

EU-China Online Industry Workshop

# An Insight into China's GNSS Market

**Friday 4 December**

**10:00 CET / 17:00 CST**



**Tiantian Qi**

GNSS.asia China  
EU Chamber of  
Commerce in China



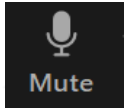
**Davof Xu**

GNSS.asia China  
SpaceTec Partners

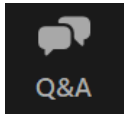


GNSS.asia is funded by the European Union within Horizon 2020, the EU Framework Programme for Research and Innovation, under grant agreement no 870296

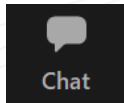
# Zoom Crash Course!



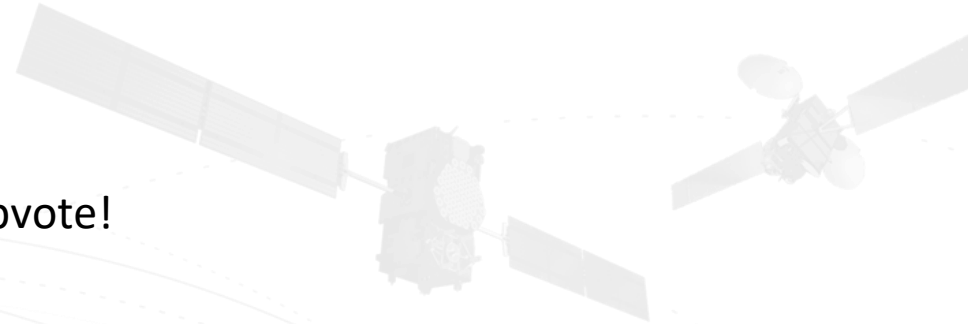
Please mute your microphone



Any questions? Ask here! Feel free to upvote!



Talk to panellists and fellow participants



## ● A quick preview...

- 1 China's GNSS **market segmentation differs** from the European approach
- 2 The gravity point of China's GNSS industry is in the **Pearl River Delta**, followed by Beijing-Tianjin-Hebei and the Yangtze River Delta
- 3 GNSS-driven **consumer solutions** have penetrated **into every part of Chinese citizens' daily life**, including anti-COVID applications
- 4 GNSS already enables the **high precision of smart vehicles**, including Apollo's self-driving taxis
- 5 China sees **new players going upstream** (LEO) to meet specific GNSS requirements, with examples in telecommunications and automotive (Geely)
- 6 A trend of **sensor fusion** combines GNSS with Remote Sensing, Mobile Communications, IoT and Artificial Intelligence
- 7 New business models and market conditions, with the **big 3 ABC**, the opening-up to civil investors and continuous public investment in **new and high-tech infrastructure**
- 8 Growing **legislation, regulation and standardisation** of GNSS industries, requiring foreign companies to be aware of these conditions before entering the market



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17:05	10:05	Overview of China's GNSS Market Landscape	Tiantian Qi European Union Chamber of Commerce in China, GNSS.asia China
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# ● GNSS.asia – The three objectives



Industrial cooperation  
across continents

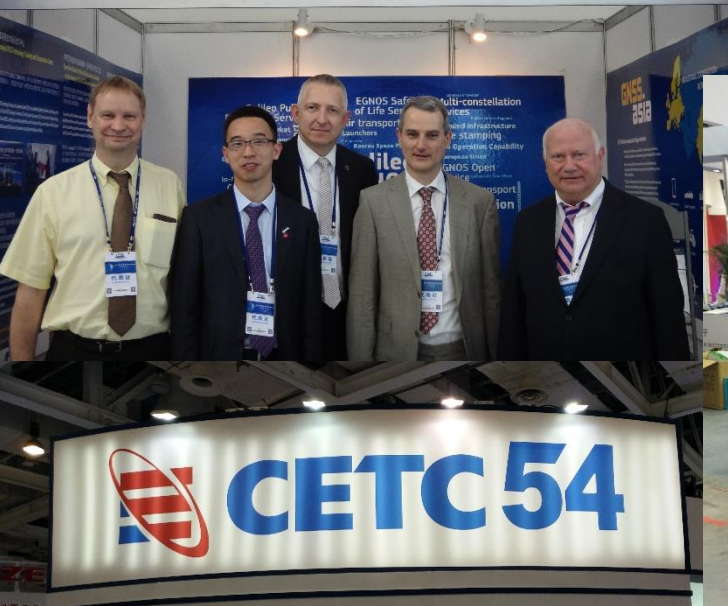
Facilitate  
Industrial  
Cooperation

Support  
Institutional  
Relations

Promote  
European GNSS  
in Multi-GNSS  
context



CSNC 第六届中国卫星导航技术与应用成果展





# ● What can GNSS.asia do for you?

Register for support  
on **[www.gnss.asia](http://www.gnss.asia)**!



## Networking & matchmaking support

- Stakeholder **introductions** and **matchmaking sessions**
- High-level EU-Asia **delegation visits**
- **Personalised** interviews identifying individual priorities
- Guided **company visits** and presentation opportunities



## Dissemination & marketing support

- **Speaking slots** at GNSS.asia online workshops and
- **Virtual presentations** through videoconference
- Dissemination of **promotional material** at international events
- Visibility through **GNSS.asia innovation blog, newsletter & market trends**



## Market entry support

- Access to the latest **GNSS market information** and **trends**
- Support in identifying **business opportunities** for your business
- Access to **experienced local teams** with in-depth market knowledge
- Access to a broad industry and institutional **stakeholder network**

# ● Our GNSS.asia team in China... at your service!



**Tiantian Qi**

Qi@GNSS.asia

- **14 years** of experience in the **EU Delegation** to China & Mongolia and the **European Union Chamber of Commerce in China**
- GNSS.asia China Project Manager
- Senior business manager at European Union Chamber of Commerce in China, leading **auto components WG**
- Loves Belgian food & French wine



**Davof Xu**

Xu@GNSS.asia

- 5 years of experience in the **European Union Chamber of Commerce** in China on GNSS.asia and **EU SME Centre**
- **Standardisation** council at Philips
- National Vice-Chair of standard and conformity assessment WG
- Loves tea and German beers



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● Chengdu, city of GNSS  
and pandas in 2020!





## ● Highlights from China SatNav Conference 2020

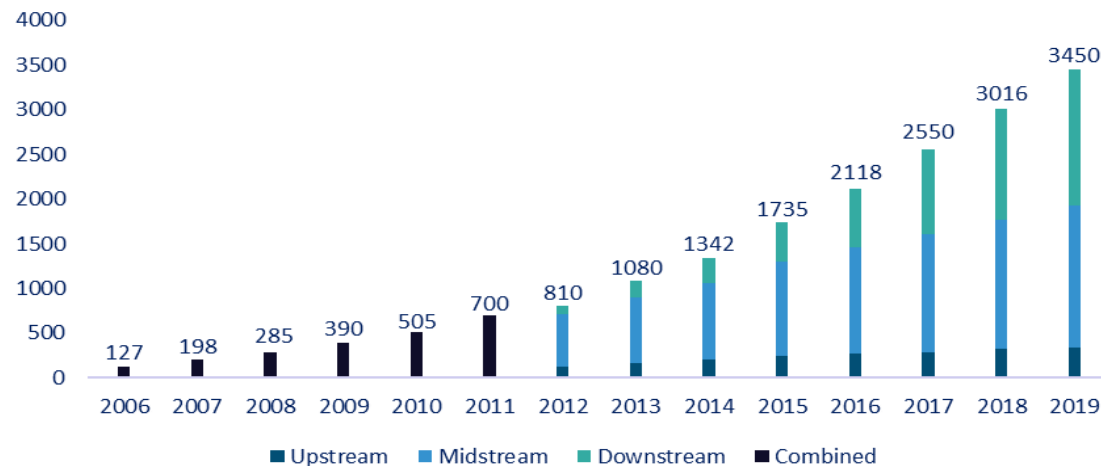
- 1 Announcement of China's **basic GNSS law** to safeguard China's GNSS market development
- 2 CSNSAO and Mongolia GIA signed **bilateral cooperation agreement** on BeiDou applications
- 3 **22nm dual-frequency chipsets for centimeter-level positioning** launched by BDStar. Meituan and BDStar signed a strategic cooperation agreement

Galileo-compatible



# ● Growing importance of the downstream market

- 2019 output reached **EUR 43 billion**  
→ an annual **increase of 14.4%**
- Growing share of downstream market**  
from 31% to 44% since 2016
- 14,000 GNSS companies** keeping over  
500,000 employees at work



Industrial Chain Links		2016		2017		2018		2019	
Upstream	Basic Devices	13%	5%	11.27%	4.17%	10.94%	4.44%	9.92%	3.6%
	Basic Software		2%		2%		2.1%		2.02%
	Basic Data		6%		5.1%		4.4%		4.3%
Midstream	Terminal Integration	56%	42%	51.92	36.79%	47.46%	34.57%	45.85%	29.62%
	System Integration		14%		15.13%		12.89%		16.23%
Downstream	Operation Service	31%		36.81%		41.6%		44.23%	

China's Satellite Navigation and Location Service Industry Output Growth (2006-2019, GLAC White Paper)

# GNSS Market Segments in Europe



CONSUMER SOLUTIONS



EMERGENCY RESPONSE



ROAD & AUTOMOTIVE



RAIL



MANNED AVIATION



AGRICULTURE



DRONES



GEOMATICS

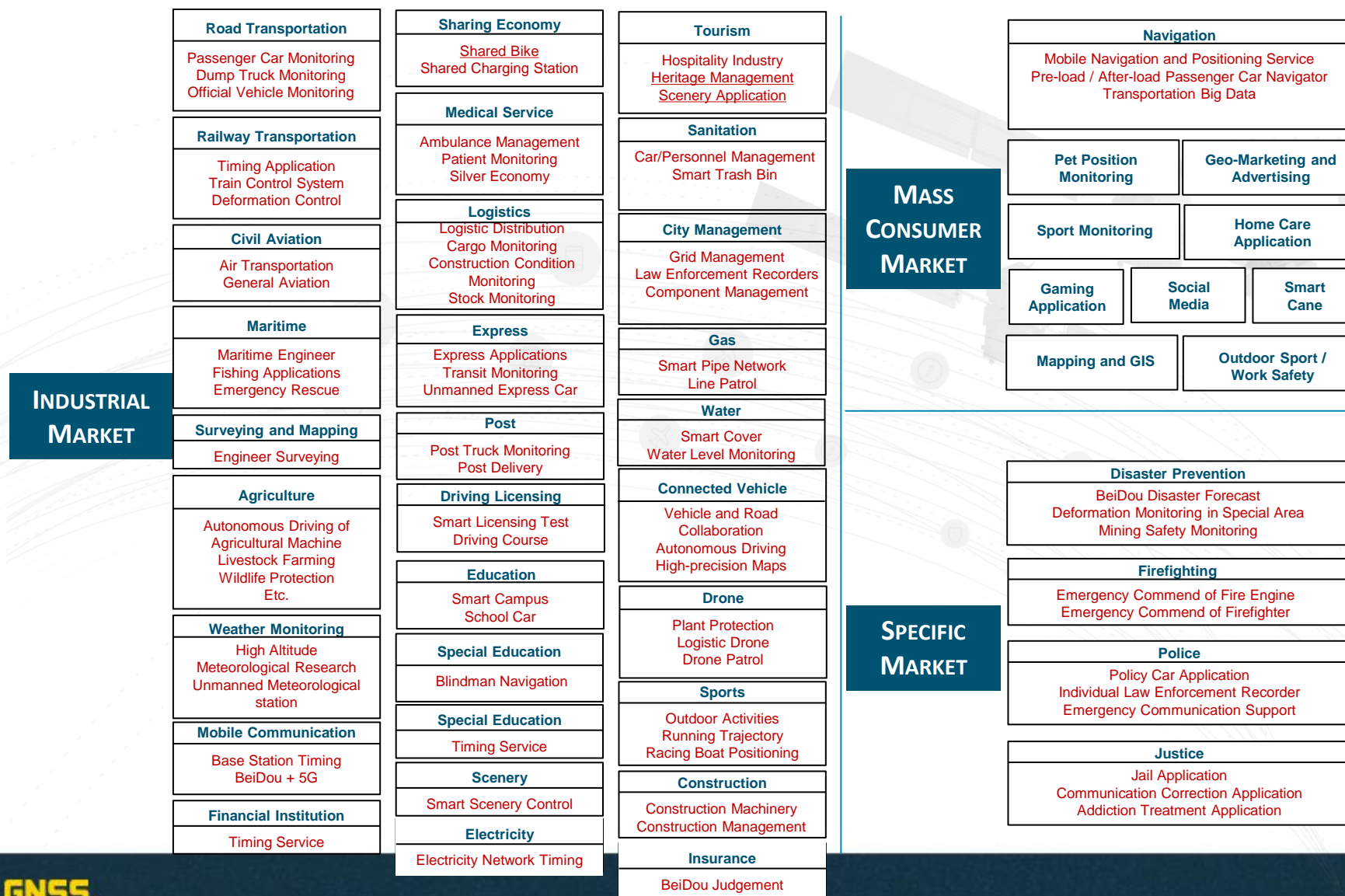


MARITIME



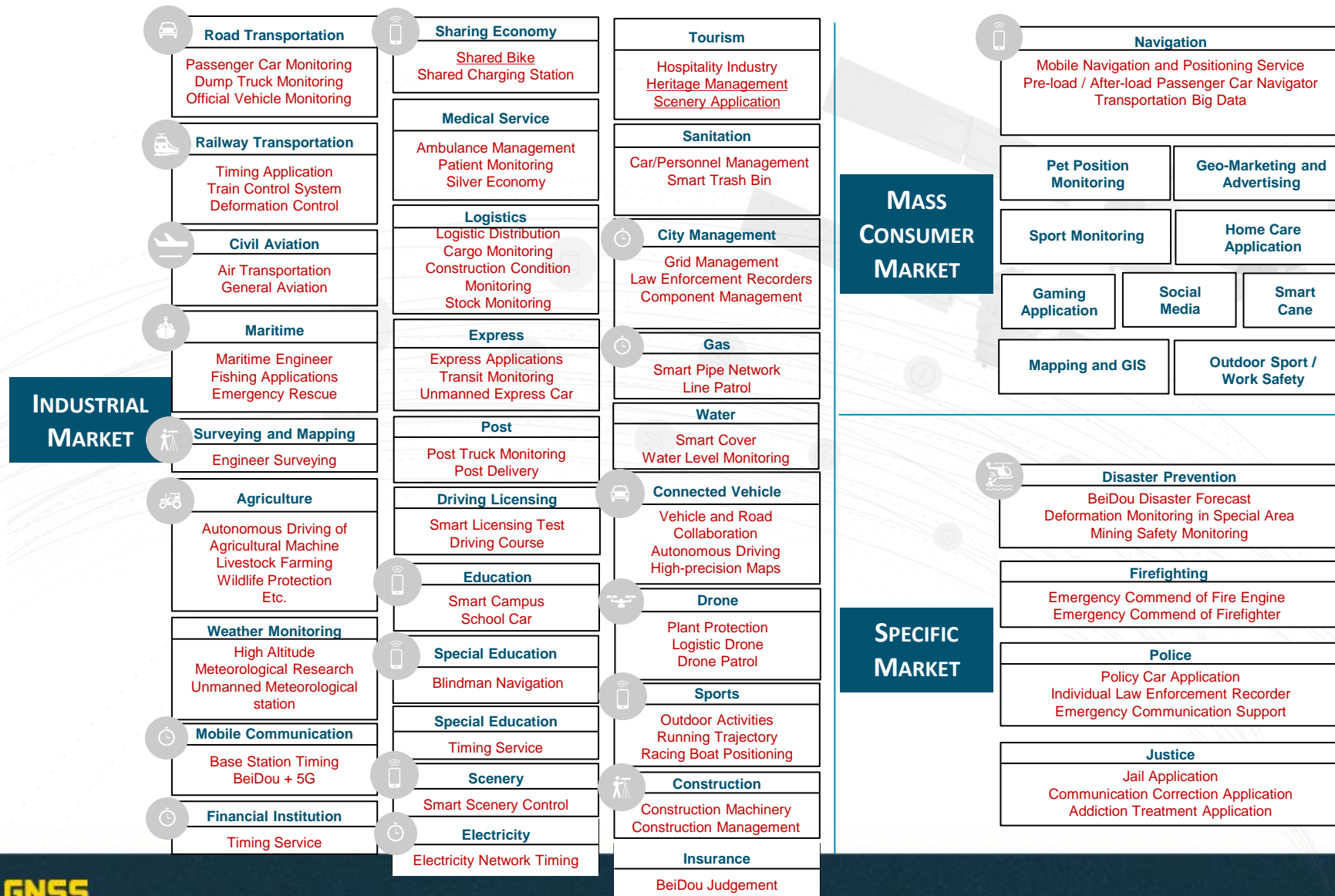
CRITICAL INFRASTRUCTURES

# GNSS Market Segments in China






# GNSS Market Segments in China



## INDUSTRIAL MARKET

 <b>Road Transportation</b> Passenger Car Monitoring Dump Truck Monitoring Official Vehicle Monitoring	 <b>Sharing Economy</b> <u>Shared Bike</u> Shared Charging Station	<b>Tourism</b> Hospitality Industry Heritage Management Scenery Application
 <b>Railway Transportation</b> Timing Application Train Control System Deformation Control	<b>Medical Service</b> Ambulance Management Patient Monitoring Silver Economy	<b>Sanitation</b> Car/Personnel Management Smart Trash Bin
 <b>Civil Aviation</b> Air Transportation General Aviation	<b>Logistics</b> Logistic Distribution Cargo Monitoring Construction Condition Monitoring Stock Monitoring	 <b>City Management</b> Grid Management Law Enforcement Recorders Component Management
 <b>Maritime</b> Maritime Engineer Fishing Applications Emergency Rescue	<b>Express</b> Express Applications Transit Monitoring Unmanned Express Car	 <b>Gas</b> Smart Pipe Network Line Patrol
 <b>Surveying and Mapping</b> Engineer Surveying	<b>Post</b> Post Truck Monitoring Post Delivery	<b>Water</b> Smart Cover Water Level Monitoring
 <b>Agriculture</b> Autonomous Driving of Agricultural Machine Livestock Farming Wildlife Protection Etc.	<b>Driving Licensing</b> Smart Licensing Test Driving Course	 <b>Connected Vehicle</b> Vehicle and Road Collaboration Autonomous Driving High-precision Maps
<b>Weather Monitoring</b> High Altitude Meteorological Research Unmanned Meteorological station	 <b>Education</b> Smart Campus School Car	 <b>Drone</b> Plant Protection Logistic Drone Drone Patrol
 <b>Mobile Communication</b> Base Station Timing BeiDou + 5G	 <b>Special Education</b> Blindman Navigation	 <b>Sports</b> Outdoor Activities Running Trajectory Racing Boat Positioning
 <b>Financial Institution</b> Timing Service	<b>Special Education</b> Timing Service	 <b>Construction</b> Construction Machinery Construction Management
	 <b>Scenery</b> Smart Scenery Control	<b>Insurance</b> BeiDou Judgement
	 <b>Electricity</b> Electricity Network Timing	

## MASS CONSUMER MARKET

 <b>Navigation</b> Mobile Navigation and Positioning Service Pre-load / After-load Passenger Car Navigator Transportation Big Data	<b>Pet Position Monitoring</b>	<b>Geo-Marketing and Advertising</b>
<b>Sport Monitoring</b>	<b>Home Care Application</b>	
<b>Gaming Application</b>	<b>Social Media</b>	<b>Smart Cane</b>
<b>Mapping and GIS</b>	<b>Outdoor Sport / Work Safety</b>	

## SPECIFIC MARKET

 <b>Disaster Prevention</b> BeiDou Disaster Forecast Deformation Monitoring in Special Area Mining Safety Monitoring
<b>Firefighting</b> Emergency Command of Fire Engine Emergency Command of Firefighter
<b>Police</b> Policy Car Application Individual Law Enforcement Recorder Emergency Communication Support
<b>Justice</b> Jail Application Communication Correction Application Addiction Treatment Application

# Interesting GNSS Market Segments in China

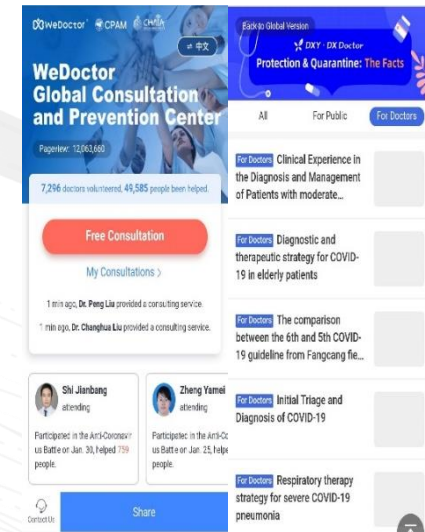
## Sharing Economy



## Tourism



## Silver Economy



## Sports & Outdoor



## Medical Services





# Mapping of Key Stakeholders in Important Segments

Deep Dive Coming

Upstream

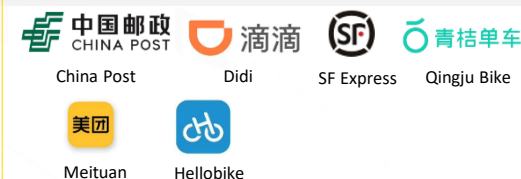
Midstream

Downstream

Users



Individual Consumers



Farmers



# Mapping of Key Stakeholders in Important Segments

Deep Dive Coming

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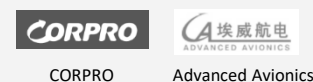
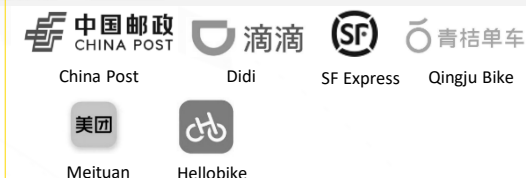
Midstream

Downstream

Users

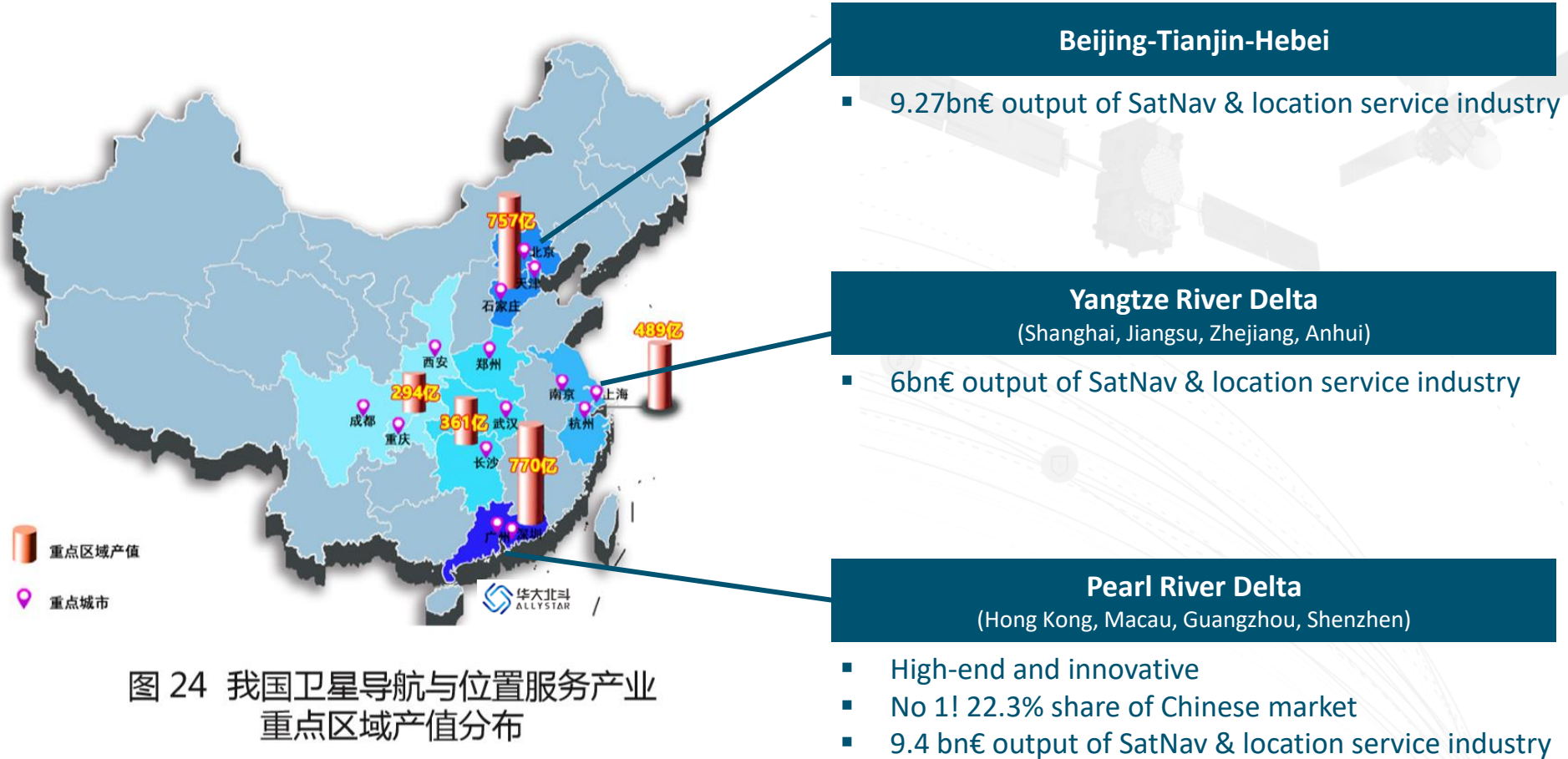


Individual Consumers



# Pearl River Delta has the lead in China's SatNav market

followed by BJ-TJ-Hebei and Yangtze River Delta





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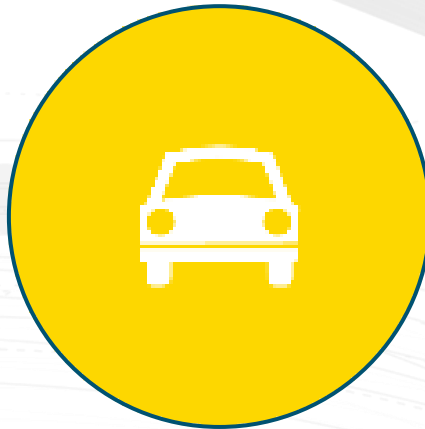
# Market Trends

# ● Deep dives for today...

Consumer Solutions



Road & Automotive



Maritime



Rail



Agriculture

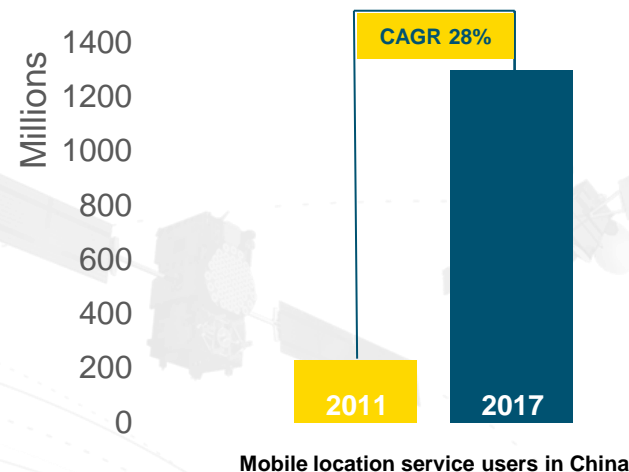






# Consumer Solutions Penetrate into Every Part of Life

- The number of **mobile location service users** in China has grown from **230 million** in 2011 to **1.3 billion** in 2017
- **390 million** smartphones of which **14 million 5G** smartphones in 2019, expected to reach **180 million 5G-enabled** phones in 2020!
- A **variety of GNSS-enabled smart wearable devices**
  - Watches and cards
  - Social services and caring for vulnerable groups
  - Widely used by students, seniors and many others



Social Apps



Sharing Economy








E-commerce



Maps

# GNSS for COVID19 contract tracing (still used)

- CREATOR**  Coordinated by Chinese city or provincial authorities
- TECHNOLOGY**  GNSS; sometimes combined with Bluetooth, credit card data, CID
- PURPOSE**  Track **travel histories** of COVID19 patients  
**Contact tracing**, sometimes shared with public
- ENFORCEMENT**  **Mandatory** in public areas and transportation, often also required by private entities (e.g. restaurants) before entry
- USE**  Used through mini-apps; QR-code through WeChat or AliPay, linked to health status with colour code



密切接触者测量仪



全国疫情 数据统计截止 2020-03-24 16:01:51

81773	427	73300	3283
确诊病例	疑似病例	治愈人数	死亡人数
+173	+74	+459	+7

最新公告

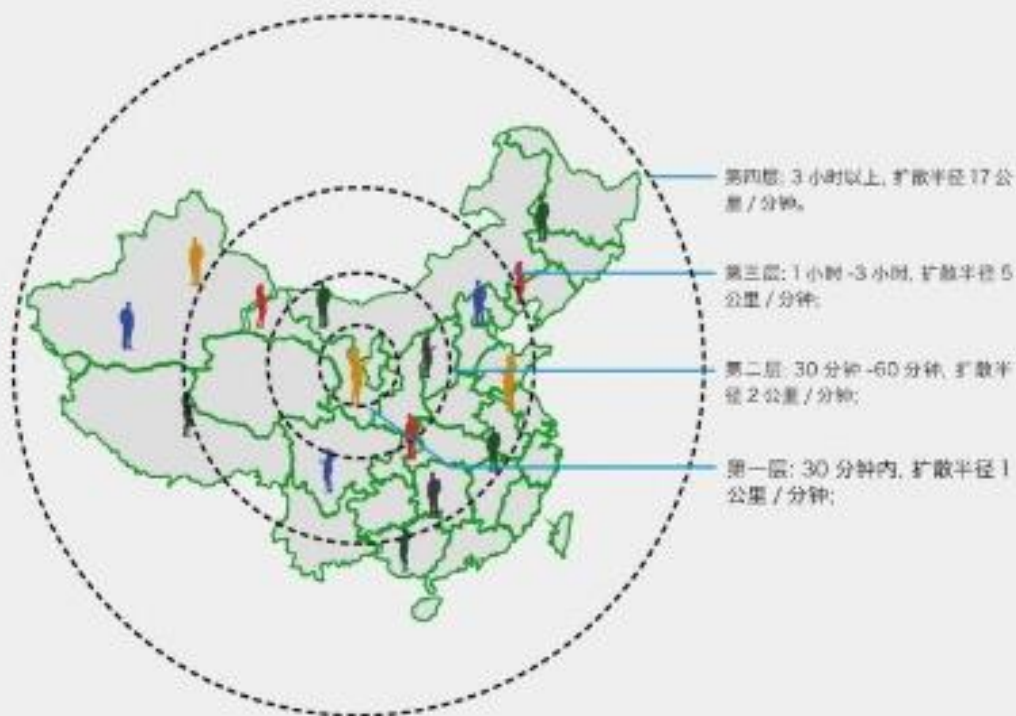
疫情地图

医疗信息



# Consumer Solutions Penetrate into Every Part of Life

## Child Safety Emergency Response platform



### 四层防护网机制图 runtime interactions

#### 防护网机制原理

以孩子走失地为圆心, 依据孩子走失后不同时段内对应的最快交通工具速度作为参考, 将扩散的防护网范围划分为四层 (详情请参阅附件)。

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### GNSS School Bag







## Consumer Solutions Penetrate into Every Part of Life





# GNSS Enables the High Precision of Smart Vehicles (Autonomous Driving, V2X)

- GNSS is used in the monitoring and management of priority transportation, highway infrastructure safety and real-time high-precision positioning.
- The world's largest dynamic monitoring system for road operating vehicles with GNSS adoption in:

**6.5 million** road operating vehicles  
**40 000** postal and express delivery vehicles  
**80 000** buses in 36 central cities  
**3200** inland navigation facilities  
**2900** marine navigation facilities



Smart Truck with Autopilot



Road Trails for Autopilots



Automated Bus



Baidu Apollo





# GNSS Enables the High Precision of Smart Vehicles (Autonomous Driving, V2X)



apollo

Baidu 百度







## GNSS Enables the High Precision of Smart Vehicles (Autonomous Driving, V2X)





# Maritime Navigation Saves Lives & Guards Fishery Markets

- As for fishery, GNSS provides services for **ship positioning and monitoring, emergency rescue, information release, and fishing vessel management**
- GNSS-enabled terminals have been installed by over **70 thousand fishing boats and law enforcement vessels** across China.







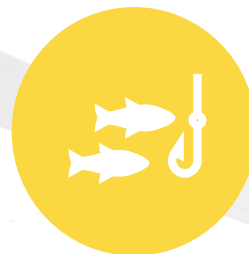
# Smart agriculture promising for the whole farming chain



Agriculture



Forestry



Fishery



- GNSS-based agricultural machinery operation supervision platforms and IoT platforms
- GNSS positioning and short message communication
- Intelligent Monitoring Systems (e.g. sheep and cattle are fitted with collars in Inner Mongolia)



Smart Weeding



Smart Spraying



Smart Harvest





## Smart agriculture promising for the whole farming chain





# GNSS secures the safe operation of high-speed trains

- **Smart High-Speed Rail:** Announcement of a "New Era of Transportation"  
→ integrated control system with GNSS, 5G and other
- **Railway Security:** GNSS Positioning Early Warning System



Containers with GNSS trackers  
EU-China Train



Railway Security



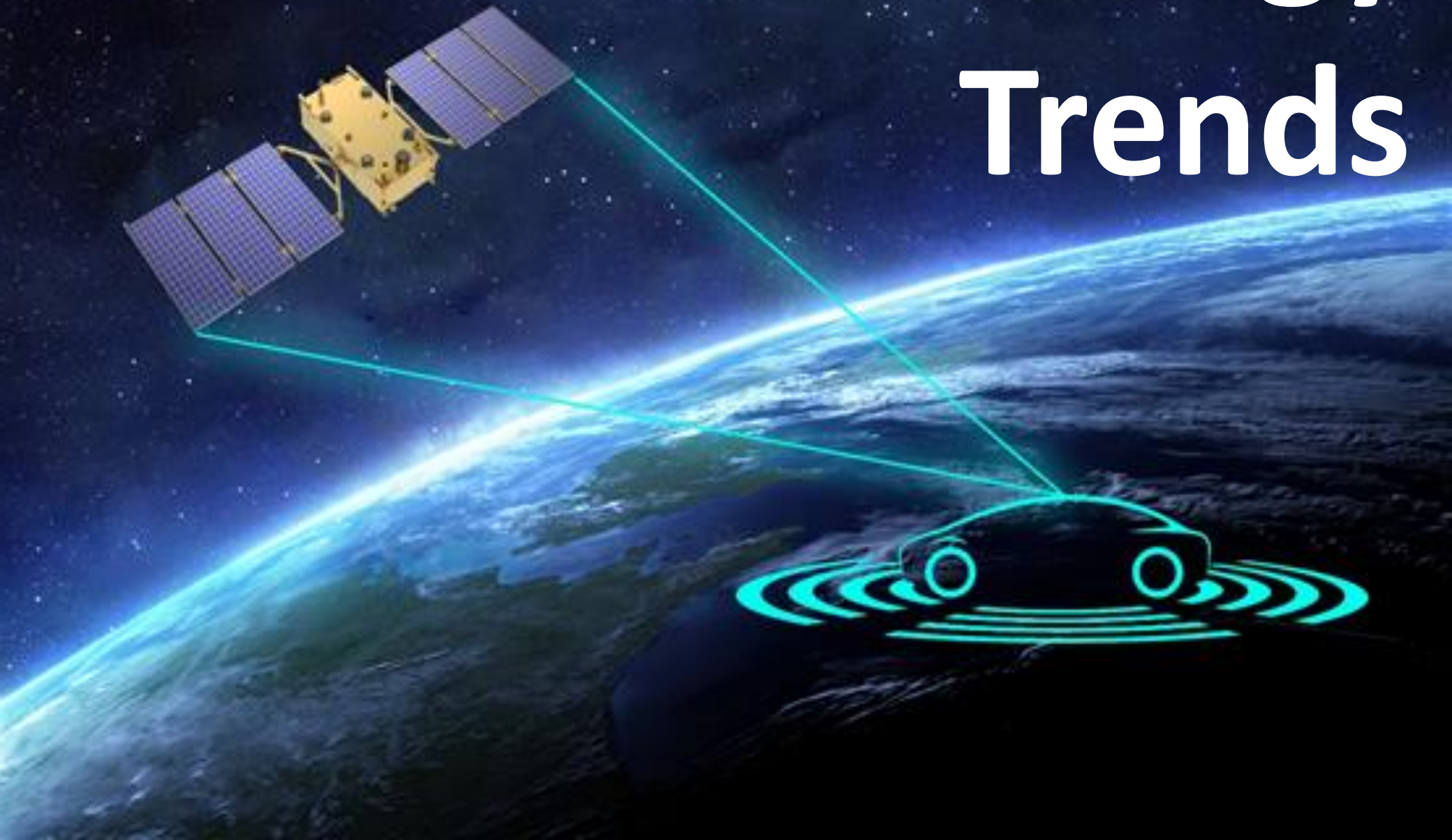
Railway Security



Railway with GNSS and 5G



# Technology Trends





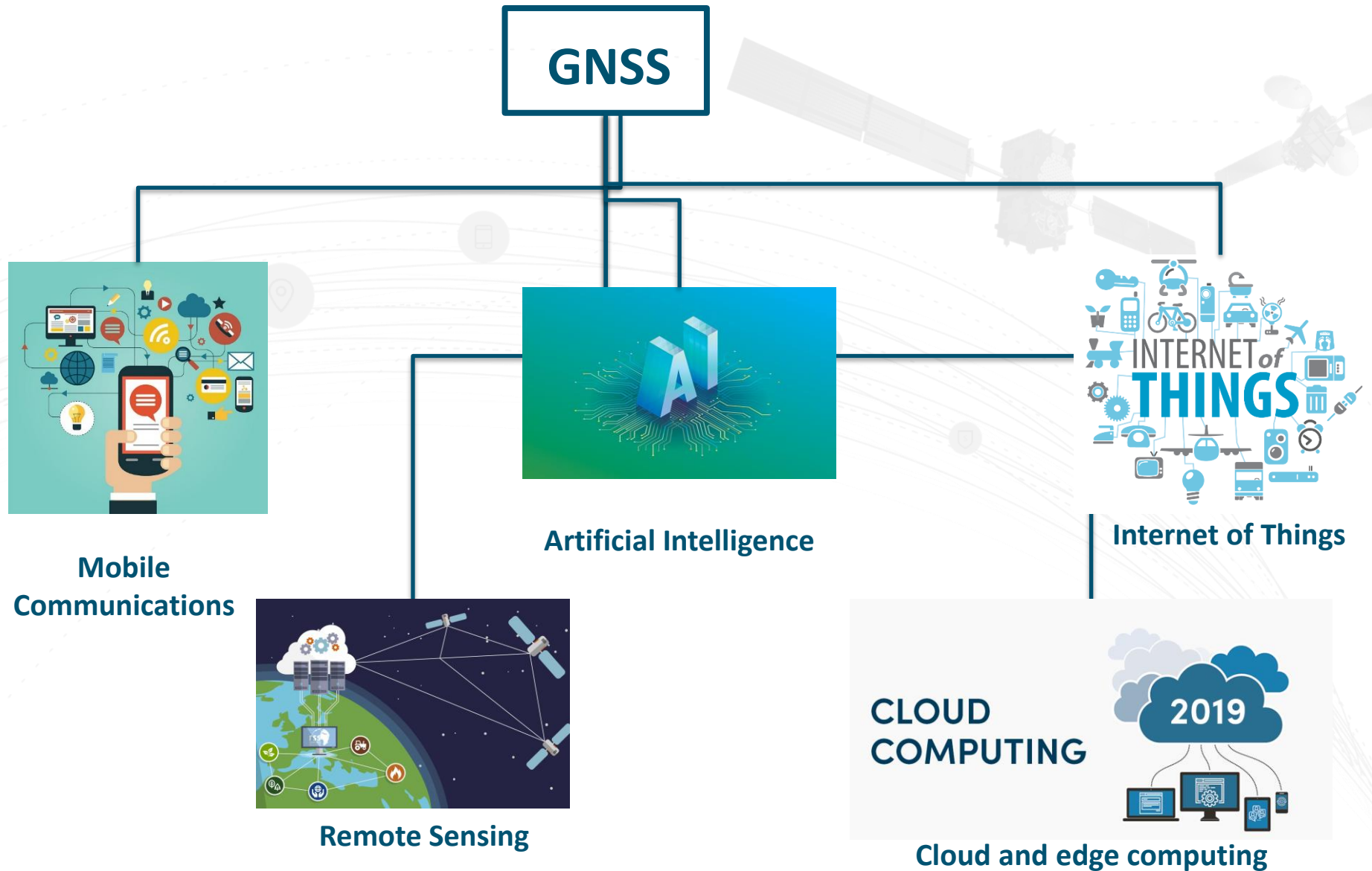
# ● New players going upstream to meet specific requirements

- **GNSS Integrating with LEO SATCOM:** Hongyan constellation System



- **GNSS for Automotive:** the Auto maker Geely is planning to launch LEO satellites to serve its automated driving business and expanding future business in smart driving

# ● Sensor fusion between GNSS and third technologies



# ● GNSS Brings New Economics, Business Models & Markets

- Integration of **new technologies**
- Location-based services brings a **golden era for sharing economics**
- This has created some **giant companies** in China (sharing bikes, car car-hailing)
- The upstream market is **opening up for private and civil investment** including foreign investment





# Policy Trends



# ● GNSS legislations driving the creation of domestic industrial ecosystems

- **966** laws, regulations (national and local level) on satellite navigation have been released to regulate and boost the industrial developments of GNSS

→ **GNSS Market adoption** through legal means (requiring & encouraging)

**Dangerous  
vehicles**

**Taxis**

**Driving School  
Vehicles**

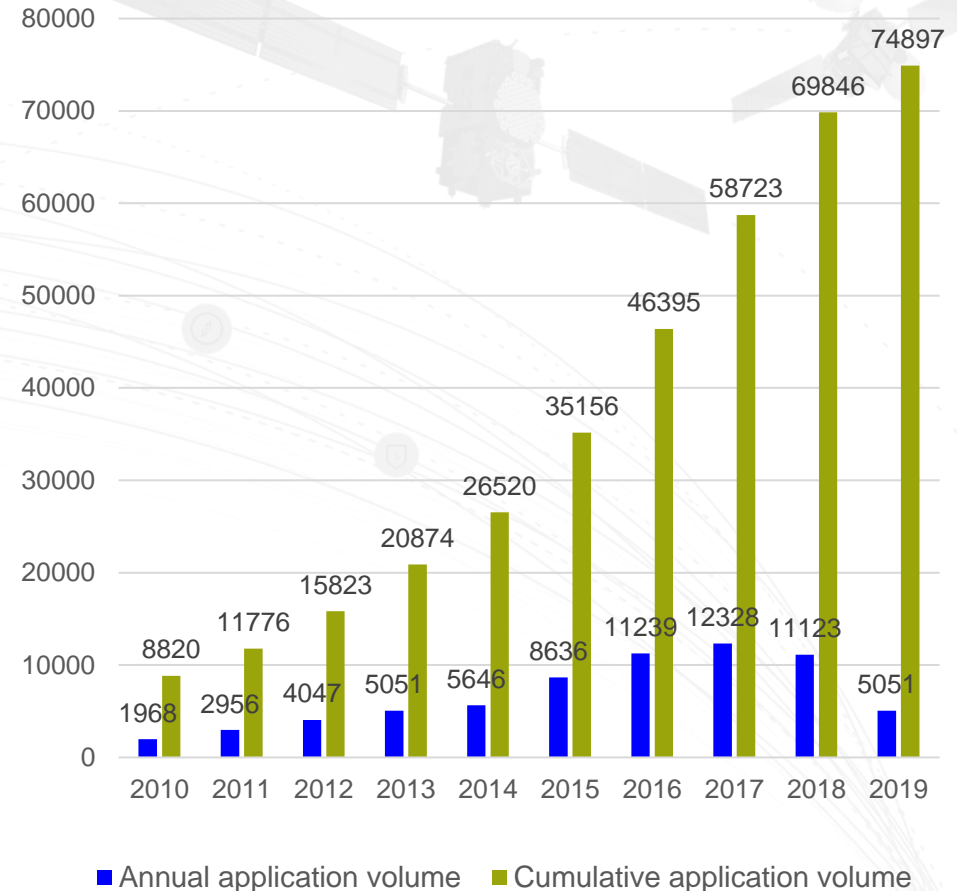
**Maritime  
Vessels**

- Many more are in the pipeline

# China is advancing on standardisation and a global leader in patent registrations

- More than **50 specific standards** on GNSS have been released
- China is active in **international standard setting bodies** for ratification of the BDS by International Standards, such as **ICAO, IMO, 3GPPP/4GPPP (5G), COSPAS-SARSAT**, and IEC with strong supports from industry
- Establishment of the **product quality certification system** for GNSS products
- In 2019, China ranked **first in satellite navigation patents** with 70,000 applications in total

Fig. Annual and cumulative application volume of China's satellite navigation patents from 2010 to 2019





## ● Key Takeaways

- 1 China's GNSS **market segmentation differs** from the European approach
- 2 The gravity point of China's GNSS industry is in the **Pearl River Delta**, followed by Beijing-Tianjin-Hebei and the Yangtze River Delta
- 3 GNSS-driven **consumer solutions** have penetrated **into every part of Chinese citizens' daily life**, including anti-COVID applications
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# ● Opportunities for EU Industry

## Automotive Opportunities



- China's urban transportation challenges fuel smart mobility and Intelligent Transport Systems (ITS)
- Big investments in V2X and autonomous driving
- Opportunity for EU automotive sector
- Chipsets with high accuracy & robustness or for producers of modules with signal authentication
- Success cases by uBlox , STMicroelectronics partnership with Allystar etc.

## Agriculture



- Prioritisation of smart agriculture and precision farming
- Opportunity for EU application developers (e.g. CAP) and highly accurate chipsets for high precision farming

## Consumer Solutions



- Booming domain with high smartphone and 5G penetration
- Consumer solutions in China are driven by the considerable market position of the three Chinese internet giants: Baidu, Alibaba and Tencent
- Relatively open market for EU solution providers/application developers with limited Chinese SOEs

## Maritime



- Growing market & digital transformation
- Opportunities for chipset receivers & terminals producers (e.g. Septentrio success case)

## Rail



- Freight transport and GNSS-enabled digitalisation of high-speed railways
- China adopted Europe's RTMS using virtual balises



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# by GNSS.asia



**January '21**     **Webinar** on GNSS for UTM solutions (Taiwan)



**March '21**     EU-ASEAN Workshop on Space Data for  
Emergency & Maritime Solutions



**Spring '21**     EU GNSS Technology Days (All Asia)

**SOON!**     **GNSS.asia Market & Technology Trends E2**

# ● Read more about China's GNSS market & register for free industry support on [www.gnss.asia](http://www.gnss.asia)

## Individual Industry Support



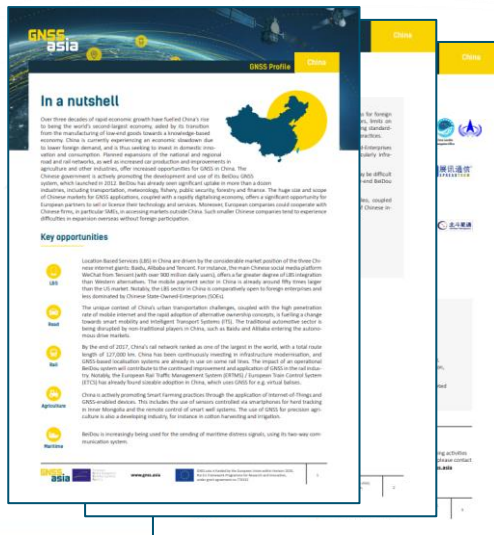
## Monthly Newsletter



### Medical logistics drone in Hunan

The hospital's pathology specimens, blood, and other medical samples need to be manually delivered to the pathology building for inspection after the collection is completed, which normally takes at least 20 minutes. Now, with drone transportation, the delivery time could be reduced to approximately 70 seconds. The precision of the vehicle is top-notch.

## China GNSS Country Profile



## Periodic Market & Technology Trends





● Write us for support on [hello@GNSS.asia](mailto:hello@GNSS.asia)!



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