

European GNSS in a nutshell

Europe – a key player on the global GNSS stage

With numerous sectors of the European economy already significantly relying upon satellite navigation services, the EU fully comprehends the huge potential of Global Navigation Satellite System (GNSS) solutions to contribute to economic and social growth, breakthrough innovations and a globally competitive industry. Therefore, the EU has invested in two ambitious flagship navigation programmes, collectively known as the European GNSS Programme (EGNSS): Galileo and EGNOS (Europe's Satellite-Based Augmentation System).

Through the development of these state-of-the-art systems, Europe has opened new doors for high-technology industry development, job creation and a competitive economy. However, the benefits of EGNSS are not limited to Europe alone, as the EU has been actively promoting international cooperation to achieve global GNSS synergies. Aimed at capitalising on multi-GNSS opportunities and leveraging complimentary GNSS expertise, the EU is looking to further strengthen its relations with the Asia-Pacific GNSS stakeholder community, as mutually beneficial cooperation opportunities are present for Asian and European industry alike.

Galileo is now available

The Galileo Initial Services were declared operational in December 2016. The full system is set for completion in 2020, and will offer global coverage with high resilience, service availability and robustness. Over 100 million devices already include Galileo, and as the system nears completion, this number is set to rise exponentially.

Higher performance signals = new applications and opportunities

The Galileo High Accuracy Service (HAS) will support users who require sub-metre accuracy and will be offered for free to all global users. For users requiring enhanced signal trustworthiness, Galileo will offer two services: the free Open Service Navigation Message Authentication (OS-NMA), and the Signal Authentication Service (SAS), a commercial service with increased robustness. These services have the potential to power new applications and opportunities, and to drive navigation-enabled innovation in the EU and at the global level.



Galileo – Europe's gateway to high-performance navigation



The Galileo programme is Europe's state-of-the-art GNSS, providing a highly accurate, resilient global positioning service under civilian control. Galileo is set to play a key role in the GNSS landscape. The fully deployed system will be available from 2020. Galileo will be interoperable with other GNSS constellations and offers ample opportunities for international multi-GNSS cooperation. Galileo offers the following core services:

- Open Service (OS)
- Open Service Navigation Message Authentication (OS-NMA)
- High Accuracy Service (HAS)
- Signal Authentication Service (SAS)
- Public Regulated Service (PRS)
- Search-and-Rescue (SAR)

European GNSS market highlights



Agriculture

EGNOS-based precision farming technologies are actively being used by European farmers. Future growth perspectives are promising, as multi-GNSS applications are increasing and user uptake in Central and Eastern Europe is expected to increase. Recent projections predict that integrated farming practices using GNSS will rise to 30-40% of all EU farms by 2020.



Aviation

The already significant penetration of GNSS in European aviation will further increase as more flight procedures are designed to take advantage of Performance-Based Navigation (PBN). Already more than 460 EGNOS-enabled approaches are operational in Europe, increasing safety and business continuity at aerodromes, and creating new growth opportunities.



LBS

Following a global trend, the number of smartphones and mobile handsets in Europe is rising swiftly, which offers a lot of market opportunities for developers of LBS applications and GNSS device manufacturers. Over 90% of all smartphone applications rely on GNSS data, with European core revenues from GNSS device sales and services are expected to reach approximately EUR 12 billion by 2020.



Rail

The EU continues to be the global core market for GNSS-based rail technologies. Driver Advisory Systems (DAS) can help to support train drivers in improving the efficiency of train operations, and the number of devices has quadrupled between 2011 and 2016. Improved traffic management can also help to reduce delays and to provide more reliable information to passengers and shipping partners.



Road

The GNSS market in the road sector has exploded over the last 5 years, with more than 60% annual growth. In-Vehicle Systems (IVS) represent the majority of GNSS automotive devices, with the EU market expected to double by 2025. All new car and light duty vehicles sold in the EU must be equipped with an eCall emergency system. GNSS-based toll collection is already in place on over 43,000km of European roads.



Maritime

GNSS is now the leading means of obtaining Position, Navigation and Timing (PNT) information at sea. Multi-GNSS solutions are favoured, with Europe being the third largest worldwide market for maritime GNSS devices. In addition, the Galileo Search-and-Rescue (SAR) service is helping to significantly reduce emergency response times at sea.



Surveying

Europe is a leading region for Real Time Kinematic (RTK) GNSS augmentation, and the expansion of Precise Point Positioning (PPP) service offerings will drive further innovation in the region. The Galileo High Accuracy Service will likely be a key enabler of further growth.



Timing & Synchronisation

Many European telecom, finance and energy networks rely on GNSS for synchronisation operations. The EU market remains steady, however the arrival of authenticated services (such as those offered by the Galileo OS-NMA and SAS services) will improve resilience and could drive further uptake across industries and critical infrastructures.



Download the **GSA's GNSS Market Report – Issue 5** for the latest trend, market opportunities and future developments in all global GNSS market segments.

European GNSS landscape

A globally competitive GNSS value chain

Europe has many strong industrial players across the GNSS value chain. For upstream infrastructure, Europe has a strong presence with over 20 leading companies specialised in GNSS-related systems (e.g. satellites and ground segment). With over 50 component manufacturers, over 90 system integrators and more than 100 value-added service providers, the European GNSS downstream segment is very dynamic, competitive and innovative. There exists a great opportunity for Asia-Pacific industry to contribute to the GNSS value chains in Europe and to leverage European technology and expertise in other global markets.

Enter an open and growing GNSS market

The European GNSS (EGNSS) industry is highly integrated in both regional and global value chains, and EU Member States' economies are among the most open in the world. Throughout its long-lasting trade relations with its Asian partners, the EU has already established many successful trade agreements, and ongoing negotiations with several countries in the Asia-Pacific region are likely to further improve bilateral market accessibility. The outlook for the European GNSS market is positive, with solid growth projections for the next decade. Shipments of GNSS-enabled devices in the EU are projected to grow to more than 290 million per annum by 2020. Revenues are predicted to double from 2015 levels by 2020, reaching an estimated EUR 43 billion by 2020. The EU market accounted for 25% in 2015 and continues to grow.

EGNOS – Europe's state-of-the-art SBAS



www.gsa.europa.eu/egnosc/what-egnosc

EGNOS (European Geostationary Navigation Overlay Service) is Europe's SBAS and complement to Galileo. EGNOS uses geostationary satellites and a network of ground stations to analyse and augment existing GNSS signals, making them suitable for safety-critical applications. It offers three high-performance services: Open Service (OS), EGNOS Data Access Service (EDAS) and the Safety-of-Life Service (SoL). European industry offers an ecosystem of SBAS expertise, and many European technologies can be used in other SBAS regions.

Actively stimulating R&D and innovation in GNSS applications

The EU Framework Programmes for Research and Development have played a leading role in multidisciplinary research and cooperative activities in Europe and beyond. The current Horizon 2020 programme has already issued three calls for R&D related to GNSS applications, with an overall budget of €96 million. In addition, the Fundamental Elements programme aims to support the development of EGNSS-enabled chipsets, receivers and antennas. The EU has made €115.5 million available for this initiative over the timeframe 2015 to 2020. More information is available here: <https://www.gsa.europa.eu/opportunities/gnss-opportunities-database>

useGalileo.eu

USEGALILEO.EU

FIND A GALILEO-ENABLED DEVICE TO USE TODAY

www.useGalileo.eu

The useGalileo.eu initiative is offered by the European GNSS Agency (GSA), and provides users and applications developers with up-to-date information on all available Galileo-compatible products. The resource provides detailed information on all products and devices listed by market segment, empowering the next generation of downstream application providers to make full advantage of the opportunities offered by Galileo.

EU-Asia GNSS cooperation opportunities

Europe's commitment to multi-GNSS

The EU attaches significant importance to collaboration with international institutions and industry in the field of GNSS. With several global systems and regional SBAS programs now available, Europe wishes to strengthen partnerships and collaboration with its global partners. Due to its unique differentiators, Galileo will be a key contributor to upcoming multi-GNSS solutions, helping to improve services and applications in domains such as road, LBS, rail, maritime, surveying and agriculture. The Asia-Pacific region is a hotspot for multi-GNSS availability, and is well positioned to use these opportunities to meet the societal and economic challenges of the future. Europe strongly believes in enabling cooperation for GNSS stakeholders across both regions, and as such continues to encourage industrial partnerships while supporting the interoperability of the Galileo system itself.

Benefit from European GNSS expertise

Through its long-lasting engagement with both the technical and market development of GNSS programmes, the European GNSS industry has built up a high level of in-depth expertise, with numerous leading companies that have established themselves as key actors across the GNSS value chain. New opportunities lie ahead in enabling the key market trends of the near future, such as smart cities, Intelligent Transportation Systems (ITS) and Internet-of-Things (IoT). Many of these trends are seeing their most rapid application in the Asia-Pacific region. European expertise in high-precision and resilient navigation, coupled with an innovation-focussed applications sector, can help drive these changes, helping institutional and industrial stakeholders to take advantage of the opportunities offered.

eCall – Europe's innovative GNSS emergency system



www.ec.europa.eu/digital-single-market/ecall-time-saved-lives-saved

eCall is an innovative GNSS-based European initiative aimed at bringing rapid assistance to motorists involved in a collision. In the event of an accident, the wireless system will automatically trigger a distress signal to the 112-based eCall interoperable service, using GNSS technologies to indicate the precise location of the incident. As a result, emergency services are provided with immediate information on the damage sustained and the location of the vehicle, which will significantly reduce response times. eCall has been mandatory in all cars sold in the EU since April 2018.

Horizon 2020 – International GNSS opportunities for your company

Applicants from non-EU countries are eligible to participate in the EU Horizon 2020 programme, which offers unique opportunities for GNSS R&D collaboration. The programme will run until 2020, covering GNSS applications focussed on societal challenges such as transportation, maritime, agriculture, energy and climate change. Specific rules on the eligibility for funding can be found in the corresponding European Commission guidelines.

European GNSS Service Centre – Supporting the EGNSS community

The European GNSS Service Centre (GSC), located in Madrid (Spain), is an integral part of the European GNSS infrastructure and provides the single interface between the Galileo system and the users of the Galileo open and commercial services. The GSC operates on a 24/7 basis, and offers a range of services, such as the Galileo User Helpdesk, a dissemination platform for Galileo-related products, and hosting an electronic library with Galileo and GNSS reference documentation.



www.gsc-europa.eu

GNSS.asia – enabling industrial cooperation across-continents

Engage with European stakeholders

GNSS.asia provides a comprehensive range of free support services to facilitate European and Asia-Pacific industrial cooperation in GNSS. With the goal of creating cross-continental GNSS partnerships, GNSS.asia supports dedicated industrial matchmaking, event coordination and outreach. The dedicated matchmaking activities help to identify and support partnership development between EU and Asia-Pacific companies. GNSS.asia events include the coordination of industry seminars, workshops, roundtables and delegation visits, accommodating key actors from the EU and Asia-Pacific GNSS scene.



Regional knowledge for industrial GNSS cooperation

The GNSS.asia project provides access to a dedicated network of local experts with key understanding of and contacts in each target economy. Get in touch with the GNSS.asia's local coordinators for free matchmaking support, local market and technology trend information, or to participate in a GNSS.asia event in the region. Stay informed about upcoming events, EGNSS industry news, GNSS.asia success stories and new opportunities for industrial cooperation via one of the project's communication channels, such as the multilingual website (www.gnss.asia), the GNSS.asia LinkedIn page or the GNSS.asia email newsletter.

GNSS.asia local partners – Regional knowledge for every market



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