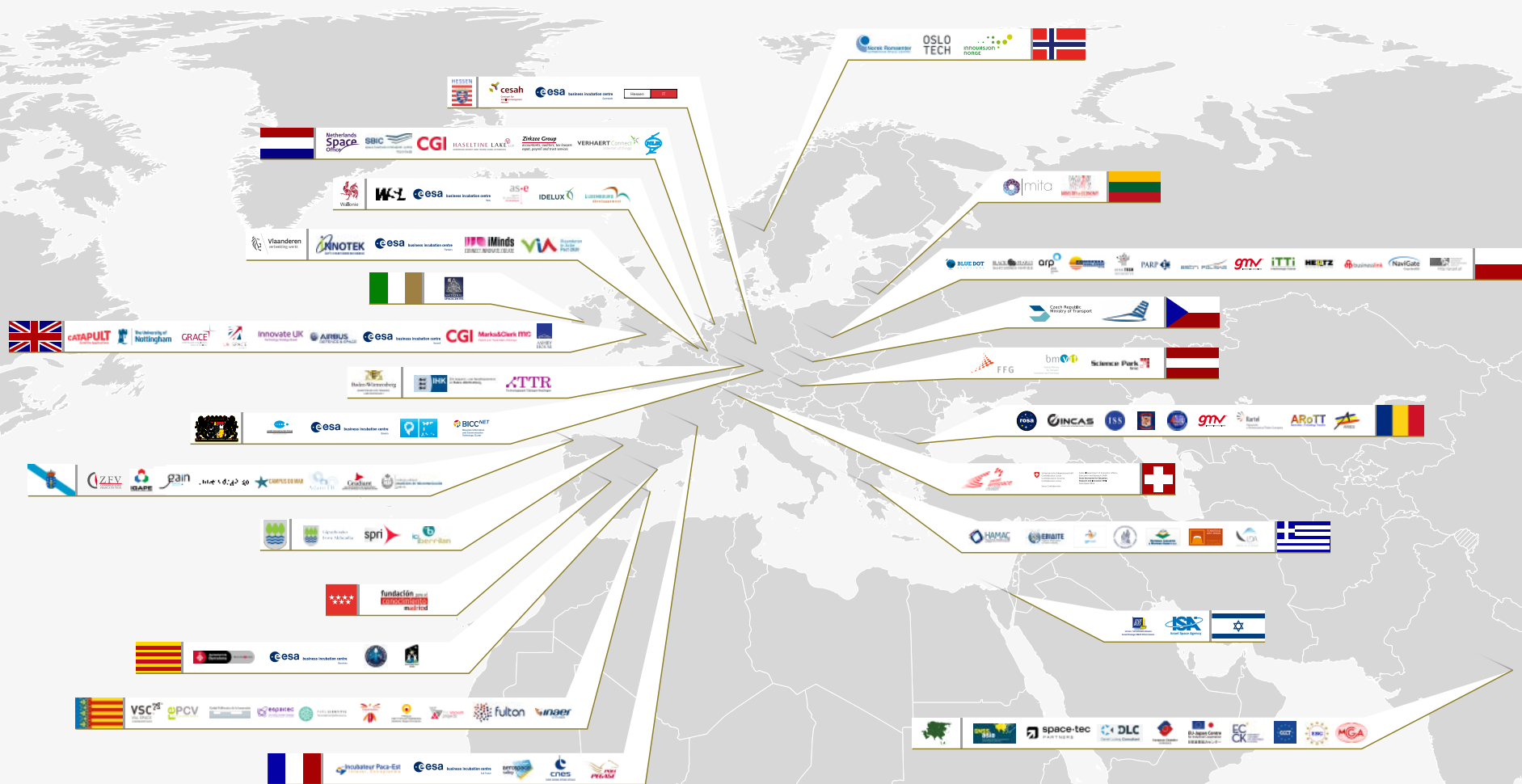
Thorsten Rudolph



Driving the commercialisation of GNSS applications

The ESNC, the world's largest innovation network for satellite navigation applications, is backed by the most relevant GNSS stakeholders in Europe. United in their support for emerging visionaries, they share one common goal: promoting innovation and entrepreneurship along the GNSS value chain to benefit the citizens of Europe and beyond.



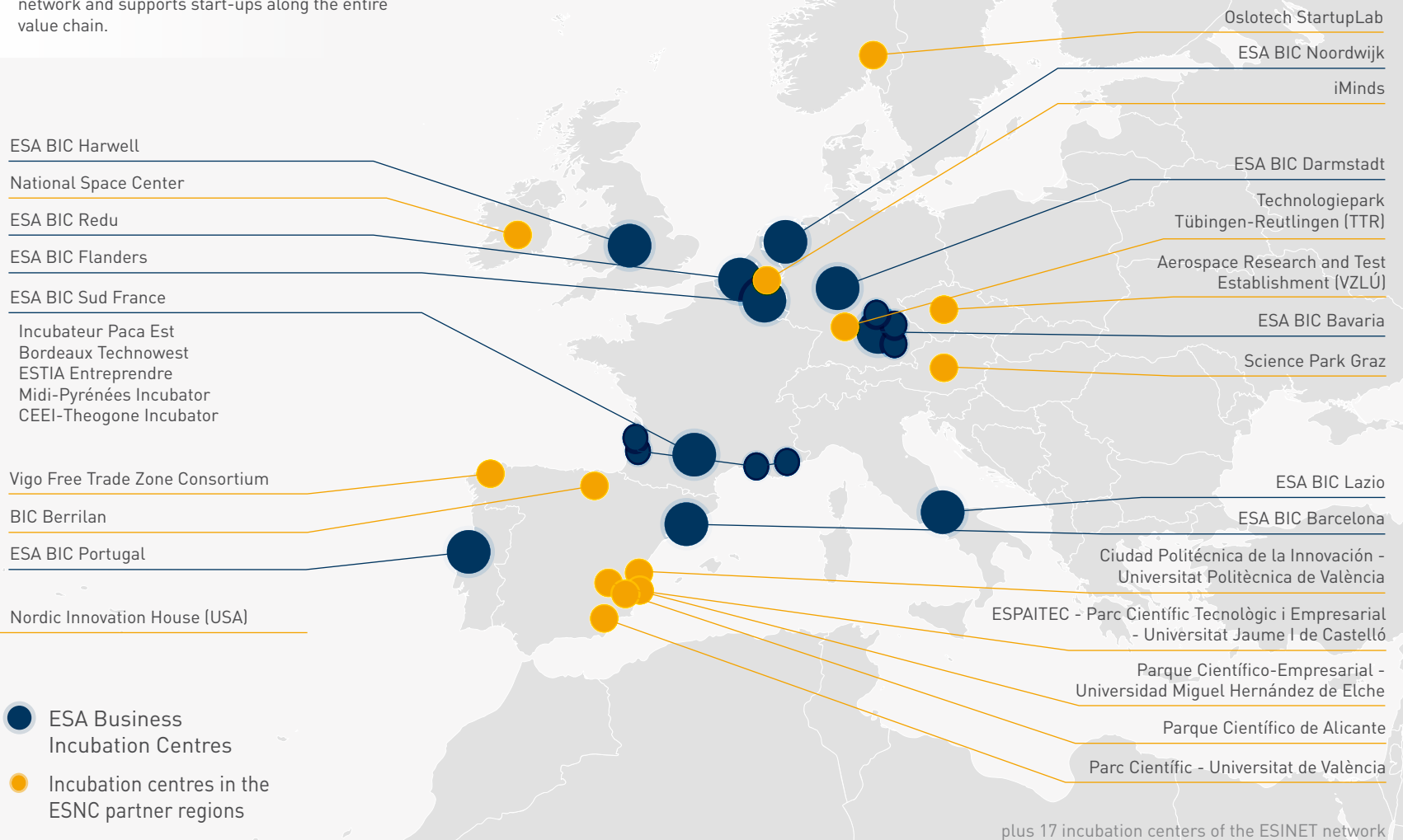


Dedicated support at the national level

The ESNC's excellent regional network proves that Europe is prepared for its venture into space. Its 24 partner regions, which comprise more than 130 stakeholders at the regional level, form the backbone of the competition's global network and ensure that participants can access the support they need to launch their businesses.

Fostering the creation of new ventures

The competition serves as a Europe-wide support mechanism for entrepreneurs that want to launch their business case. With more than 40 incubators all over Europe and beyond, the ESNC comprises the world's largest space-related incubation network and supports start-ups along the entire value chain.



The EC-funded project built on the established structure of the ESNC based on a common goal: to drive the commercialisation of GNSS applications and create new businesses and jobs in Europe. GEPAS supported European partner regions and special prize partners in providing dedicated support to their winners to help transform the ideas awarded into new products and services. GEPAS was coordinated by Anwendungszentrum GmbH Oberpfaffenhofen (AZO). *



EUROPEAN
SATELLITE NAVIGATION
COMPETITION

FACTS & FIGURES

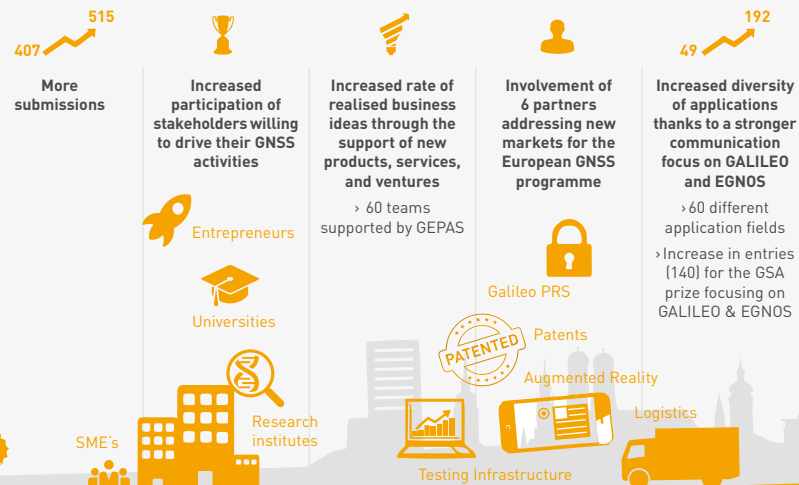
1,135 entries for GEPAS
co-financed prizes



60 teams
supported

20 beneficiaries
involved

GEPAS pushed the commercialisation of GNSS applications



GEPAS fostered the establishment of Europe's largest support mechanism for GNSS entrepreneurs


Extension of expert network
› More than 240 experts

€
Extension of the overall prize pool
› Worth more than EUR 1 million


Improved regional business support programmes
› Establishment of the largest space-related incubation network (> 40 incubators) and ~60 prize pools co-financed by GEPAS



GEPAS united Europe in space!

Increased awareness of the European GNSS programme
› through more than 220 events

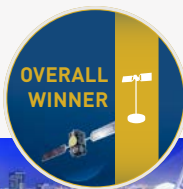


Involvement of 13 new European regions



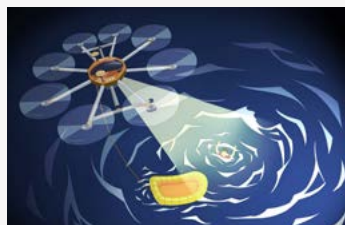
Long-term engagement of 10 established European regions





POSEIDRON: Remotely Piloted Aircraft System for Search and Rescue and Environmental Defence

The main purpose of Poseidron is to reduce the number of fatalities far out at sea when people fall overboard or are involved in shipwrecks that occur during illegal immigration. The project consists of one large drone that is designed to increase the survival possibilities of those stranded at sea by providing a faster response and better service than existing solutions. The multicopter weighs 80 kg, can operate for more than 180 minutes, and has a diameter of four metres. It is capable of lifting up to 70 kg and is designed to take off from a mid-size boat. Thanks to its thermal cameras and the EGNOS system, the multicopter is able to immediately localise people in the middle of the water. When it arrives at a fatality, Poseidron will launch an inflatable dinghy. Depending on the weather conditions, it will tow the dinghy to a rescue boat or maintain its position in order to facilitate rescue. Poseidron can also localise and monitor fuel spills and provide support during humanitarian catastrophes. Thanks to Galileo and EGNOS, the drone will have the ability to fly safely, maintain its position accurately, and alert the emergency authorities.



Val Space Consortium

Boasting an excellent communications network, modern infrastructure, quality industrial land, and skilled entrepreneurs, the three provinces of Valencia, Castellon, and Alicante offer an ideal place for companies to settle and grow. Val Space Consortium was created in 2010 to combine all of Valencia's efforts in the space sector and increase their impact and international competitiveness. Composed of Generalitat Valenciana, the city administration of Valencia, Universitat Politècnica de València, and Universitat de València Estudi General, it performs scientific research and renders technological development services in space-related fields. Through collaborations with the European Space Agency (ESA) and other Spanish and international institutions, the consortium promotes activities and provides services designed to facilitate European space development.



KYNEO: The Open Navigation Platform for the GNSS of Things

KYNEO is a small electronic device designed to enable a huge variety of projects in which the location, movement, and orientation of people, vehicles, or things matter. This single device integrates a complete set of navigation and motion sensors, data-recording capability, and the possibility to connect external sensors or the most popular wireless communication modules, which makes it easier to meet various application requirements. Through its compatibility with Arduino and the active community behind this platform, KYNEO is meant to provide a useful tool for developers regardless of their expertise. Open-source libraries, thorough documentation of the platform, and examples for beginners are also provided. The advanced GNSS module integrated into KYNEO also makes use of European satellite navigation technologies, which makes

GALILEO and EGNOS accessible to developers and non-expert users. All in all, KYNEO offers a low-cost platform for infinite applications of satellite navigation technology and will be key to what we call the "GNSS of Things".



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European GNSS Agency (GSA)

The GSA, a European Community agency, works with the European Commission on a range of activities aimed at helping European entrepreneurs and businesses – especially high-tech SMEs, business incubators and related networks – commercially exploit EGNOS and Galileo. These marketing, promotional and R&D activities help ensure that European industry maintains a competitive edge in the global satellite navigation market. EGNOS is Europe's first venture into satellite navigation and is available free of charge. It augments GPS and makes it suitable for safety-critical applications. It will be followed by Galileo, a full-fledged global navigation system.



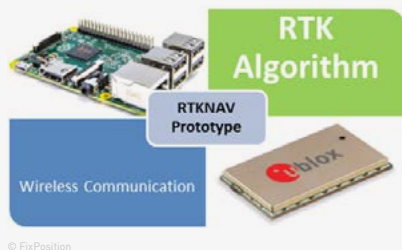
ESA SPACE SOLUTIONS® PRIZE

ESA SPECIAL PRIZE WINNER



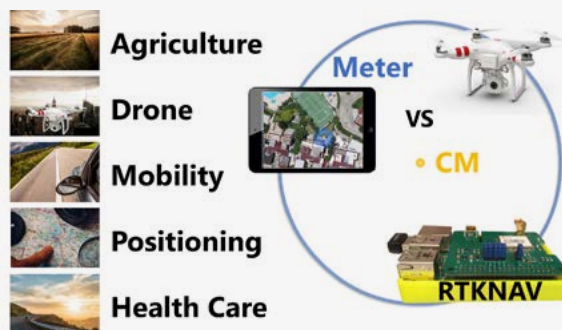
RTKNAV – A Low-Cost, Compact, User-Friendly, Centimetre-Accurate, Real-Time Navigation Solution

Current GNSS navigation and positioning devices are either not accurate or not affordable for a wide range of customers. While low-cost, consumer-grade GNSS units provide positioning solutions with metre-level accuracy, the centimetre level is achievable using geodetic-grade GNSS instruments. However, these instruments entail a significant increase in cost per unit and an inconveniently large size. RTKNAV offers an affordable, compact, high-precision navigation solution. By intelligently combining powerful differential carrier-phase GNSS positioning algorithm with low-cost GNSS modules, embedded systems, and wireless technology, a real-time positioning accuracy of 1-5 centimetres and significantly lower end-user costs can be ensured. The algorithm has been developed and tested for four years at ETH Zurich and successfully deployed in several real-time scenarios. Using multiple GNSS systems (including Galileo) will allow us to guarantee a reliable, accurate solution at any time and location.



© FixPosition

SWITZERLAND REGIONAL WINNER



© FixPosition

The vision is to integrate RTKNAV into multiple areas of deployment, such as drone-based delivery, autonomous driving, the Internet of Things, and crowdsourced geo-monitoring and early warning.

European Space Agency (ESA)

ESA, an international organisation comprising 22 member states, 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. The ESA space solutions network compiles a variety of expertise from Europe's space programmes to give any business a tailored solution, based on available space systems, technologies and know-how. Through our Business Incubation Centres, Technology Transfer Brokers and partners, Europe benefits from its space industry like never before, and together we support our national industries and boost Europe's global competitiveness.

swiss aerospace cluster

The swiss aerospace cluster is an agile network and non-profit organisation for pooling information across companies and organisations, thereby increasing development potential and promoting innovative products. Switzerland ranks first among 125 economies in terms of innovation levels (Global Innovation Index 2011). The cluster's members include academic and research organisations, as well as companies in the field of aerospace technologies, such as satellite navigation. The cluster supports access to attractive future markets and boosts the competitiveness of the industry and research in Switzerland.



MARITIME

NAVIGATION – CORE DRIVER FOR THE DIGITAL WORLD

DLR SPECIAL PRIZE WINNER



Mobile Underwater Positioning System (MUPS)

It is surprising that while mankind is researching the surface of Mars and Pluto, we still know little about the bottoms of the lakes, seas, or oceans on Earth. The Mobile Underwater Positioning System (MUPS) is a new solution for localising objects in water. It aids in discovering what is hidden in the depths of water reservoirs by supporting navigation and positioning (such as GPS). Based on GNSS satellites signals and pseudolites with transmitters of modulated acoustic signals, MUPS makes it possible to determine the position of objects in water. Modulated waves are sent to receivers for pseudorange calculation. This solution makes mapping seas and the ocean floor easier than ever before. Unlike existing systems, it is mobile, which enables users



© Stockvault.net

to change areas of use without any problems. It also works without any additional equipment. MUPS technology is designed for divers, environmentalists, archaeologists, marine engineers, researchers, submarines, and more. Anyone working at the bottom of water reservoirs who needs to know their own position or that of objects or other phenomena can now benefit from MUPS.

German Aerospace Center (DLR)

DLR is the national aeronautics and space research centre of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport and security is integrated into national and international cooperative ventures. In addition to its own research, as Germany's space agency, DLR has been given responsibility by the federal government for the planning and implementation of the German space programme. DLR is also the umbrella organisation for the nation's largest project execution organisation.

PRS: RELIABLE SERVICES FOR A SECURE DIGITAL SOCIETY

BMVI/BMWi SPECIAL PRIZE WINNER

HALI – Always Green Traffic Signals for Emergency Vehicles

Traffic signal priorities for emergency vehicles are a highly desirable function with many benefits related to safety and efficiency. It's possible to provide for fully automatic, comprehensive, and affordable pre-emption with generic technologies. The authorities in the Oulu region have planned and acquired a system that is expanding in Finland as an open system for the authorities. Known as the HALI system, it has the potential to become a standard function since it is very effective, easy to implement, and very cost-efficient. The main risks relate to wireless technologies, which is where Galileo PRS can be very helpful. The positioning data needs to be accurate at all times, and any interference in the form of jamming or spoofing could prevent the pre-emption altogether. In addition, the PRS security functions would make the positioning interface almost impossible to hack, thus offering extra cyber-security. The next version of HALI is being developed into a national system for Finland, and a consortium is being formed to pilot the system in different-sized cities around Europe. Meanwhile, a growing ecosystem is already in place to take HALI to the next level.



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SECURITY

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organised by



UNIVERSITY CHALLENGE SPECIAL PRIZE WINNER



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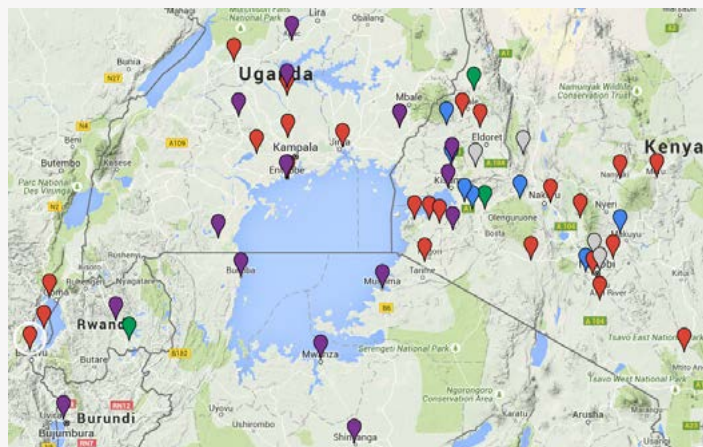
THE NETHERLANDS REGIONAL WINNER



© Andre Kuipers

GNSS Monitoring of Precipitable Water Vapour over East Africa Using Low-Cost Receivers

African weather is poorly monitored, especially for forecast purposes. At the same time, African societies are vulnerable to extreme weather events. By far the most critical weather variable is rainfall.



To make good predictions about rainfall, it is important to know how much water vapour the atmosphere contains. More water in the atmosphere means more rainfall. Traditionally, this amount of water is measured by weather balloons, but these are expensive and there are only few regular

launches over Africa. GNSS signals travel slightly more slowly through moist air than through dry air. A GNSS receiver can measure the extra delay caused by moisture in the atmosphere, even though the differences are very small. Today, even low-cost GNSS receivers are so accurate that they can measure these delays. The plan is to add these low-cost GNSS receivers to the stations of the TAHMO (Trans-African Hydro-Meteorological Observatory, www.tahmo.org) network around Lake Victoria. TAHMO is building a network of 20,000 robust and cost-efficient weather stations across Africa. By adding GNSS/Galileo receivers, it will be possible to greatly improve rainfall predictions.



Anwendungszentrum GmbH Oberpfaffenhofen & GNSS Research & Applications Centre of Excellence

The FP7 project GENIUS focuses on building strong links between universities, research institutes and industry. It provides direct benefits to industry through implementing measures to strengthen GNSS education and through the fostering of cooperation between education, research and business. The ESNC University Challenge is carried out by Anwendungszentrum GmbH Oberpfaffenhofen (AZO) and the GNSS Research & Applications Centre of Excellence (GRACE). It connects innovative thinkers with the business community to pave the way from university to entrepreneurship.

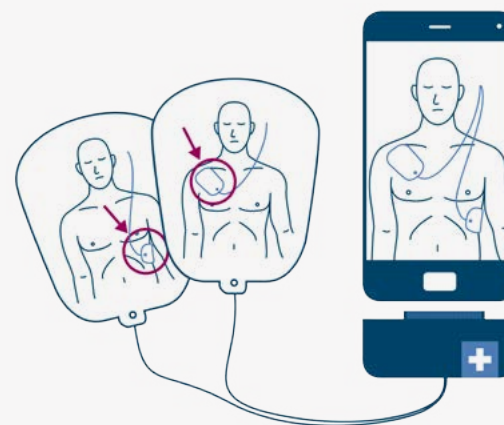
The Netherlands Space Office (NSO)

The Netherlands Space Office (NSO) was established by the Dutch government to develop and implement its country's long-term space programme. In addition to serving as the Dutch space industry's representative in international space organisations like ESA and NASA, NSO forms the central point of contact for the space community within the Netherlands. Moreover, NSO also seeks to educate the general public – and specifically students and teachers – about space (science, applications, and exploration) in an open and innovative manner. Finally, NSO invests in programmes that foster the commercial market for applications based on the utilisation of space data.



Position-Based Assistance in Case of Sudden Cardiac Arrest

Each year, six million lives could be saved by defibrillation within the first minutes of sudden cardiac arrest. This is why public places are equipped with automated external defibrillators (AEDs). Due to their cost and size, however, AEDs have to be retrieved from scarce central locations. This takes time and diminishes the chances of survival. Liimtec is developing an AED based on mobile devices that will increase these chances and help save lives. Its technical concept consists of compact hardware in combination with an app. The app will feature all the functions of existing AEDs, along with the ability to send emergency calls and precise positioning information directly to emergency services and proximity alerts to nearby first-aiders. Liimtec's solution will be small and portable enough to be carried around on a daily basis. This will enable first responders to bring an AED to the scene of an incident and apply defibrillation immediately, saving lives in the process.



© Jasper Ettema

This value proposition serves two main groups of customers: people with special responsibilities who want to be ready to save lives, and members of risk groups who want to prepare for their own case of SCA.

Anwendungszentrum GmbH Oberpfaffenhofen (AZO)

Having been initiated as part of the FP7 project GAINS (Galileo Advanced INnovation Services), the GNSS Living Lab Prize is now being continued by AZO with the support of the EC-funded GEPAS project (Galileo-EGNOS Prize Award Scheme). The GNSS Living Lab Prize seeks to facilitate the emergence of user-driven, open innovation demand for services and GNSS applications. Living Labs – Public-Private-People-Partnerships (PPPP) of firms, public agencies, universities, institutes, and users – in Bulgaria (Digital Spaces Living Lab), Sweden (New Tools for Health), France (Integrative Usage Lab), Spain (espaitec Living Lab), and Finland (Forum Virium Helsinki) are now prepared to conduct a reality check trial with the winning application and up to four finalists.

Austrian Research Promotion Agency (FFG)

The national funding institution for applied research and development in Austria offers a comprehensive range of services for enterprises, research institutions and researchers. Its Aeronautics and Space Agency connects such entities with the international aerospace world, implements Austria's aerospace policy, and represents the country at international aerospace committees – incl. ESA. Austria's ASAP programme, meanwhile, funds research on space science, technology, and applications. Finally, the agency acts as the central interface between Austrian interests and European programmes, FFG's Galileo contact point supports Austria's competencies in the field of satellite navigation and interacts with the GNSS community.



ASIA REGIONAL WINNER



SECURITY



GeoKey – A Locking System That Uses Geographic Locations as Keys

GeoKey is an innovative locking system that uses geographic locations as keys. It can only be unlocked in preconfigured locations. Cargo security is often a challenging issue in the transportation of goods. Oil, gas, and food in particular face the problem of theft during transit. It is common for drivers to carry keys along with their cargo, which increases the chances of theft. Designed for the logistics, cargo, and personal luggage services industries, GeoKey features a dual security mechanism that can only be unlocked in a predefined location in combination with a four-digit security code. It can be embedded into container locking systems or used as a padlock on luggage and safes. Thanks to the flexibility it offers, GeoKey has the potential to be used by a wide range of customers. GeoKey also enables senders to control the locations where their shipments are unlocked. The freight-forwarding software application can also be used to configure the destination address



in GeoKey and to send the password to the recipient. The lock uses Galileo's Open Service Authentication to guarantee GNSS reliability.

GNSS.asia

The Asia-Pacific rim is a hotspot for satellite signal reception and is likely to be at the forefront of multi-constellation usage, which will result in increased accuracy, availability, and reliability for the fast-growing population of GNSS users in Asia. Asia is also the manufacturing hub of GNSS downstream equipment, chipsets, and receivers and home to some of the most innovative technology companies. Many Asian companies are increasingly taking key positions along the GNSS value chain, and several countries are starting to produce significant amounts of locally developed innovations. GNSS.asia provides a comprehensive range of hands-on support services to the GNSS industry in Europe and the Asia-Pacific region. These are designed to aid the sector in developing mutually beneficial commercial activities and establishing industrial collaborations. GNSS.asia and its partners also represent the platform and the GNSS industry at several key GNSS events across Europe and the Asia-Pacific region.



BADEN-WÜRTTEMBERG / GERMANY REGIONAL WINNER 3RD PLACE



© Manuela Weschke

ICARUS – A New Global Tracking Service for Small Objects

On planet Earth, the well-being of humans is directly connected to the existence of animals, be it as a source of food, the origin and carrier of diseases, or as an early-warning system for human impacts on nature. Billions of animals could be our sensors – our eyes, ears, and noses for the health of our planet, but no tracking system for small animals exists. ICARUS will close this gap by monitoring the local, regional, and global movement of tagged wild animals. The main challenge of ICARUS involves a two-way communication link between tags attached to animals and the payload at the ISS. A tag weighing less than five grams is under development that measures its absolute GNSS position at regular intervals, thus tracking the animal with high accuracy. During contact with the ISS, the tag transmits the recorded data to the ICARUS User Centre. ICARUS is primarily geared towards scientific groups that are carrying out basic and application-oriented research with migrating animals. It also provides services for national and international authorities and organisations, such as in the fields of environmental protection and disease control.



© MaxDine

IHK Reutlingen

Baden-Württemberg, the federal state in the South West of Germany and home to 11 million inhabitants, is famous for its tourist highlights, such as the Black Forest and Lake Constance, its universities in Heidelberg, Freiburg, Karlsruhe, Constance, Stuttgart, Ulm, and Tübingen; as well as the companies Daimler, Porsche, SAP and Bosch. The state is known for its great writers like Friedrich Schiller ("Wilhelm Tell") and its people are known as „Tüftler“, a term indicating a great enthusiasm for technical problems and their solution. Thanks to its open-minded spirit, Baden-Württemberg is ideally positioned to participate in the ESNC.



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SECURITY

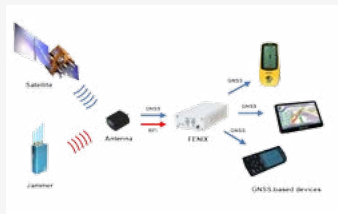
BARCELONA / SPAIN REGIONAL WINNER



© Reinhardt Altmann / iStockphoto

FENIX – Front-End GNSS Interference eXcisor

FENIX is an innovative solution designed to mitigate the effect of GNSS jammers, which compromise the reliability of GNSS devices. Despite legal regulations, the proliferation of jammers has increased the problem of radio-frequency interference. FENIX is a technology that was developed at UPC-BarcelonaTech based on pre-correlation signal processing techniques that allow for real-time reduction of any interference captured by the antenna while still remaining transparent to the receiver. FENIX targets GNSS applications that require a high level of reliability, mainly to give security to customers in the face of undesired and potentially fatal jammer interference. The aviation, maritime, and railway industries – as well as on-road applications such as high-value goods tracking or driverless vehicles – demand a solution that increases the integrity of GNSS signals under jamming conditions. FENIX integrates with all navigation systems based on Direct Spread Spectrum Signals (DSSS), including GPS, Galileo, Beidou, and the new version of GLONASS. Although these systems are diverse, they share several characteristics that allow for similar treatment in the presence of jamming signals.



Barcelona Activa

The city of Barcelona and its metropolitan area invest in and drives new initiatives as part of their commitment to innovation, science, and technology. Barcelona's designation as the Mobile World Capital from 2012 to 2018 is a significant example of this dedicated focus. Meanwhile, Barcelona has set its sights on promoting knowledge sharing and synergies between the mobility sector and the growing aerospace technology market in order to bring these interrelated fields even closer together. Barcelona is home to the first ESA Business Incubation Centre in Spain, which was inaugurated in 2014. Barcelona Activa is the Barcelona City Council's local development agency and an international benchmark the support of entrepreneurship, innovation, professional improvement, and job creation throughout its 27 years of engagement.

BAVARIA / GERMANY REGIONAL WINNER



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Hi-Park – Real-time, Crowdsourced, On-Street Parking Information Using Drivers' Smartphone Cameras

Hi-Park's technology crowdsources on-street parking vacancy data in real-time using smartphone cameras. It significantly reduces time spent searching for parking by employing this data and sophisticated algorithms to find the nearest available parking spot. Hi-Park thus enables cities and transportation agencies to control their parking congestion issues. The smartphone application runs seamlessly in the background while driving and captures images using the camera; it then identifies and sends the location and size of every vacant parking space it passes along the way to a server. All of this is done automatically without the driver's intervention while maintaining the smartphone's functionality. As a dynamic platform, the technology captures and analyses other valuable visual information related to smart cities in service of municipalities and local residents. For its crowdsourcing, Hi-Park partners with taxis, buses, and municipal vehicles that travel extensively within cities with the application; this enables it to quickly obtain accurate, city-wide parking data in new cities at a low operational cost. Hi-Park provides its services based on real-time and historical parking data.



Anwendungszentrum GmbH Oberpfaffenhofen (AZO)

AZO was set up in 2004 by the German Aerospace Center (DLR) and the Bavarian Ministry of Economic Affairs at the prominent aerospace location Oberpfaffenhofen, located near Munich. The company's main goal is to drive innovation and incubation in the commercial use of space technologies and infrastructures. Through the leading innovation networks for satellite navigation (ESNC) and Earth monitoring (Copernicus Masters), AZO drives the creation of innovative products, services, and business concepts for these emerging market segments. The underlying business concepts are realised in the form of company foundations as part of the incubation programme at ESA BIC Bavaria.

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CZECH REPUBLIC REGIONAL WINNER



Biological Protection of Airports Using Drones

The main idea of the project proposal is to develop a multi-drone system which will be used primarily in the biological protection of airports, as well as in securing airports and their surroundings. The system consists of drones which cooperate to monitor bird activity at an airport, scare off birds using acoustic equipment, and monitor the airport's security measures. The drones are programmed by software that uses the GNSS system to avoid collisions with other drones or other objects in a partially self-controlled system. The idea also includes establishing flying corridors for drones above an airport within the safe flight area. This idea facilitates the protection and safety of airports from a new point of view. While most current solutions for biological protection use a combination of active methods, the proposed method and its cooperative



© Ladislav Bartuska

drone offer more advantages. The greatest benefit of the system lies in how it improves safety and security measures in air transportation by helping aircraft avoid collisions with birds and monitoring the security of airports and landing areas.

The Ministry of Transport of the Czech Republic

The Czech Ministry of Transport has a mandate given by the Czech Government to coordinate all space activities in the Czech Republic. It is responsible for Czech membership in the European Space Agency, EU space policy, satellite navigation development, space applications and partnership with the European GNSS Agency (GSA). It also acts as a point of contact for the Galileo programme.



FLANDERS / BELGIUM REGIONAL WINNER



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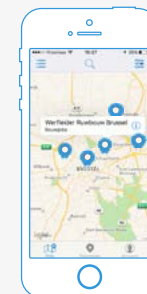
JobWalkr – The First Mobile App That Informs You About Job Opportunities in Your Neighbourhood

Each day, people waste huge amounts of time in traffic going to and from their jobs. Did you know that over an entire career, most people drive more than a million kilometres and spend more than 2.6 years in a car? Employees acknowledge the fact that they want to waste less time in traffic to gain more quality time for family, friends, and recreation. Employers are well aware that local employees are likely to stay longer at the same company and be more productive and happy without the monotony of traffic jams. Companies and employment offices also know that the time has come for an innovative and affordable job platform to change the current state of employment. JobWalkr will inform you when relevant job opportunities are available in your neighbourhood. JobWalkr will provide users with:

- › Jobs that really matter to them
- › The exact location of job opportunities
- › Average travel times to and from jobs
- › Intelligent push notifications

JobWalkr will provide companies and employment agencies with:

- › An innovative job platform with a focus on location
- › Dashboard analytics: know when, where, and how much your job ad has been viewed
- › An affordable job platform
- › A CV database with location search



Innotek

Innotek is a non-profit organisation that supports new business, start-up initiatives, and offers innovative companies flexible office and lab infrastructures in the cities of Geel and Mol. In doing so, Innotek seeks to contribute to the development of high-level employment in Flanders. iMinds, a partner of Innotek in the ESNC 2015, is an independent research institute that stimulates innovation on information and communication technology (ICT). This research is interdisciplinary and demand-driven, and takes place in close collaboration with both local and international businesses and governments. Its aim is to provide solutions to complex problems and thus help meet society's future challenges.

FRANCE REGIONAL WINNER



WIZAR – A new way to discover history and heritage

Made by gamers for gamers, Wizar creates new dynamics for tourists. Wizar turns visitors into actors by involving them in the discovery of territories and their treasures. It uses geolocalisation to get them to see more, do more, spend more time, and consume more – all by simply playing along. The application targets families with teenagers and young adults between the ages of 12 and 35. Wizar is meant to be played in real-time while visiting a place. Powerful items like swords, shields, or spells are available as gifts when the player visits a professional partner (restaurants, leisure providers, etc.). These places are chosen based on an analysis of the player's touristic activities, preferences, and needs. Once the player has consumed something or retrieved an item (e.g. an alchemist's flask), a 1% commission is charged to the partner. Wizar offers a unique way to retrieve geolocalised touristic data in real-time. It enables a personalised approach that can be used by governments, tourism officials, local merchants, and more in marketing strategies across territories and countries.



© Crenwickles

Incubateur Paca-Est

The regional incubator Incubateur Paca-Est is now organising the national ENSC competition for France on behalf of ESA BIC Sud France. Founded in 2013, ESA BIC Sud France – which is managed by Aerospace Valley in association with the CNES and Pégase – is France's first ESA BIC incubator. Its organisation is based on three main regions: Aquitaine, Midi-Pyrénées, and Provence Côte d'Azur (PACA). It is also driven by support structures dedicated to the creation of innovative companies, such as ASTIA Entreprendre, Bordeaux Technowest, CEEI Théogone, Midi-Pyrénées Incubator, and PACA-Est Incubator. Incubateur Paca-Est, meanwhile, is based at the Sophia Antipolis Technology Park – the home of 1,300 multinational companies, SMEs, labs, and international institutes representing 30,000 employees of 68 different nationalities.

GALICIA / SPAIN REGIONAL WINNER



Point&Pin – Remote Localisation for Emergency Situations

Point&Pin is a remote localisation application that is designed to identify emergency situations. It uses GNSS-determined positions together with the inertial sensors integrated into smartphones or custom-developed hardware to obtain the coordinates and distance of any given target. With Point&Pin, users can point to any given location with their smartphone cameras to obtain the coordinates and distance of the target, along with the option to quickly forward the information to the relevant emergency services. The range of application fields is myriad, from determining the coordinates of a forest fire to calculating the location of a highway accident. For the mass market, Point&Pin can also be used for fun applications such as recreational navigation, which makes it possible to highlight berths and harbour services when boating or view route markers during hiking trips based on augmented reality. For the professional market, the system could be installed and embedded within UAVs for deployment in a wide range of applications.



Vigo Free Trade Zone Consortium

Galicia, one of Spain's 17 autonomous regions, has an area of 29,500 square kilometres and more than 2.5 million inhabitants. The region is a hotbed of education and innovation. It is home to three universities and a large number of nationally acclaimed R&D centres involved in the forestry, marine, automotive, shipbuilding, mining, wind, hydroelectric energy, food and agriculture. The Vigo Free Trade Consortium is a public institution that has been working to encourage international trade and economic development in Galicia since 1947. As an economic development agency, they not only serve as the main developer of business parks in its area of influence, but also provide companies with a full range of services. In 2010, the network of parks in Vigo's free trade zone generated 26.57% of the total wealth of the Vigo Metropolitan Area and 25.56% of all employment in the region.



EMERGENCY
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SECURITY



GIPUZKOA / SPAIN REGIONAL WINNER



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Pothole Avider

Every year, road accidents cause over 1.3 million deaths, 50 million injuries, and EUR 465 million in property damage. Pothole Avider is an active security system for terrestrial vehicles that can reduce these losses by 25%. To make this possible, the system warns drivers about nearby hazards (based on GNSS) and enables them to adjust their vehicle's speed to reduce the risk of an accident. Such hazards include potholes, dangerous curves, lateral winds, and wet or icy roads. Analysis and reporting is handled automatically (in real-time) by a combination of sensors and artificial intelligence to avoid distracting the driver. When the application detects that the vehicle is approaching a hazard, it will warn the driver with visual and auditory alerts. Each user will contribute information about road conditions, thus creating a

worldwide collaborative platform. The application is programmed for Android, and a free version will be released for the use by any driver. It is also compatible with Android Auto. In the future, a version for on-board vehicle computers and GPS systems will be launched.



Provincial Council of Gipuzkoa

The province of Gipuzkoa, located in the Basque Autonomous Community of Spain, has Spain's highest density of universities and research and technology centres. With four universities, almost 40 research centres, more than 10,000 people working in R&D, and two technology parks, Gipuzkoa invests 2.57% of its GDP in R&D and is deeply involved in innovation. The key to this success lies in an industrial framework that actively promotes research and enjoys the full support of the local public administration. Gipuzkoa is not only home to large integrators, but also to many other specialised SMEs covering the entire supply chain.



GREECE REGIONAL WINNER



TripInView | Dream. Plan. Experience.

Fly virtually over the Mediterranean coastline and have a unique visual experience! TripInView aims to change the way people explore destinations and plan their vacations. It is a free online travel platform that allows users to enjoy 300 hours of HD video and 800,000 HD photos of the entire coastline, taken from a manned helicopter. The content illustrates a total of 40,000 kilometres along the coast of Spain, Italy, Turkey, Greece, France, Monaco, and Malta. Every user can visually explore 500 destinations and 7,000 places (POIs), including beaches, marinas, ports, anchorages and urban places. Every member of the travel ecosystem will eventually be able to use TripInView to indicate their locations on its geo-tagged images and video. Hoteliers can already create profile pages free of charge and present themselves as pins on the images illustrating each coastline. TripInView will use Galileo to improve its geo-location accuracy and automate its pin-on-photo and pin-on-video technology. All images and video footage will be geo-tagged and fully synchronised, making it possible to jump from image to video (and vice versa).



Hellenic Association of Mobile Application Companies (HAMAC)

HAMAC is a non-profit organisation comprised of high-tech companies that develop advanced mobile applications, offer assistance to telecommunication providers, and render innovative communication, content, and application services. It represents a vibrant sector of more than 80 participating companies that account for approximately 90% of the total turnover in Greece's mobile industry and employ more than 4,000 people, including a thousand professionals. These companies are active in more than 40 countries, which has enabled some of them to expand and distinguish themselves as global leaders in the mobile services market. HAMAC's members also provide services to the world's largest telecom operators (which are listed on the LSE/AIM stock exchanges) and promote substantial growth at both the national and international level.

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Discover a Great Variety of Local Foods with the frimeo App

There are numerous local food producers in Germany. These producers – mostly family businesses – are very dedicated to offering unique products of great quality, such as rare mushrooms, special jams, or organic chicken. Although consumers are willing to look for alternatives to the standardised offerings of retail chains, they are often not aware of just how to find independent producers. During their daily routines, urban dwellers in particular do not notice these producers, which often have limited resources for digital marketing. This is why frimeo is developing a central point of reference online. Its mobile market platform for local food is based on an app for consumers and an easy-to-use back end for producers. Consumers can easily discover the great variety of offerings nearby on a map or specifically look up local food based on their diet preferences. To buy food, consumers can either visit the defined points of sale or place a reservation or online order for home delivery. Through this approach, frimeo hopes to establish new, decentralised networks between consumers and local producers and support the preservation of food cultures and traditions.



Centre for Satellite Navigation Hesse (cesah)

The ESA Business Incubation Centre (BIC) Darmstadt is managed by cesah. Located in the vicinity of the European Space Operations Centre (ESOC), cesah supports the development and marketing of business ideas and start-up companies in the satellite navigation domain. cesah is supported by Hessen-IT, a programme of the Hessian Ministry of Economic Affairs that supports the Hessian information and communication technology (ICT) sector in its market development, as well as SMEs in their efficient and creative use of ICT.



112GPS.com – More accurate emergency calls

112GPS provides emergency services with accurate location coordinates for calls made from a mobile phone. The lack of accurate caller localisation presents a significant problem to emergency services in responding to emergency callers across Europe, particularly when callers are unable to provide their location verbally. Using the 112GPS app when a call is made to 112, the user's GPS coordinates – along with the medical data entered by the user during initial registration – are transmitted securely to emergency services. In addition, the app automatically notifies up to five contacts in the event 112 / 999 is dialled from the user's mobile device. Despite an EU Directive requesting that all EU countries implement better caller location procedures, a clear solution has not yet been found to this global problem. LocateMe Ltd, the Irish company behind 112GPS, firmly believes that this life-saving application will not only help save lives, but also aid emergency services across Europe in saving time, money, and other resources.



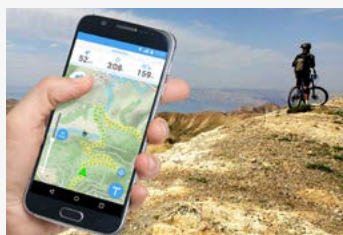
National Space Centre

Supported by a highly skilled workforce, Ireland's knowledge-based economy and strong technology sector have given the country the highest concentration of ICT activity and employment in the OECD. Ireland's ICT sector also attracts global investment, with seven of the world's top 10 companies now operating from the country. ICT also accounts for EUR 50 billion in Irish exports. The National Space Centre, located in the South of Ireland, is Ireland's only teleport. It is involved in emerging satellite technology projects – including the development of S-AIS and marine mapping projects with ESA – and has provided technical support services for the Galileo satellite programme.



Trailze – Complete Outdoors Experience

While urban navigation is now mainstream, nature, hiking, and biking trails still remain a challenge to most of the population. That's because the navigation experience provided by today's solutions is still very similar to where it was 20 years ago, when everyone was using map books. Here, you can see your location on a topographic map that only few can read, there are no clear directions, and to find the correct trail, you need to use several data sources. Trailze provides clear audio and visual instructions just like ordinary navigation. With Trailze, users can feel safe when hiking, biking, or driving off-road wherever they are. Trailze also provides a superior experience for discovering locations and routes in nature through its huge community database (which currently contains over 1,000 trails in Israel). Users can get directions, find out how far they are from the exit or target location, discover different routes, and venture out with confidence as if they had an expert guide at their side. Trailze covers Israel at present and is available as a free download on the Apple App Store and on Google Play.



Fully Camouflaged GNSS-GSM Anti-Theft System for Bicycles

GNSS/GSM-based tracking devices are well known as anti-theft solutions. However, there is a serious problem in placing security devices in ways that make them unrecognisable. It is very easy for thieves to identify GNSS/GSM tracking devices, as there is a small number of different solutions on the market. It is thus not a problem to take countermeasures against trackers, even for a low-level thief. To increase the security of bicycle tracking devices, it is necessary to develop imperceptible products and charging connectors. Two different types of antennas are proposed: one located at the end of the handlebar grip and the other in the bell. The realisation of these ideas will provide for fully unrecognisable and effective bicycle tracking devices. The grip-end antennas can be of two types:

- › An external metal grip-end cover antenna
 - › An antenna covered by the rubber/plastic grip at the end of the handlebar
- Due to the relatively large dimensions of bells and grip-ends, antennas can operate on both the GNSS and GSM bands. The devices will be charged through attachable magnetic cables.



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Israel Europe R&D Directorate (ISERD)

Israel is a world leader in national investment in R&D. Its expenditures accounted for 4.4% of its GDP in 2011, placing it ahead of countries such as the UK, the US, Japan, and Sweden. The country also represents a unique blend of academic excellence, scientific innovation, and entrepreneurial experience in basic and applied research across the various stages of product development. ISERD is an inter-ministerial directorate operated through Israel's Ministry of Economy that promotes the participation of Israeli entities in R&D ventures within the European Research Area. It operates through various channels, such as HORIZON 2020, Eureka, binational programmes, EEN, and endeavours co-funded by Israel and the EU. In the European Commission-funded EGNIS project, ISERD serves as the European GNSS coordinator for Israel.

Agency for Science, Innovation and Technology (MITA)

Lithuania, situated on the East coast of the Baltic Sea, boasts a rich history, unique traditions, Eastern Europe's oldest university, a highly educated workforce, and the highest mobile-phone penetration and densest broadband internet coverage in Europe. Lithuania promotes R&D in biotech, lasers, ICT, nanotech, mechatronics & electronics. The Ministry of Economy of the Republic of Lithuania is responsible for developing a legal and economic framework boosting economic development; it ensures public welfare and employment. Its tasks include the promotion of innovation, SME development, the administration of EU structural funds, the country's space policy, etc.



SECURITY



MADRID / SPAIN

REGIONAL WINNER



VardiaN – Big Data Platform of Connected PPEs to Prevent Accidents in Hazardous Environments

Too many accidents occur in the workplace. The latest related report conducted in Spain revealed that there are 412 fatalities per year. A large number of accidents happen while workers are performing maintenance tasks alone. If a worker is not assisted quickly, the consequences can be fatal. At present, there is no system capable of autonomously reporting the exact location of an injured person to a control centre. VardiaN is a service platform designed to prevent accidents, reduce the response time of emergency services, and minimise the severity of accidents. Here, it is necessary to equip operators with a system capable of:

- › Locating its position both indoors and outdoors
- › Detecting falls, lack of movement, sudden accelerations, and other anomalies
- › Detecting worker access to unauthorised areas
- › Detecting whether the operator has taken all the safety equipment required for the work at hand
- › Sending and receiving alarms, notifications, and other messages to and from the control centre

Two different solutions will be offered:

- › An app for operators who already have company smartphones
- › Wearable Personnel Protection Equipment (PPE) with optional ATEX casing



© Sensowave

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Professional solutions

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madri+d Foundation

The Madrid region represents the primary hub of Spanish industry, research, and education in the aerospace sector. It accounts for around 92% of the country's aerospace activity, both in terms of direct employment and turnover. The Madrid region is also home to a large number of public and private universities and boasts Spain's highest level of investment in R&D. The madri+d Foundation, meanwhile, supports the creation and early consolidation of new technology-based firms. Since 2002, it has supported 460 newly founded firms, which have generated more than EUR 150 million in total turnover and directly created more than 2,800 highly skilled jobs. In its various endeavours, madri+d works very closely with its network of university, incubation science, and entrepreneurial institutions.

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NORWAY

REGIONAL WINNER



MazeMap – High-quality, interactive, searchable, and linkable indoor maps

MazeMap delivers indoor map and navigation services to help visitors, students, employees, and patients find their way around large buildings and campuses like universities and hospitals. Thanks to its interactive, searchable, and linkable indoor maps, MazeMap can be used on smartphones, tablets, and laptops and integrated into timetables, webpages, existing apps, and more to make it easier for users to find their way and make their appointments. Since its launch in 2013, MazeMap has been deployed at several universities and hospitals; the service has been adopted far beyond what its creators initially expected. At the Norwegian University of Technology and Science (NTNU) MazeMap was employed by 17,000 users per week during the start of the semester in August 2015, representing 70% of faculty members and students. The MazeMap team is now expanding and planning to launch MazeMap at universities and hospitals across the world. MazeMap leverages satellite data to determine users' positioning outdoors, guide them between buildings, and create indoor maps. In order for its navigation to work, the solution requires access to global coordinates for its indoor maps.



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Norwegian Space Centre

The Norwegian Space Centre (NSC) is a government agency under the Ministry of Trade and Industry. Its mission is to ensure that Norway benefits as much as possible from its space activities. NSC's areas of focus include activities in which Norway can compete in the global market for space-related goods and services, and which to a great degree are based on national qualifications and needs. In addition to promoting the development, coordination, and evaluation of the country's space activities, NSC supports Norwegian interests through the European Space Agency (ESA). Norway's participation in the EGNOS and Galileo programmes is also actively managed by NSC.

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Pastguide: Virtual Reality in Real Places

Pastguide enables anyone to embed any content in the form of virtual reality in real places. It presents an example of the use of such technology in the cultural heritage market. Pastguide works on mobile devices such as smartphones or tablets and allows the user to move back in time while visiting interesting historic locations. The app visualises the past using 3D scenes filled with objects and figures from the chosen period; it knows exactly where the user is standing and facing thanks to geolocation, beacon technology, and image identification. The technology developed could be widely used in the

construction, marketing, and tourism markets. The main advantage of this product is its quick and easy method of producing 3D scenes and the possibility of superimposing them on real locations, such as the Main Square in Krakow (which has been prepared for Pastguide).



Blue Dot Solutions

Poland is one of the biggest markets for IT, mobile, transport, and entertainment products and services in the European Union. It has a very vibrant investment scene with an increasing interest in funding new applications and technological solutions. Having joined the European Union in 2004 and become a European Space Agency member-state in late 2012, Poland is now in a position to realise, fund, or co-fund several space-related programmes. Blue Dot Solutions (BDS) Ltd. is a Polish space-sector SME that provides a broad range of engineering, B2B, and consulting services to the Polish space sector. The services are mostly related to projects conducted for the European Space Agency (ESA), the European Investment Bank (EIB), and the European Commission. BDS owns the biggest Polish website dedicated to space news, named Kosmonauta.net.



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Shared Ahead – A Truck-Sharing System

Shared Ahead is an intelligent, centralised logistics transport system that allows the use or sharing of free cargo space available in trucks, thus increasing productivity and revenue for customers and transport companies alike. According to statistics, transports in the EU are affected by imbalances in transport flows and logistics, resulting in 30-50% of trucks running empty. Shared Ahead enables interoperability between logistics companies to facilitate collaboration in truck sharing while providing a gateway to both business and private customers that need to transport cargo on short notice. The system targets logistics transport companies and producers of goods, but also private customers. Enabling logistics companies and customers to

use a cargo truck sharing system decreases transport costs by increasing the use of existing truck fleets and infrastructure, which in turn lowers costs and CO2 emissions. The system will use GNSS (Galileo) to optimise navigation, locate goods and customers, track dangerous cargo, and alert authorities in case of danger.



Romanian Space Agency

Established in 1991 and reorganised in 1995 as a public institution within Romania's Ministry of National Education, the Romanian Space Agency (ROSA) develops the National Space Programme and coordinates its implementation through research projects and space applications. It also has the authority to establish its own research and development centres. Meanwhile, ROSA serves as the lead organisation of the Programme for Research, Development and Innovation STAR (Space Technology and Advanced Research) and represents the Romanian Government in international cooperation programs such as the European Space Agency (ESA), the United Nations (UN) and the North Atlantic Treaty Organisation (NATO). Led by Dr Phys Marius-Ioan Piso, president of ROSA since 2004, the agency carries out its own research and development projects through the ROSA Research Centre.

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UNITED KINGDOM

REGIONAL WINNER 2ND PLACE



REALRIDER®

REALRIDER® is the first app that detects if a motorcyclist has had a crash and notifies the emergency services of the riders location. There are an estimated 1.3 million riders in the UK, representing 1% of traffic, yet accounting for up to 19% of deaths and serious injuries on roads. A riders' chances of survival are greatly improved the quicker medical teams can find and treat the patient. Developed by Realsafe Technologies, REALRIDER® has REALsafe® crash detection technology built-in. REALsafe® monitors a smartphone's accelerometer together with GNSS data and after impact a two minute crash alert countdown is triggered. REALsafe® continues to monitor GNSS movement and sends the rider's second and last known coordinates to medical teams along with the rider's phone number and medical information. The company's partnership with the National Health Service is unique, and after

a successful NHS trial, REALRIDER® will be the first app to fully integrate into the British Telecommunications (BT) telematics system, ensuring REALRIDER® crash alerts are treated as any other 999 call. REALRIDER® will be the first 999 app to be government approved and the team is working with the European Emergency Number Association.



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The Satellite Applications Catapult

The Satellite Applications Catapult is a new type of independent innovation and technology company, created to foster growth across the economy through the exploitation of space. Catapult helps organisations to make use of and benefit from satellite technologies, and bring together multi-disciplinary teams to generate ideas and solutions in an open innovation environment. Their world-class facilities and expertise enable the best businesses, researchers and end-users to work together to develop new satellite-based products, services and applications, translating ideas from concept to market. The involvement of the Catapult has allowed the UK to boost the business support provided to all entrants, and vastly expand on the range of available programmes such as fora for investor readiness, ideas accelerator and business breakfast clubs.



WALLONIA / BELGIUM

REGIONAL WINNER



A New Concept for a Location-based Mobile Game with an Innovative Monetisation Platform

Apocalypse Hunters is a location-based trading card game that works with different themes. It brings a completely new dimension to the gaming sector thanks to its interaction with the real world and weather forecasts. When it rains, for example, the cards from the "water family" will be twice as strong as before. Playing from a moving car or train will also be exciting, as it will be possible to interact with more content. Apocalypse Hunters is more than a game: It helps other developers monetise their own games through a location-based foundation of data. It attracts users to specific places or sales points to unlock content in the game. In doing so, it helps businesses/institutions that want to attract users to specific places through gaming. The game has climbed to fourth place in the SlideDB ranking (a platform with more

than 12,000 indie games) and received first-rate reviews from the press, game publishers, and industry gurus in advance of its planned launch in November 2015. A strong, reliable, and accurate positioning signal from GNSS will help improve the game experience and the marketing possibilities it offers.



© Apocalypse Hunters

WSLlux – ESA BIC Wallonie Redu

Wallonia, the southern region of Belgium, developed a plan of action in the 2000s to stimulate its economy. After identifying aerospace as a strategic sector, the region established the aerospace cluster Skywin Wallonia – a group of companies, training centres, and research units engaged in public and private partnership with the goal of building synergies around innovative projects. WSLlux is the result of a partnership involving WSL, the Walloon incubator for engineering sciences; IDELUX, the business development agency for Belgian Luxembourg; and Luxembourg Développement. WSLlux also manages ESA BIC Wallonie Redu, the sixth member of the network of incubators recognised by the European Space Agency (ESA), and supports start-up and spinoff companies in their creation and development through a wide range of services.

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GAMING

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MEDIA PARTNERS

The ESNC in the limelight

Our thanks goes out to the GNSS magazines and stakeholders active in space-related fields that support the ESNC as media partners. Together with our marketing activities, they are essential to spread the word about the unique opportunity to entrepreneurs all over the world.



ESNC Website (2014)

748,199 PAGE VIEWS
426,693 VISITS
www.esnc.eu



>50 EVENTS

24 Regional Kick-off events
5 University workshops
8 Conferences attended
20 Further events involved



>600 PUBLICATIONS IN SPECIALISED PRESS



ESNC SOCIAL MEDIA CHANNELS



>130 MULTIPLIERS

Most relevant European
GNSS Stakeholders



11 TOPIC RELATED NEWSLETTERS

>4,000 Specialised contacts



>20,000 MAILING RECIPIENTS

GNSS-related contacts
Specific GNSS multipliers
(Potential) participants



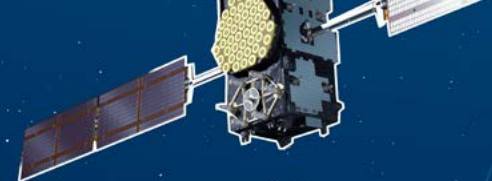
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Gain access to a truly unique global innovation network in the field of satellite navigation applications. Over the past decade, the ESNC has grown into a leading global network of innovation and expertise in the field of Global Navigation Satellite Systems (GNSS). It connects the most relevant European GNSS stakeholders and experts with outstanding entrepreneurs and start-ups worldwide.

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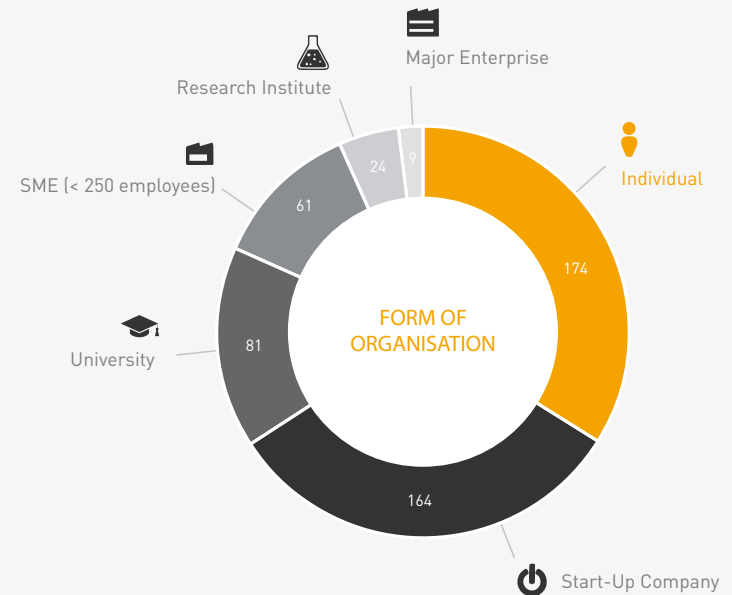
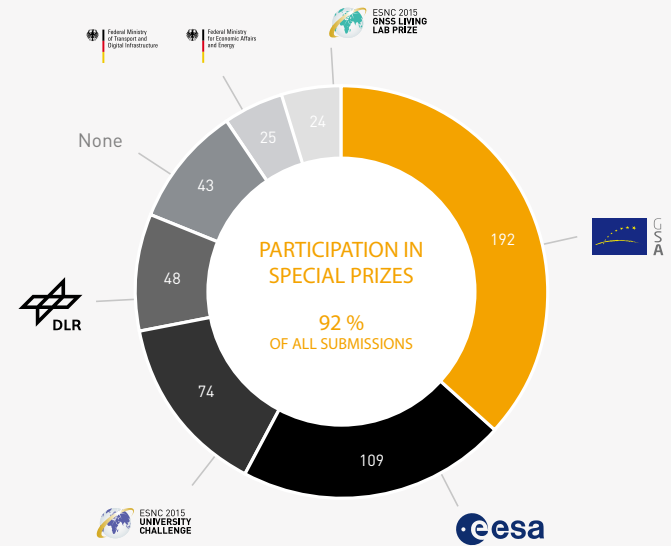
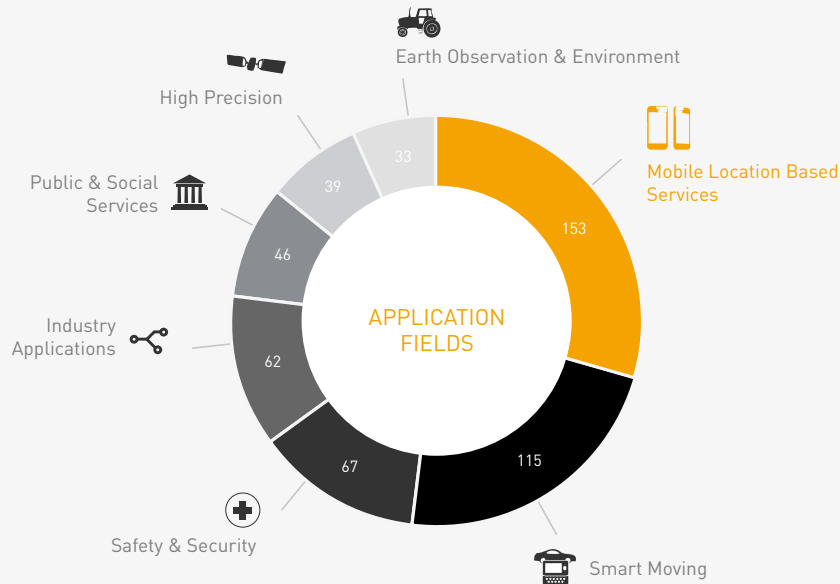
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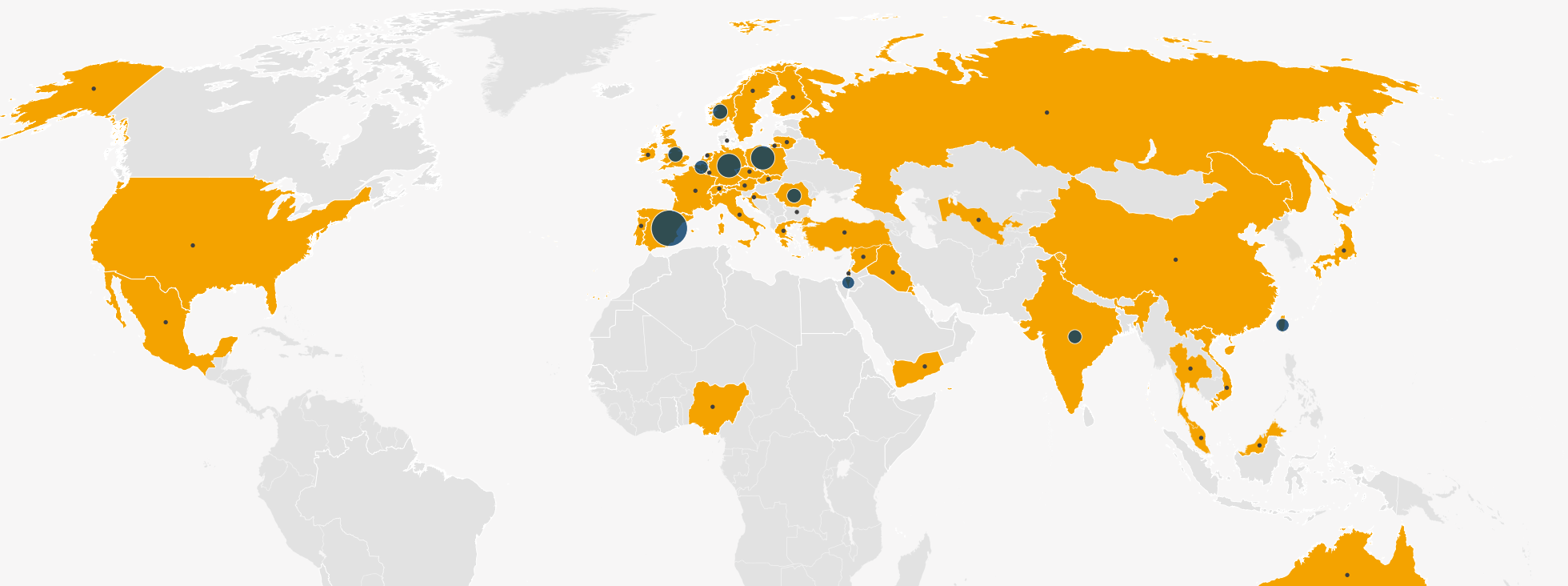
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Exploiting a growing market

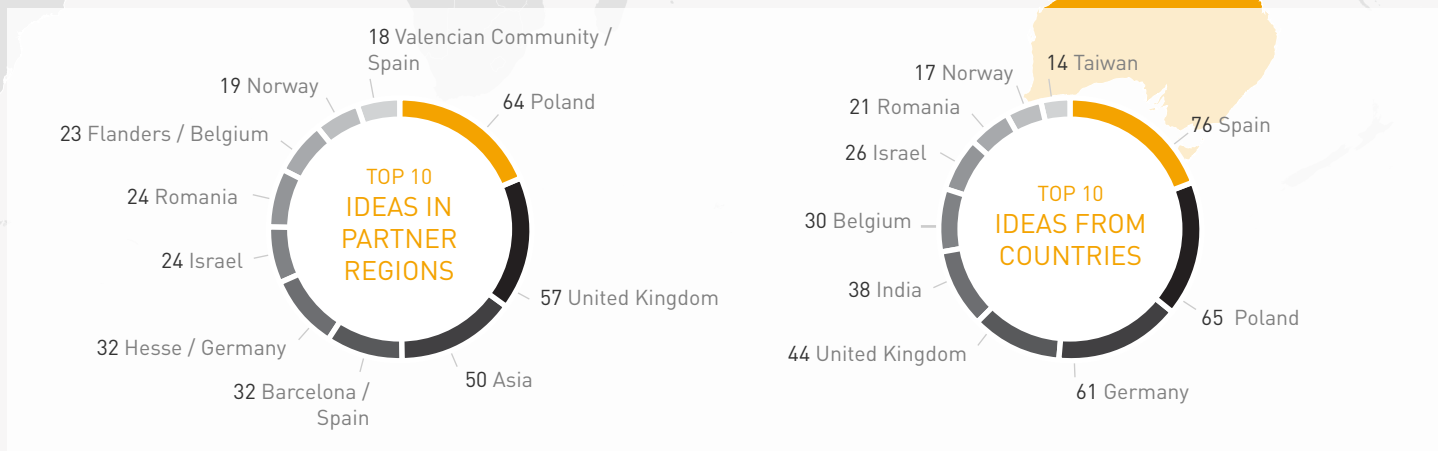
With 515 entries, the ESNC has set a remarkable all-time record this year and reached entrepreneurs from more than 40 different countries. More than 10,000 entrants have submitted 3,343 business cases over the past 12 years, which has helped to exploit a growing market expected to reach a volume of EUR 250 billion.*

*Per year by 2022 (European GNSS Agency 2015 – GNSS Market Report)





-  Countries from where ideas have been submitted
-  Size proportional to number of ideas submitted from countries





Unique expertise for entrepreneurs

Over the past 12 years, the ESNC has grown into a unique international network of innovation and expertise. More than 240 international experts from the realms of industry, research, and politics are entrusted with evaluating the ideas submitted and detecting new trends for key future topics.

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The company specialises in building and maintaining international innovation networks that enable it to support product innovations and company foundations based on space technologies and infrastructures. The market for aerospace applications in other sectors – robotics, automotive, or healthcare, for example – is highly diverse and witnessing tremendous growth. This presents a great deal of potential, particularly for start-ups and SMEs.

AZO's competencies in this regard mainly involve the following areas:

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AZO has developed comprehensive expertise in organising international ideas competitions. We foster the development of innovative products and services in various high-tech domains such as:

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www.esnc.eu

www.copernicus-masters.com

www.robotics-masters.com

www.start-up.world/prizes

www.innospace-masters.de

Incubation Centers



ESA BIC Bavaria

Business incubation at four locations in Bavaria for start-ups using space technology, applications, and services in a non-space environment.

www.esa-bic.de

App Developer Camps



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www.app-camp.eu

www.seamlesscities.app-camp.eu

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Organising conferences, other events and dedicated one-to-one business matchmakings in cooperation with key stakeholders in politics, research, and industry.

www.european-space-solutions.eu

www.satellite-masters-conference.eu

www.start-up.world





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SPORTS & TRACKING

THANKS go to: the European Commission (EC), the European Space Agency (ESA), the German Aerospace Centre (DLR), the German Federal Ministry of Transport and Digital Infrastructure (BMVI), the Federal Ministry for Economic Affairs and Energy (BMWi), Spitzzeit, the GNSS Research & Applications Centre of Excellence (GSA-CE), Politecnico di Torino (POLITO), l'École Nationale de l'Aviation Civile (ENAC), Universitat Politècnica de Catalunya (UPC), University of Nottingham (UNOTT), Universität der Bundeswehr München, Digital Spaces Living Lab, New Tools for Health, Integrative Usage Lab, eSpace, Forum Virium Helsinki, GNSS Asia, the Austrian Research Promotion Agency (JKF-Reddingen), Barcelona Activa, the Ministry of Transport of the Czech Republic, Innotek, Incubateur Poca-Tek, Vapo Free Trade Zone Consortium, the Provincial Council of Gipuzkoa, the Hellenic Association of Mobile Application Companies, ceasr - Centre for Satellite Navigation Hesse, National Space Centre, the Israel Europe R&D Directorate (ISERD), the Agency for Science, Innovation and Technology, Mairiad Foundation, the Netherlands Space Office, the Norwegian Space Centre, Blue Dot Solutions (BDS) Ltd., the Romanian Space Agency, the swiss aerospace cluster, the Satellite Applications Galsput, Val Space Consortium, WSLUX, Coordinators, Galileo GNSS blog, Geowisdomates, GeoComenon, Inside GNSS Magazine, International Astronautical Federation, Prooft Communication, RDOX, Sensors & Systems and StartupWeekend Space