

## In a nutshell

Boasting the world's 11th largest economy in terms of GDP (\$1321B in 2016), Korea offers an attractive marketplace for businesses worldwide. This is further enhanced by the full implementation of the EU-Korea Free Trade Agreement (Dec 2015). As the number one for eGovernment services with 28% of GVA from the IT industry, Korea holds a leading position as a developer and manufacturer of IoT devices, equipment, infrastructure vehicles and GNSS-enabled smartphones. In addition, subsidiaries of large Korean multinationals, such as Samsung, LG and Hyundai have developed advanced IoT solutions and products based on SBAS. Based on government initiatives aimed at implementing SBAS and commercial needs, the Korean GNSS market will grow rapidly providing opportunity for partnerships with other global leaders.



## Key opportunities



The Korean government initiatives for implementing an independent SBAS create a unique opportunity for European companies specialised in EGNOS to expand their operations to the Korean market. There is a strong interest to benefit from the know-how of European companies on implementation, certification and market uptake of SBAS in aviation and non-aviation sectors. It is expected, that the Korean SBAS will increase safety and security by reducing 75% of aviation accidents, saving 42 000 barrels of fuel and 53 000 tons of carbon emissions.



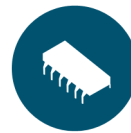
The automotive industry in South Korea is currently the fifth largest in the world, as measured by automobile unit production and the sixth largest by automobile export volume. One of the leading Korean automobile manufacturers, Hyundai, is focusing on autonomous vehicle development as a moving information hub, partnering with the LBS and Telematics industry. Also, the Korean government plans to adopt eCall regulations in Korea.



Korea's LBS portfolio is one of the most advanced in the world with more than 80% of the population using smartphones on a daily basis. All handsets sold in Korea must support GNSS. There is an active development of mobile applications and solutions in Korea using GNSS, making it a particularly attractive sector for EU-Korea cooperation (e.g. in Feb 2016, SKT signed up for a partnership with Deutsche Telekom to co-develop IoT and smart city solutions).



There is a strong interest on the Korean side (e.g. KESTI) in maritime Search and Rescue applications as demonstrated by the expected growth in sales of Emergency Position Indicating Radio Beacon (EPIRB) units. Several vendors have shown concrete interest in R&D collaboration in prototypes utilizing Galileo SAR capabilities.



The Korean industry has the capacity to assemble GNSS receivers, but relies on imports of GPS chip components from the US. Recently, the first Korean SME (TelAce) has started to produce a joint Galileo-GPS chipset. Korea has specific interest in the development of high-precision multi-GNSS receivers and jamming-resilient receivers for the mitigation of security threats.

### Strengths

- ▶ Leadership in the ICT sector with Samsung & LG momentum
- ▶ Worldwide system integrator with export orientation
- ▶ ICT testbed for the world as an early adopter
- ▶ Leading manufacturers of cars, smartphones and LBS devices
- ▶ Government ICT & GNSS investments

### Weaknesses

- ▶ No GNSS chipset fully commercialised yet
- ▶ Limited of knowledge on emerging GNSS (e.g. Galileo)
- ▶ Industry often oriented towards technology development rather than applications
- ▶ Limited domestic market for GNSS

# GNSS industry

- ▶ Highly developed IT infrastructure and sophisticated consumers engaging in early adoption of new technologies.
- ▶ Selected as the most innovative country in the world by Bloomberg, Korea is one of the preferred “testbeds” for innovative products and services.
- ▶ Korean smart devices manufacturers Samsung and LG have a dominant market share in the global LBS market. The LBS market is steadily thriving despite saturation in the smart devices market.
- ▶ Strong interest in high-performance services for seamless indoor-outdoor transition from in-car to personal navigation.
- ▶ The launch of the Korean SBAS programme offers significant opportunities for export of EGNOS know-how in several aspects of its implementation.
- ▶ Korea has some of the highest broadband and 4G penetration rates in the world and is advanced in the rollout of 5G services.
- ▶ There is a strong demand for GNSS applications motivated by concerns around national security and public protection.

Opportunities	Threats
<ul style="list-style-type: none"> <li>▶ Road sector: ITS and telematics applications</li> <li>▶ SBAS solutions and devices related to Natural Disaster prevention and crisis management</li> <li>▶ Consulting and devices related to eCall applications</li> <li>▶ Multi-sensing / Multi-GNSS integration</li> <li>▶ Countermeasure and monitoring technologies for GNSS jamming</li> <li>▶ Galileo presents an alternative solution in relation to GPS spoofing and can provide better availability</li> </ul>	<ul style="list-style-type: none"> <li>▶ Saturation of smartphone market</li> <li>▶ GPS dependency with a presence of Beidou due to proximity to Chinese market</li> <li>▶ Constant national security threats imposed by political environment (e.g. GPS jamming)</li> </ul>

## Examples of key GNSS actors

Institutions			
			
Chipsets/Receivers			
			
			
Applications/System Integrators/Solution Providers			
			
			

## Contribution to Multi - GNSS

KSBAS	
Space Segment	2 GEO
Position accuracy	Horizontal: 1.0 m - Vertical: 2.0 m
Current Status	2 GEO will be leased from Inmarsat from 2018



**Korea**

GNSS.asia partner: KGS and Electronic and Telecommunications Research Institute (ETRI)  
 Next event: GNSS.asia at the KGS Conference, Jeju in November 2016  
 For more information on the ongoing activities of GNSS.asia, specific queries concerning the GNSS markets and matchmaking opportunities please contact Amy Hwang [hyemi.hwang@gnss.asia](mailto:hyemi.hwang@gnss.asia) , phone number: +82 10 6690 3337 or visit <http://korea.gnss.asia/home-korea>

GNSS.asia project is funded by the European Union within the Horizon 2020 under grant agreement no 641615. The responsibility for the views presented in this document lies exclusively with the members of the GNSS.asia consortium and do not necessarily reflect the views of the European Commission or the European GNSS Agency.