

GNSS. asia

INDIA



भारत गणराज्य

Industrial Cooperation Across Continents India

Varadarajan Krish, IIRA, GNSS.asia
Multi-GNSS Asia Conference 2015, Brunei Darussalam



HORIZON 2020

India has developed IRNSS and GAGAN. GAGAN is certified to APV 1.0 standards and IRNSS to be fully operational in 2 years

System	IRNSS	GAGAN
Space Segment	7 GEO+GSO satellites (36,000km)	3 GEO satellites
User segment	L5-Band 1176.45 and S-Band 2492.028 and IRNSS receivers	GAGAN (WAAS) receiver with PRN 127/128 in L1 and L5 bands
Position accuracy	< 20m over mainland India	APV 1.0 as per ICAO standards
Current Status	IRNSS-1A,1B,1C,1D full constellation planned by 2016/17	2 GEO operational – additional spare to be launched in 2016

- GAGAN commissioned a year ago. Qualified for APV 1.0 (similar to EGNOS)
- Now focus is placed on the market uptake both on aviation and (in the near future) non-aviation sectors
- An Inter Ministerial Group (IMG) formed in July,2014. First meeting held in Dec.2014. IMG is chaired by the Min. of CA with membership from all user ministries of the Govt. Private enterprises could represent their business plan to IMG.

Indian Market Scenario

- Strong GNSS Research and Development capability
 - Indian industry has the capability to produce **Multi-GNSS receivers**
 - Several embedded system **companies** are engaged in chip designing services (for domestic and Global markets mainly US, Taiwan, Korea) e.g. Qualcomm, Samsung, and Accord Qualcomm, Intel, TI, Broadcom have design and development centres in India

- The **Telematics Industry** is growing steadily
 - ESDM Cluster in Bangalore and Mysore
 - Insurance Telematics getting recognised.

- **Innovative GNSS-enabled solutions motivated by specific Indian societal challenges**
 - Electronic Personal Safety Devices (ePSD)
 - ATM Cash dispenser vehicles
 - 108 FREE Ambulance service (Emergency Medical Service)

- **Modernisation of national infrastructure**
 - Railways
 - Road Tolling
 - Smart Cities
 - Sanitary inspectors monitoring

The GNSS market is driven by the sheer size and fast growth of several sectors and vast modernisation plans



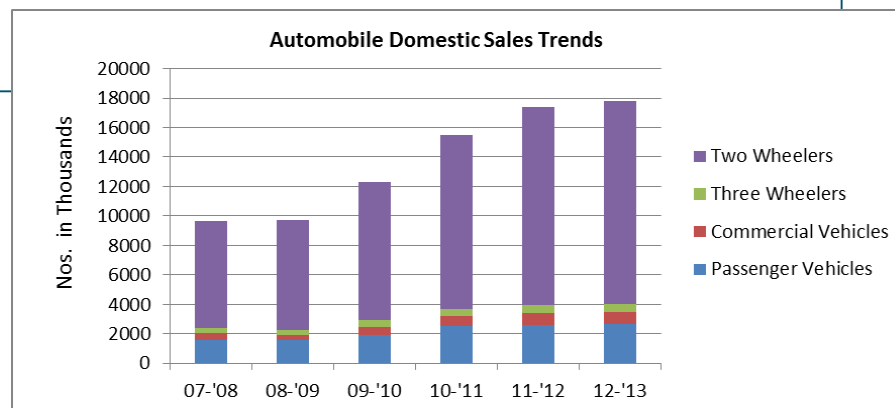
- 6th largest automobile industry – 2nd in growth rate and currently accounts 7% of GDP
- Passenger vehicles (% yoy) growth 7.9 %
- 25% growth rate in the luxury car market



- 90 million smartphone users (6th in the world)
- But only 6% penetration compared to mobile phones
- Year-on-year growth of smartphone subscribers in India stands at 52% (2nd in the world),



- 3rd largest network in the world
- Major modernisation plans pending
- New Government announced openness to FDI
- Centre for Railway Information Systems (CRIS), and Indian Space Research Organization (ISRO) is working on real time train tracking project



GNSS Industry structure – main capabilities

- Indian industry has produced **Multi-GNSS receivers** catering to GPS/ Galileo/ GLONASS/ GAGAN
- Several **software companies** are engaged in chip designing services (for domestic and export, mainly US) e.g. Intel, Qualcomm, Ublox, SiRF, and Accord
- **GNSS system integrators** concentrate mainly on LBS such as tracking & Geo-fencing e.g. IGate, Tech Mahindra, Magnasoft, Fargo, Happiest Minds plus numerous small players like Oxys Tech, Mihir, Technopurple, and Ei Labs
- The market of **vehicle navigation systems** shows steady growth and is led by players such as MapmyIndia, SatNav, Blaupunkt, TomTom, Garmin and NNG.
- **Innovative GNSS-enabled solutions motivated by specific Indian societal challenges** are increasingly introduced in applications such as women protection (Q's Bond), ATM Cash dispenser vehicles, electronic personal safety devices (ePSD) for school kids, telematics data based vehicle insurance schemes.
- **Modernisation of national infrastructure** is generating opportunities in safety-critical sectors such as air navigation services e.g. GAGAN project and railways (e.g. anti-collision devices)

Selected Indian GNSS actors

Institutions



Chipsets/Receivers



Applications / System Integrators / Solution Providers

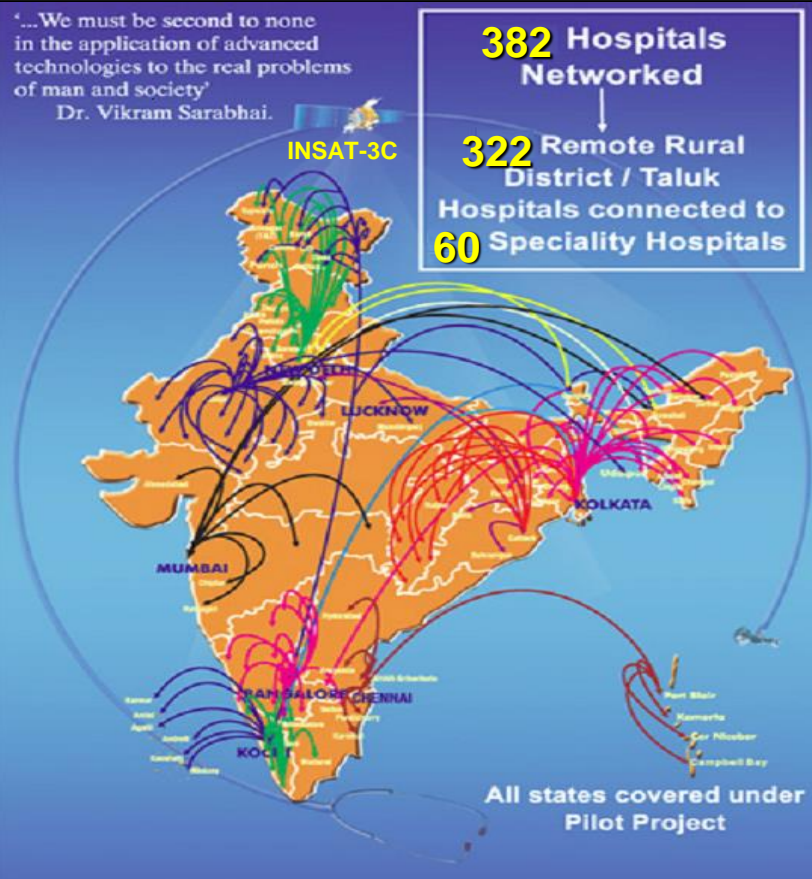
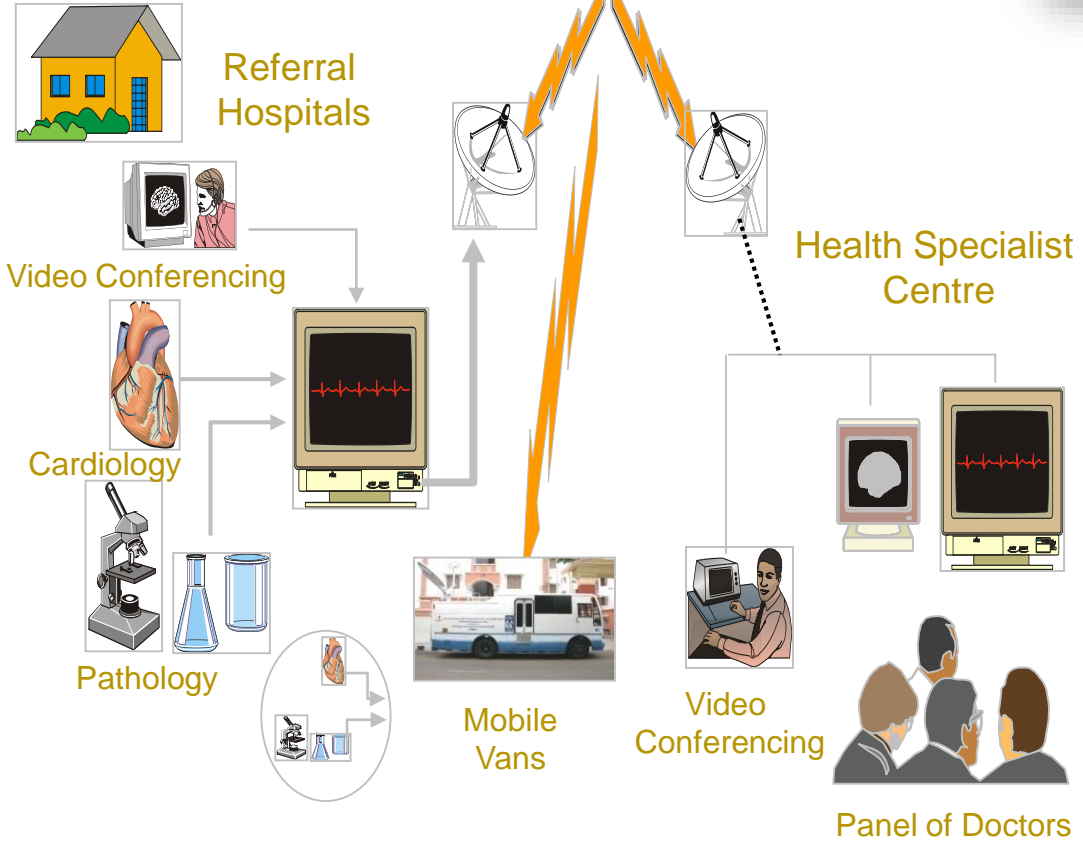


GNSS downstream sector – Opportunities and Challenges

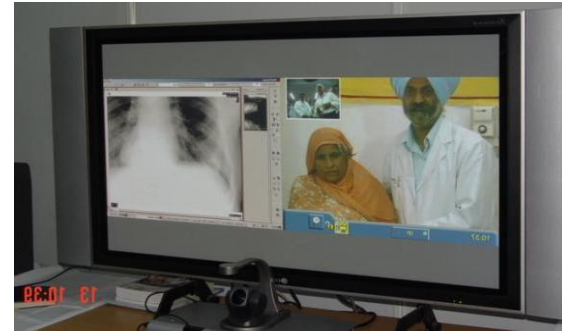
- GNSS market in India is largely through use of GPS chipsets by SME system integrators.
- Mobile phone sector depends on LBS through base stations (terrestrial Networks) rather than GNSS technology. Mobile service providers are venturing into M2M solutions e.g. Vodafone
- Other sectors are largely untapped and importance of GNSS in applications has been realised by few sectors such as civil aviation, surveying, transportation etc.
- The downstream applications can pick-up rapidly through field demonstrations of the advantages of GNSS and educating the downstream sector / policy makers in India.

Opportunities	Challenges
Emerging and open market with large untapped potential	Government policies are market drivers
Easy access to latest technology – great software development and frugal innovation capabilities	Lack of awareness about GNSS technology and consumer perception. Interference in GNSS L-band needs to be studied and documented.
Growing and affordable smart phones usage	Fragmented sectors
India's commitment to space programmes	Technology base in GNSS ground segment and R&D awareness of GNSS is underdeveloped






TELE-MEDICINE



More than
3,00,000 Patients
benefiting every year



Key opportunities

Sector	Key opportunity	Rationale
	<ul style="list-style-type: none"> ▪ Implementation and certification of SBAS ▪ Multi-GNSS receivers ▪ Export EGNOS success in non-aviation sectors 	<ul style="list-style-type: none"> - Great interest to benefit from European know-how either on certification or on SBAS market uptake in non-aviation sectors.
	<ul style="list-style-type: none"> ▪ Telematics ▪ Public transport & Autorickshaw (PIC) ▪ Fleet management ▪ Safety 	<ul style="list-style-type: none"> - Commercial vehicle market - 80% of transport through road mode - Some niche solutions (e.g. student tracking, women safety)
	<ul style="list-style-type: none"> ▪ Train Management System / ERTMS ▪ Passenger Information system ▪ Anti – collision Devices ▪ Automatic level crossing 	<ul style="list-style-type: none"> - 3rd largest network - Vast modernisation plans - Openness to foreign direct investment (Sep 13) - Ongoing procurement
	<ul style="list-style-type: none"> ▪ Precision farming solutions ▪ AAI focusing on non-aviation uses of GAGAN ▪ Soil and land use map development 	<ul style="list-style-type: none"> - Capitalise on EGNOS success in agriculture - Remote sensing solutions
	<ul style="list-style-type: none"> ▪ Siting of terrestrial mobile towers ▪ Laying of optical fibre links for back-haul connectivity ▪ Cost-effective land surveys for Dams, power plants highways and railways 	<ul style="list-style-type: none"> - Interest for advanced GIS and land surveying techniques. - Collaboration with Survey India.



Aviation/SBAS: Industrial cooperation opportunities driven by EGNOS/GAGAN technical complementarity and interoperability

Main driver / key enabler	Synergy between EGNOS and GAGAN
Main challenges	Slow uptake of GAGAN, technological knowledge with small SMEs
Key players	ISRO, AAI, Accord, ...

“ The Asia Pacific region has seen the fastest growth in the civil aviation sector in the past few years. India, China, Gulf countries and South East Asian countries are likely to dominate the civil aviation traffic – both Passenger and Goods.



Opportunities in railways are backed by vast modernisation plans and openness to foreign investment

Main driver/key enabler	Scope for massive modernisation Private investment for speedy implementation of Rail Modernization process
Main challenges	<ul style="list-style-type: none"> - Under the control of federal Government - Vendors should be certified by Research Design and Standards Organisation (RDSO)
Key players	Railway Board, RDSO, BEML, Siemens, ABB

Co-operation between Indian Railways on one hand and the key service providers (ISRO, AAI and Indian Industry is slated to pick-up in the next two years. The GAGAN system will be used for navigation and track alignment in mountainous regions.



Opportunities in surveying and mapping are related to governmental plans for the development of national infrastructure

Main driver/key enabler	E-Governance Projects implemented in states National infrastructures development
Main challenges	- Under the control of federal Government and State Government. - Security Issues of spatial data sets
Key players	Survey of India, Google Maps, MapmyIndia

“National GIS is important initiative by Government of India ... will play major role in economic development and job creation”

Maj.Gen. R C Padhi , Additional Surveyor General of India

GNSS.ASIA INDIA OUTREACH ACTIVITIES & EVENTS 2015

- Conducted TWO roundtable events in March 2015 in Kolkata & Bhubaneswar to engage with Industry and Universities like Kolkata University and KIIT with 40 & 35 participants respectively
- Staged a major event in Kolkata on 7th and 8th July 2015. Had 45 participants from EU and Indian Industry like Leica, Stesalit, IFEN, Tele Orbit, DMT, Jindal Steel, AAI to name a few.
- Engaging and fruitful discussions were held during the Industry visits that were organised on 8th July to DMT, Stesalit, Geological Survey of India (GSI) and Inland Waterways of India (IWAI).
- ISRO Users meet was organised on 8th Oct 2015 in Bangalore and it had 600 GNSS Stakeholders as delegates that deliberated various issues to promote GNSS applications
- DRISH a success story of GNSS.asia collaboration between Tele Orbit and Elena Geo Systems was launched at the event. This coincided with first contract from Jindal Steel.



Specific offer/request from Indian companies

We are looking for partners to develop multi-GNSS receivers for railway s , agriculture application ...



We are looking for newer Markets and prospects for team augmentation services



Interested to provide Product dev. Engineering services in GNSS & embedded space...



Interested in R&D collaboration mainly on GNSS Receiver testing



We are keen to collaborate in product testing and certification , we are already working with US market



Interested in new market access for Our GNSS receivers and products



GNSS. asia

CHINA



中国

Industrial Cooperation Across Continents China

Davof Xu, EUCCC, GNSS.asia
Multi-GNSS Asia Conference 2015, Brunei Darussalam



European
Global Navigation
Satellite Systems
Agency

HORIZON 2020

GNSS.asia China Coordination and Management Team

Management team



Davof XU
GNSS.asia Project Manager



Adam Dunnett
EUCCC Secretary General



Maggie XIE
EUCCC General Manager

Event and comm. team



Daniel Pedraza
Events Manager



Qiulan Zhu
Events Coordinator



Pascal Viaud
Expert Advisor

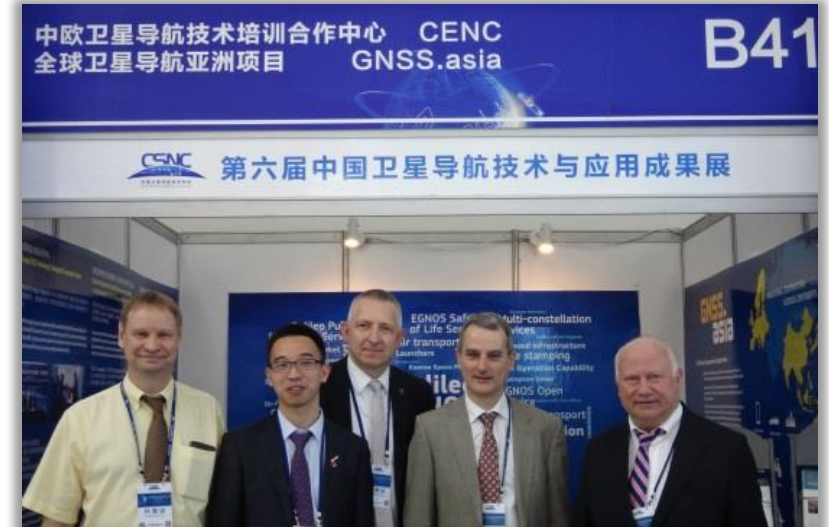
GNSS.asia China Activities in Top Prior GNSS Cities of China



China central tour
Nanjing, Wuxi, Suzhou, Shanghai, China



MOFCOM GNSS Working Group Workshop
Beijing, China



China SatNav Conference
Xi'an, China



GNSS.asia Beijing Seminar on GNSS applications
Beijing, China



GNSS.asia China Activities to Outreach EU& CN Key Stakeholders

- Beijing Event of the 2015 EU Research and Innovation Tour, October 30th, Beijing
- China Satellite Conference, October 28th to October 30th, Beijing, China
- Visited Tianjin Beidou industry Park, October 24th, Tianjin
- ITS Shenzhen delegates attended ITS World Congress, October 5th to October 6th
- B2B Matchmaking, Deutsche Telekom visited CETC International, September 29th
- Asia Challenge China for 2016, Meeting with HED, September 28th
- 2015 SuperMap GIS Technology Conference, September 11th and 12th
- Helped promote EU-China IoT Conference, August 31th to September 2nd
- Key government & association stakeholders outreach:
 - GLAC, CENC, ITS Shenzhen, China Satellite Conference, MOFCOM
- Key Industry stakeholders outreach:

HED/CEC, CETC International, Unistrong, SuperMap, Bdstar, CASC, Deutsche Telekom

Upcoming events

- B2B Matchmaking, Deutsche Telekom EU Delegates to visit CETC International follow up
 - Smart Port Solutions/ Intelligent Transportation System Matchmaking (Beijing, Dec. 8)
- GNSS.asia Smart-Port Logistics Workshop (Beijing, Dec. 15)
 - Presentation on SmartPort Logistics for Hamburg Port, T-Systems
 - Presentation on SAP Connected, SAP
 - Presentation on CETE's ITS solutions, CETC International
- GNSS Webinar on IPR Protection in China (tbc)
- China Satellite Navigation Conference (Changsha, May, 2016)
- GNSS & LBS Association of China Annual Conference & Exhibition (September 24 25, 2016)

Key Opportunities



- Vast size of consumer market with rapid growth (e.g. 2nd quarter of 2013 Smartphone sales reached 75 million and sales grew by 142% compared to 2012).
- Local internet giants positioned as location information aggregator like Google in the western world



- China is preparing for a smart city boom with 193 officially-announced trial cities. This concept promotes the use of new technologies such as the IOT and GNSS solutions to help solve pressing issues, e.g. energy efficiency, traffic management.



- The receiver market is dominated by a few Chinese players such as Unicore
- Most of the receivers can receive signals from GPS and Beidou.
- Trends to multi-constellation units.



- Railways are expanding rapidly, especially high speed.
- GNSS offer solutions and China has been looking at systems that are working in Europe
- Railway goods and logistics has a need of improvement.



- Logistics, express mail, cash movement and dangerous goods transport.
- The compound annual growth rate of ITS was 20.2% from 2008 to 2012.
- The overall market size is expected to reach around 5.9 BN EUR in 2013, and the investment will reach 21.8 BN EUR in the coming ten years.

Emerging Opportunities

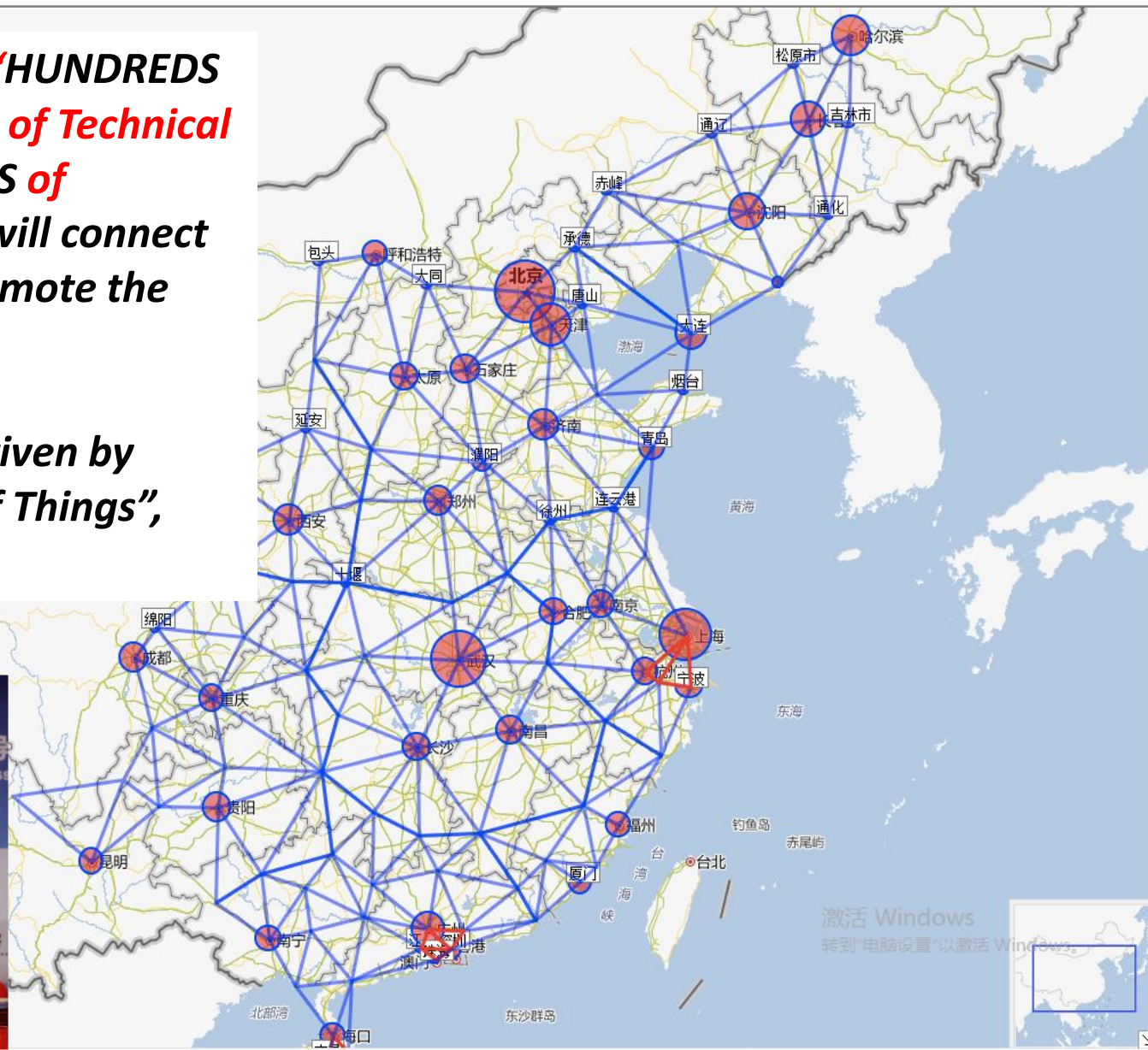
- High-precise Agriculture
 - Government Subsidies to agriculture machines was CNY 21.6 B, the machines with high-precise terminals are just 0.01%
- Special People: Old people, children and the mental
 - Old people: 202 M
 - Children in elementary school: 94.7 M
 - The Mental: 16 M
 - Tens of millions of terminals were sold in 2013

GLAC's "Hundreds of Cities Plans"



Launched the plan of "HUNDREDS of Cities * HUNDREDS of Technical solutions * HUNDREDS of Applications", which will connect hundred cities and promote the industrial applications

China GNSS scene is driven by trends like "Internet of Things", "Smart Cities"



激活 Windows
转到“电脑设置”以激活 Windows。

GNSS. asia

TAIWAN

台灣

Industrial Cooperation Across Continents Taiwan

Pascal Viaud, ECCT, GNSS.asia
Multi-GNSS Asia Conference 2015, Brunei Darussalam



European
Global Navigation
Satellite Systems
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HORIZON 2020

The GNSS.asia team

EUROPE



Rainer Horn
Global Coordinator
STP



Lukas Lanneau
Project Manager
STP



Daniel Ludwig Consultant

Daniel Ludwig
Asia Expert
DLC

ASIA



Angela Hsiao
GNSS.asia Taiwan
ECCT



Hyemi Hwang
GNSS.asia Korea
ECCK



Davof Xu
GNSS.asia China
EUCCC



EU-Japan Centre
for Industrial Cooperation
日欧産業協力センター

Fabrizio Mura
GNSS.asia Japan
EU-JP Centre



IIRA

Varadarajan Krish
GNSS.asia India
IIRA

The GNSS.asia team

EUROPE



Rainer Horn
Global Coordinator
STP



Lukas Lanneau
Project Manager
STP



Daniel Ludwig Consultant

Daniel Ludwig
Asia Expert
DLC

ASIA



Angela Hsiao
GNSS.asia Taiwan
ECCT



Hyemi Hwang
GNSS.asia Korea
ECCK



Davof Xu
GNSS.asia China
EUCCC

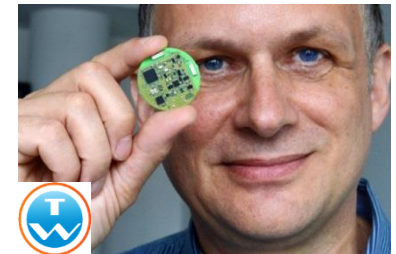


Pascal Viaud
GNSS.asia Programme Expert
ECCT + EBO North Asia





Programme Synergies
ICT Expertise
Mentoring

GNSS and IoT – Taiwan Tech Hub

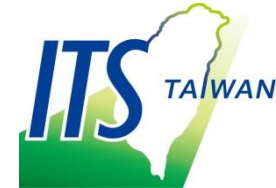
- **Semiconductors manufacturing leadership**
- **ODM / OEM business model**
- **“Neutral” GNSS player** – Taiwan is addressing the worldwide market (major importer / integrator / exporter),
 - Following global and regional market trends (+ Greater China)
 - Enabling early adoption of new technologies
 - Pioneering megatrends (Internet of Things IOT, WT, Cloud...)
 - Tackling key domestic societal challenges: Natural Disaster Management, Silver Economy...
- **Looking for diversification / Open for cooperation:** new materials & substrates, flexible & printed electronics, sensing technologies / sensor fusion, software / applications development, future internet (eg M2M), LBS, Road/ITS and other vertical markets...



We have identified the key cooperation opportunities

Sector	Context	Opportunity for EGNSS
	<ul style="list-style-type: none"> Taiwan is a global leader in semi-conductor manufacturing and micro- and nanoelectronics Major chipset/receiver manufacturers key for the global valorisation of Galileo (e.g. Mediatek) 	<ul style="list-style-type: none"> IC Design: Taiwan Houses partnership, e.g. linked to design kits (HTC, Apple, White Boxes) IC Front-End: MEMS for Inertial modules and combo IC Back-End: 3D (SiP) capabilities for sensor fusion and multi-GNSS receiver integration
	<ul style="list-style-type: none"> Global leader in shipments of smartphones (65%) and tablets (86%) Governmental action plans promoting further development of LBS sector Leader in IoT-related technologies and applications 	<ul style="list-style-type: none"> S/W and H/W integration and applications development (including Greater China go-to-market) ODM/OEM Business Model Establish joint R&D (e.g. see ongoing EU-Taiwan project E-SPONDER)
	<ul style="list-style-type: none"> Electric Mobility - Vehicle ICT (Automotive Electronics + Telematics + Intelligent Transportation Systems) is Taiwan's first priority for industrial diversification It is also one of Europe's key strengths with European regulations (e.g. eCall and Tachograph) accelerating the business cases in this sector 	<ul style="list-style-type: none"> Telematics, ITS, fleet management solutions Innovative eCall devices Niche sectors (e.g. car black boxes)
	<ul style="list-style-type: none"> Gateway to Asian markets, notably to China Gradual transformation to a global innovation centre Asia-Pacific trading hub 	<ul style="list-style-type: none"> Establish R&D centres, value-adding production units and operation headquarters Keep a finger on the pulse of the major trends stemming from Asia

Our local strategic partners



Competence in Mobile Computing



Highlights of GNSS.asia events in Taiwan 2015



GNSS.asia @ Mission for Growth in June 2015



GNSS.asia @ COMPUTEX Taipei in June 2015

The Most Cost-Effective
HED's BEIDOU/GNSS Solution

- Cynosure II Engine 10X Multiconstellation**
 - Concurrent GNSS Reception
 - BEIDOU+GPS+GLONASS+GALILEO+QZSS
 - WAAS+EGNOS+MSAS+GAGAN+SDCM
- Innovation Leading Features**
 - Intelligent Power Control Mechanism
 - Jammer Detection and Suppression
 - Data Encryption and Decryption



GNSS.asia events "From Space to Ground" in October 2015



GSA & GNSS.asia visit Mediatek in 23 Oct 2015

Highlights of GNSS.asia Taiwan events @ ITSWC 2015 (Bordeaux, France)

5-9
October



GNSS.asia introducing Mr Shen, Vice-Minister of MOEA Taiwan to the “GNSS Village”



GNSS.asia @ the Taiwan Connected V.I.P. Forum



GNSS.asia @ ITS Taiwan Booth



GNSS.asia and Taiwanese Delegates @PULSEO

GNSS.asia Taiwan events: From Space to Ground

- ECCT Space Day in Hsinchu – Visit NSPO, Luncheon and Networking session at ARRC
- GNSS.asia Taiwan seminar – Smart X: When GNSS Meet Internet of Things
- GNSS Applications Night (for start-ups and innovative partners)
- GNSS.asia booth and Special Session at Telematics Taiwan 2015

20-22
October



GNSS.asia Taiwan Recent Success Stories Taiwan Spirit...

- *“There’s no way to master all technologies and applications in one corporation. Everyone should seek the opportunities for collaborations and partnership.”*

MT3333 **MEDIA**TEK
Single chip multi-GNSS receiver SoC



GNSS.asia Taiwan supports German SME-TraceWave



- Mission for Growth and COMPUTEX TAIEPI 2015: Matchmaking session with Taiwanese and Chinese companies (HED)
- Presentation at GNSS.asia seminar + networking with local companies
- Individual meetings with Advantech, Mediatek, etc.
- Presented at GNSS.asia Booth at Telematics Taiwan 2015
- Language support: translate company profile in Mandarin



Potential activities for 2016 for GNSS.asia Taiwan



- March (22-25): Smart City Summit & Expo → Participate the event, and joint activities organized by local partners
- May-June: Collaborate with Silicon Europe, TAITRA, MOEA/BOFT and E.E.N. B2B matchmaking event in the last week of May, and participate to COMPUTEX TAIPEI 2016 (31 May - 4 June)
- Oct-Nov: Telematics Taiwan 2016 → Co-organize with TPO, MOEA & TTIA (booth, keynote speech, special session, B2B Matchmaking)
- Continue to encourage TW players to join GNSS.asia challenge
- Specific workshops with focus groups (e.g. Disaster prevention and alert, IoT, GIS...), and engaged start-ups
- Participate to events in Europe with Taiwanese delegations
- Keep supporting individual SME to find partners

GNSS. asia

REPUBLIC OF
KOREA



대한민국

Industrial Cooperation Across Continents Korea

Hyemi Hwang, European Chamber of Commerce in Korea, GNSS.asia
Multi-GNSS Asia Conference 2015, Brunei Darussalam

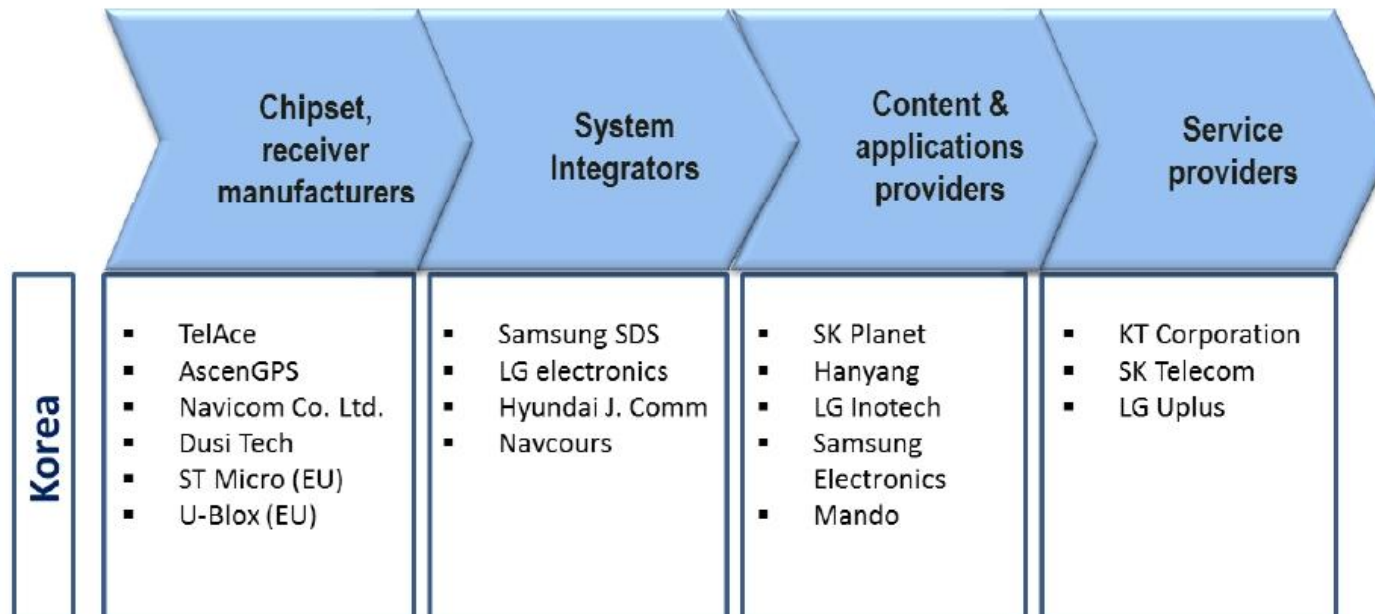


European
Global Navigation
Satellite Systems
Agency

HORIZON 2020

GNSS value chain - Korea

- Korea has one of the world's most advanced LBS portfolios driven by **superior IT infrastructure, commercial based services** and **favourable regulatory provision**
- Korea's **automotive industry** ranks among the top five in the world
- **Service providers** include telco's, large electronic players, internet search portals and SMEs

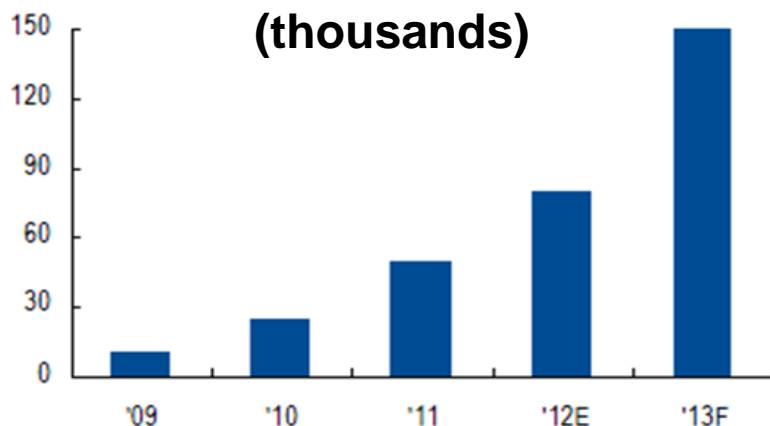


Mobility – automobile & telematics

- 5th largest automobile producer and exporter (2014)
- 20.4 million motor vehicles registered in 2014
- Commercial vehicles telematics market grown at CAGR of 5.5 per cent over 2010-2015
- ITS market estimated at over 482.9 trillion KRW (~402.4 billion USD)



Sales of black boxes in Korea
(thousands)



Source: Woori Investment & Securities Research Center

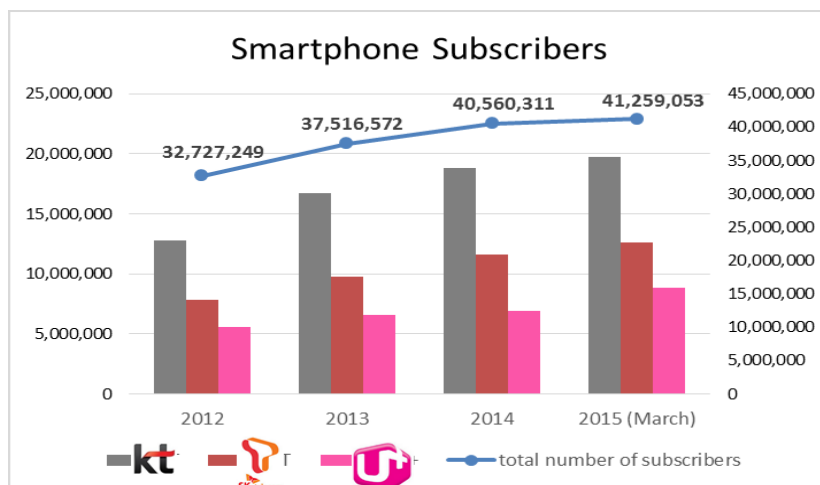


Smartphone & LBS Industry

- >80% of Koreans use smartphone on daily basis
- 1/3 of all applications used are LBS-related
- Mandatory GNSS chipset in smartphones
- LBS market in 2014 estimated at 375 billion KRW (0.34 billion USD)

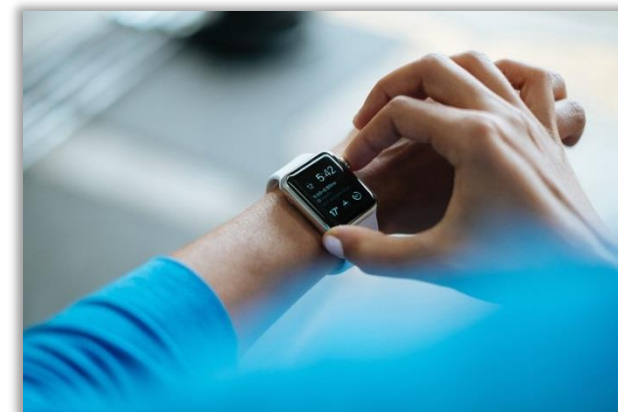


Smartphone subscribers in Korea (2012-2015)



Emergency Services

- *u-society* safety service based on LBS one of main future growth industries
- Development of emergency-related smart city and eHealth solutions
- Approximately 20,000 clients are using the emergency LBS service annually

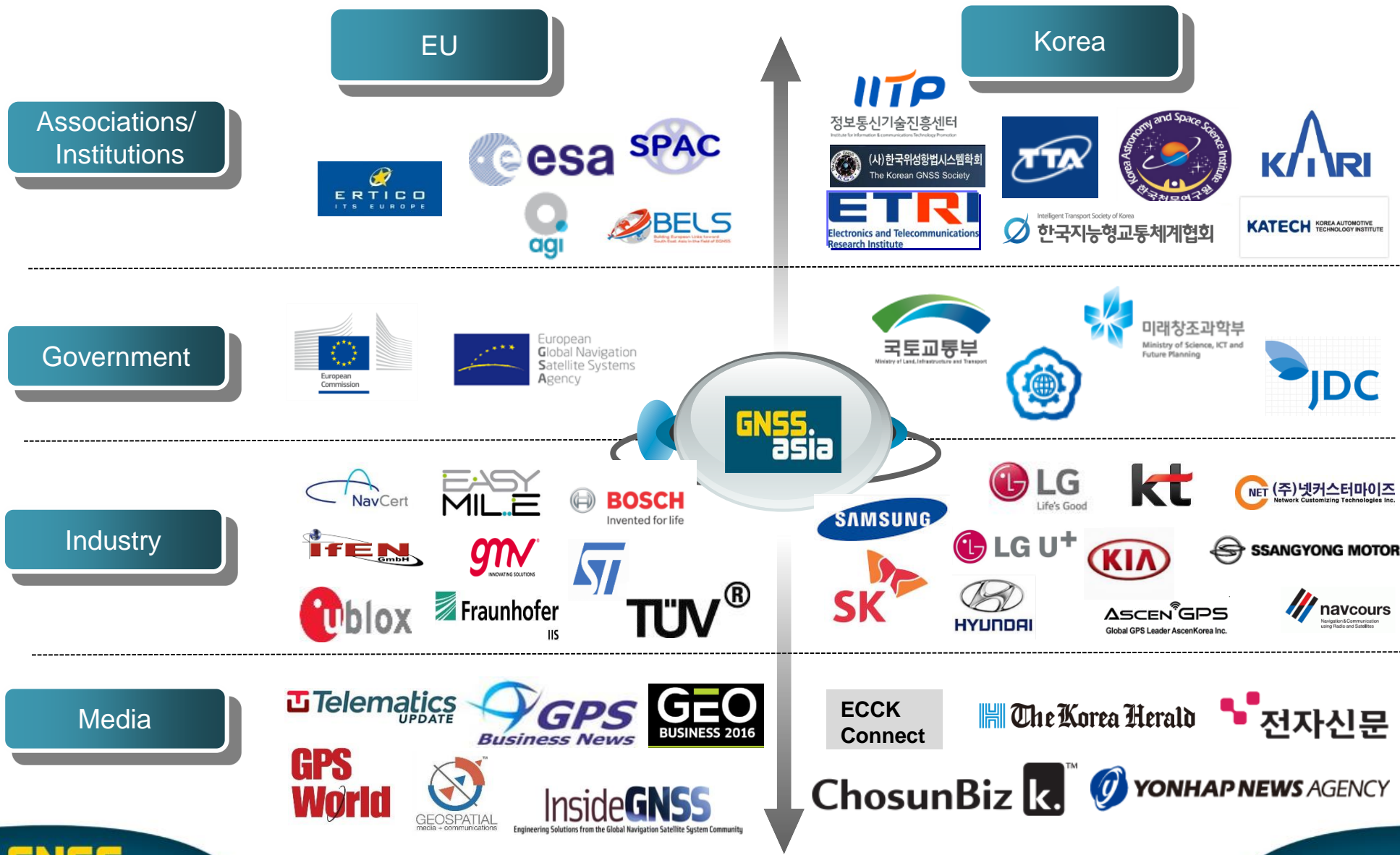


Expected growth of sales of Emergency Locator Transmitter (ELTs) and Emergency Position Indicating Radio Beacon (EPIRB) units

Year	ELT Units Sold (Expected)	EPIRB Units Sold (Expected)
2015	750 (value of 2.25bn KRW)	4,500 (value of 4.5 bn KRW)
2020	900 (value of 2.7 bn KRW)	5,000 (value of 5 bn. KRW)



Expanding EU-Korea Industry Networks in Korea



GNSS.asia Korea activities & services since 2012

Personalised R&D support

FP7 / H2020 Support

- Facilitating consortia & matchmaking
- e.g. ETRI / NSL

H2020 Info Days

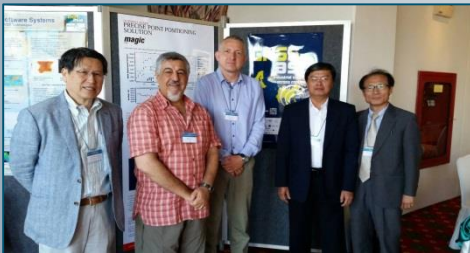
- Introduction & personalised support

R&D Networking Support

- ETRI at MGA/GNSS.asia Phuket

PNT Workshop 29 April 2015

- Co-organised by 10 leading R&D societies, participation by associations and research institutes
- GNSS.asia presented
- No paper request



MGA Regional Workshop, October 2014

Supporting enabling technologies

SBAS Round Table 2014

- Dedicated session for Korean stakeholders when European SBAS experts travelled to Korea

IS-GNSS Conference 2015

- Introduced EU EGNOS companies to Korean SBAS experts

Commercialisation/Export

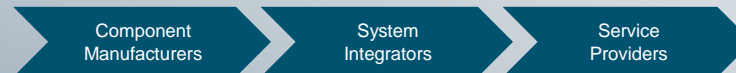
Tailored Market Entry Support

- Identifying key opportunities and localised support

Cross-continental Commercial Matchmaking

- Telit (IT) - TelAce (KO)

Integrated supply chain analysis



Database with GNSS players and stakeholders

Analysis of market prospects, trends and challenges

User community engagement

GNSS.asia Workshop 2012

- First EU-Korea GNSS Workshop

GNSS.asia Seminar 2014

- 100 industrial and institutional GNSS players from EU and Korea
- Broad range of GNSS presentations

GNSS.asia eCall Briefing 2014

- Update for KR automotive industry
- Highlighting regulatory developments
- Featuring GSA, ST Micro, μ -blox

Industry visits & matchmaking

- Guided tours to GNSS industry
- Tailored matchmaking services
- Visit to Samsung R&D City



eCall Briefing Korea, May 2014

GNSS.asia Korea activities in 2015 and 2016

2015

2016

Government

- Agreement of Korea EU summit for GNSS as collaboration area
- PNT Workshop 29 April 2015
- Session w/ MOLIT at Bordeaux ITS

- influencing for GNSS matching funds
- Secure gov support for upstream biz opportunities
- event for downstream industry application

Associations/ Institutions

- 2015 KGS conference with GSA
- LBS Standard working group
- UN ECE eCall working group in Korea

- 2016 KGS conference with GSA
- Increase the association partners such as ITS, IITP, TS2020, etc
- Co-industry briefing

Industry

- 2015 eCall briefing with GSA
- Introducing ELAASTIC to LG, KT and Samsung
- IS-GNSS Conference 2015
- Align Korean auto companies to EU approval agency

- Promoting Galileo operation
- Promoting Downstream application and its provider to identify leads
- eCall briefing extending alliance to mobile network providers

Media

- Media briefing for eCall
- Introducing Horizon 2020

- Recruit more industry analysts and increase the interest.
- Promote Galileo through major daily

GNSS. asia

JAPAN



日本

Industrial Cooperation Across Continents Japan

Yoko Kadoya, EU-JC, GNSS.asia
Multi-GNSS Asia Conference 2015, Brunei Darussalam



HORIZON 2020

EU-Japan Centre for Industrial Cooperation

- Joint venture with European Commission and the Ministry of Economy, Trade and Industry in Japan
- Promote industrial cooperation for EU and Japan
- Reinforce competitiveness for EU and Japanese companies

Policy Analysis and Recommendation

- Policy Seminars
- Policy Recommendations (EU-Japan Business Round Table)
- MINERVA fellowship
- Sector Specific Policy Reports & Analysis
- Investment Guides

Businesses Support Services

- **Training**
 - → **Training for Executives**
(HRTP, WCM, Clusters support mission)
 - LEAN in Europe
 - → **Training for Students in Science and Engineering**
(Vulcanus in Europe/Japan)
- **Information Service**
 - → Info Helpdesk
 - → Clusters Support & Helpdesk
 - → Japan Public Procurement info Portal
 - → “EU-Japan Business Bridge “Web Portal
- **Support For SMEs**
 - → Enterprise Europe Network (EEN)
 - business matchmaking
 - → “STEP IN JAPAN” – logistic support for SMEs
 - → “KEYS TO JAPAN” – Business Plan Drafting Support
 - → Japan Tax and Public Procurement Helpdesk
 - → Cooperation with Asian EU business Support Centre

Promotion of Cooperation in R&D and Innovation

- **GNSS.asia**
- **JEUPISTE - Promotion of Horizon 2020 in Japan**
- **Japan National Contact Point for Horizon2020**
- **Support for Coordinated ICT projects in Japan**
- **EU project management training courses for Japanese**
- **Space Japan**

GNSS.asia Japan Team Members



Fabrizio Mura
GNSS.asia Japan Team Leader



Yoko Kadoya
GNSS.asia Japan Project Manager

Collaboration with Japanese stakeholders



EU-Japan Centre
for Industrial Cooperation
日欧産業協力センター

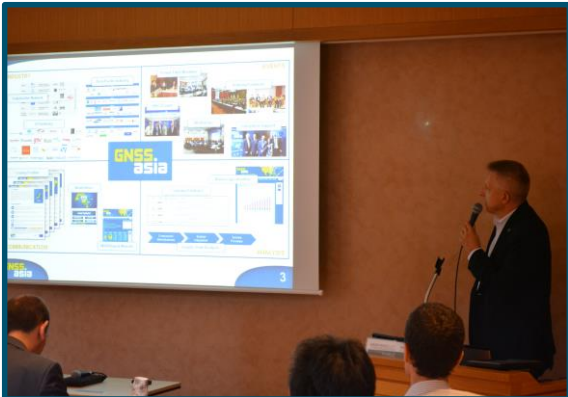


IPNTJ



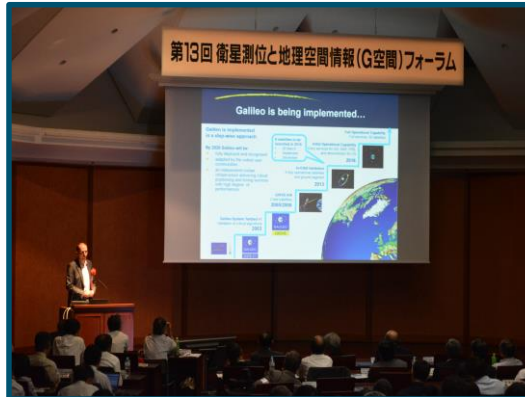
GNSS.asia Japan Workshop in 17th July 2015

- Offer updated information on EGNSS, successful applications, technologies and markets
- Create a networking and industry liaison opportunity, taking stock from previous GNSS.asia events
- Meet European companies in the area of GNSS and interested in working with Japanese partners
- Discuss cooperation opportunities in EU-Japan GNSS downstream at business and R&D level (Horizon2020)



GNSS.asia Japan Workshop

Presentation by Mr. Rainer Horn,
GNSS.asia Coordinator



Annual SPAC Forum

Presentation by Mr. Daniel Lopour,
Market Development Officer, GSA



Poster Exhibition

Poster Exhibition in the foyer at the
Annual SPAC Forum

GNSS.asia Japan Other Events



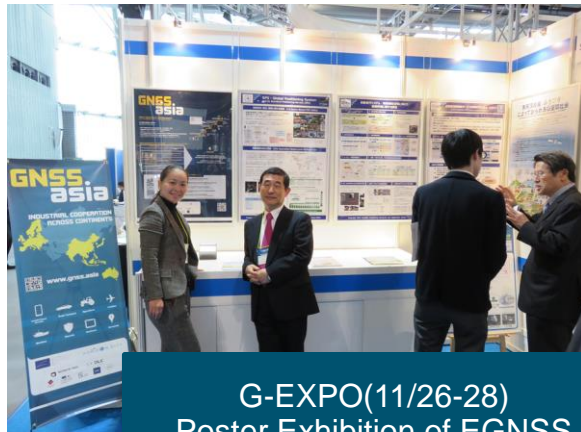
QBIC(6/4, 6/10, 10/8)
Presentation of GNSS.asia



SATEX(10/2)
GNSS.asia Seminar



IS-GNSS(11/16)
Presentation of Galileo and EGNOS Update



G-EXPO(11/26-28)
Poster Exhibition of EGNSS



IS-GNSS(11/16)
Presentation of GNSS.asia

Industry Outreach



Support Mission

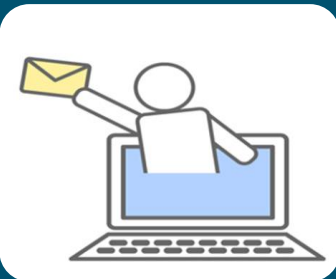
- Provided logistic support for b2b meetings between Japanese firms and the GSA at the ITS World congress in October 2015
- in Bordeaux
- EU-Japan Partnering Support Mission in the Space Sector
9th to 11th March 2015
13 EU companies related space industry, 3 GNSS companies)

(Invited)



Helpdesk

- Support submitting application for Horizon 2020 programme
- Set up meeting for European company and Japanese company for discussing potential cooperation



Communications

- Send e-alert in March, May and September for promoting the ESNC Asia Challenge in Japan, updated information on Galileo launch and forthcoming GNSS events in Europe
- Created a GNSS.Asia Japan LinkedIn group

Execution of Pilot Activities – Vulcanus Engineering Internships in GNSS Application Projects



Vulcanus students from Europe

1 year industrial internship for EU and JP master/doctoral level students in engineering areas

4 months language course and 8 months training programme

Vulcanus in Europe

- 2 Japanese VULCANUS interns in Europe to work on GNSS projects in the railway industry in The Spanish Centre of Studies and Technical Research
- ① Student from Toyota Technical Institute of Nagoya (April 2013 – March 2014)
“Project EATS (ETCS Advanced Testing and Smart Train Positioning System)”
- ② Student from Tohoku University Graduate School (April 2014 – March 2015)
“ Project to develop European Rail Traffic Management System”

Vulcanus in Japan

- 1 European VULCANUS intern in **Japanese GNSS company** - Asia Air Survey joined the internship programme. A student from Aristotle University of Thessaloniki started the programme from September 2015.

Execution of Pilot Activities – Keys to Japan



Keys to Japan – Competition for the sponsorship of a market entry plan in Japan

Objectives and outputs: support leading EU SMEs with *market entry business plan in Japan* offer up-to-date industry market entry research data about Japan

Target customer: nationals from the EU working in a management position for an EU SME must be 20 years of age or older at the time of application

Timeline:



**2015-2016 Winner: Geomatics Research & Development srl, Italy
GNSS Monitoring Infrastructure**

Getting started: Download the application form from <http://www.eu-japan.eu/keys-japan>

The market research and BP drafts are delivered in collaboration with the Japan Market Expansion Competition (JMEC, <http://www.jmec.gr.jp>)

GNSS. asia

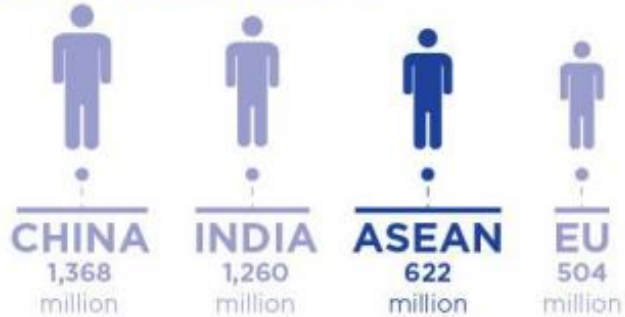
Industrial Cooperation Across Continents ASEAN

Lukas Lanneau, SpaceTec Partners, GNSS.asia
Multi-GNSS Asia Conference 2015, Brunei Darussalam



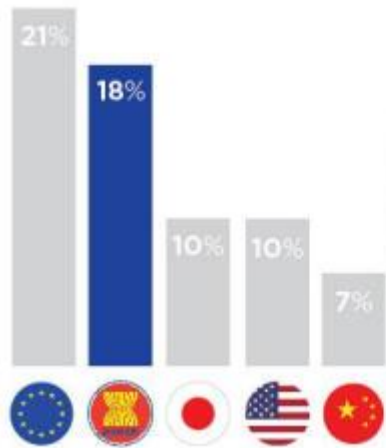
ASEAN – an economic powerhouse

In 2014, ASEAN population was the **3rd largest in the world**

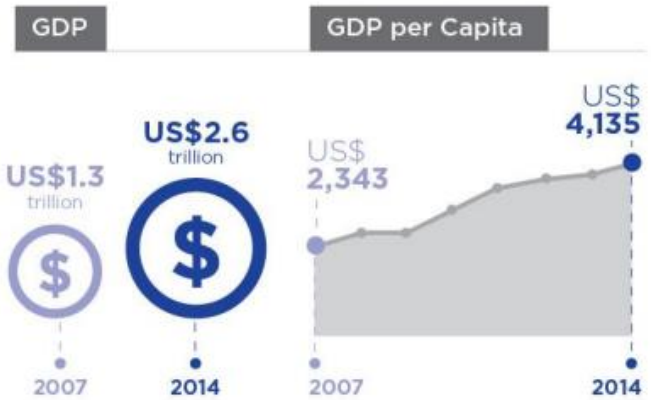


In 2014, ASEAN economy was

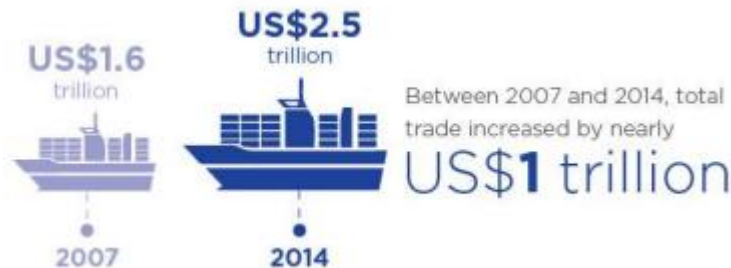
the **7th largest in the world** & the **3rd largest in Asia**



With **US\$24 billion**, **Intra-ASEAN** was the **2nd highest source** of FDI in 2014



Between 2007 and 2014, ASEAN GDP **nearly doubled**, current GDP per capita **increased by 76%**



AEC – towards increased integration



ASSOCIATION
OF SOUTHEAST
ASIAN NATIONS

- Establishment of **ASEAN Economic Community (AEC)** as backbone to further increase **regional cooperation** and **global competitiveness**
- **AEC Blueprint 2025** formally signed at 27th ASEAN Summit (22 November 2015)
- **Five interrelated and mutually reinforcing objectives**
 - (i) A Highly Integrated and Cohesive Economy;
 - (ii) A Competitive, Innovative, and Dynamic ASEAN;
 - (iii) Enhanced Connectivity and Sectoral Cooperation;
 - (iv) A Resilient, Inclusive, People-Oriented, and People-Centred ASEAN;
 - (v) A Global ASEAN



ASEAN
Economic
Community

Shared GNSS challenges & opportunities



Intelligent Transportation Systems (ITS)



Disaster Mitigation and Management



Precision Agriculture



Location Based Services (LBS)

Intelligent Transportation Solutions (ITS)

- **Traffic jams** as major concern for SEA countries with *megacities*, causing considerable **negative economic, ecological and health effects**
- **Jakarta (ID), Surabaya (ID) and Bangkok (TH)** in top 10 of **world's most congested cities**¹
- Use of **(multi-)GNSS receivers** a crucial enabler in meeting **increasingly demanding user requirement** and **diverse precision needs** in a wide area of ITS applications
- Applications include **road surveillance, sustainable mobility, freight tracking, traffic management** and **road user charging**
- **ITS World Congress 2016 (Melbourne)** as important occasion for **increased cooperation**



Traffic jam in Bangkok, Thailand (2014)



Disaster Mitigation & Management

- Between 2004-2013, Southeast Asia was hit by natural disasters that killed **more than 350,000** in **over 500 incidents**¹
- Increasingly close cooperation** between ASEAN MS (e.g. AHA Centre²), also in terms of technical cooperation and pilot projects
- Use of **satellite-based technologies**, especially (multi-)GNSS, is essential for **effective emergency preparedness, management and response**
- Monitoring and early warning systems** for landslides, floods, volcanic eruptions, - e.g. use of **GNSS-based seismology** for earthquake detection
- GNSS as key enabler for **Search and Rescue (SAR)**

One ASEAN, One Response: ASEAN Responding to Disasters as One

on Wednesday, 09 September 2015. Posted in 2015, ASEAN Secretariat News



BANGKOK, 9 September 2015 –Thailand's Department of Disaster Prevention & Mitigation (DDPM) together with the ASEAN Secretariat and the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre) will conduct "One ASEAN, One Response Roadshow and ASEAN Resilience Symposium" on 10 – 11 September 2015 in Bangkok, Thailand. The news was released today during the press conference held in DDPM, Bangkok, Thailand, by the Director of the AHA Centre, and the Executive



AHA CENTRE



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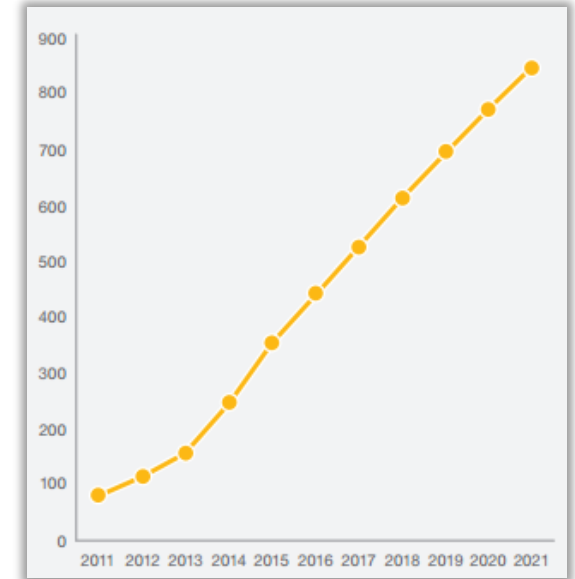
Precision agriculture

- ASEAN as one of the world's **largest agricultural hubs** (e.g. rice, corn, sugarcane, soybeans and cassava)
- Most ASEAN countries **yet to reach their production boundaries** - significant **investment & cooperation opportunities** for **adapted automated farming machinery**
- Gradual implementation of **GNSS-based technology** essential in ensuring **improved productivity, food security, environmental impact** and **global competitiveness**
- Applications including **controlled-traffic farming (CTF), automated steering** and **inter-row sowing** have a **significant impact upon projected yields and costs**



Location-Based Services (LBS)

- SEA & Oceania **smartphone penetration** rising steeply and expected to **more than double by 2020**
- **LBS market** in Southeast Asia is projected to grow at **CAGR 50.98%** over **2014-2019**¹
- SEA's **Internet of Things (IoT) and M2M communications** market rapidly gaining traction, stimulated by **enabling regulations, government-supported initiatives** and **growing user base**
- GNSS as key sensor for a **rapidly growing range of LBS applications**
- Geo-marketing, tracking solutions, augmented reality, social networking, eHealth solutions, smart city applications, sports monitoring



Number of smartphone subscriptions in Southeast Asia & Oceania (millions) – source: Ericsson (2015)



Conclusion

- ASEAN as **globally competitive powerhouse** with **promising growth perspectives** and **significant homogenous markets**
- Important **hub for innovative GNSS applications** due to the huge, young tech-savvy population
- **GNSS-based applications** will be essential in coping with **joint challenges** and **materialising pending innovation opportunities**
- Opportunities for **increased regional and cross-continental cooperation** in **GNSS knowledge exchange**, **application development**, **joint R&D** and **industrial partnerships**



GNSS. asia

www.gnss.asia

china@gnss.asia

japan@gnss.asia

india@gnss.asia

taiwan@gnss.asia

korea@gnss.asia

asean@gnss.asia



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HORIZON 2020