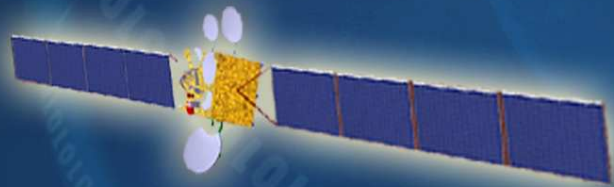


Public

# Medium and Long Term Development Strategy of China's Civil Space Infrastructure ( 2015~2025 )

February, 2016



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# 1 Development Principles

## Development Principles

### Overall Development of Service Applications

To thoroughly use domestic and foreign resources, firstly satisfy strategic and common requirements, reasonably satisfy guiding and specific requirements, promote business applications

### Synchronous Development of Space and Ground System

To insist space and ground system development, to plan, develop, construct, use space system and ground system synchronously

### Open Development Guided by Government

To insist nation's top strategy and overall management, use marketing configuration resources, actively promote commercialization and internationalization

# 2 Overall Framework and Development Objectives

## 2.1 Overall Framework

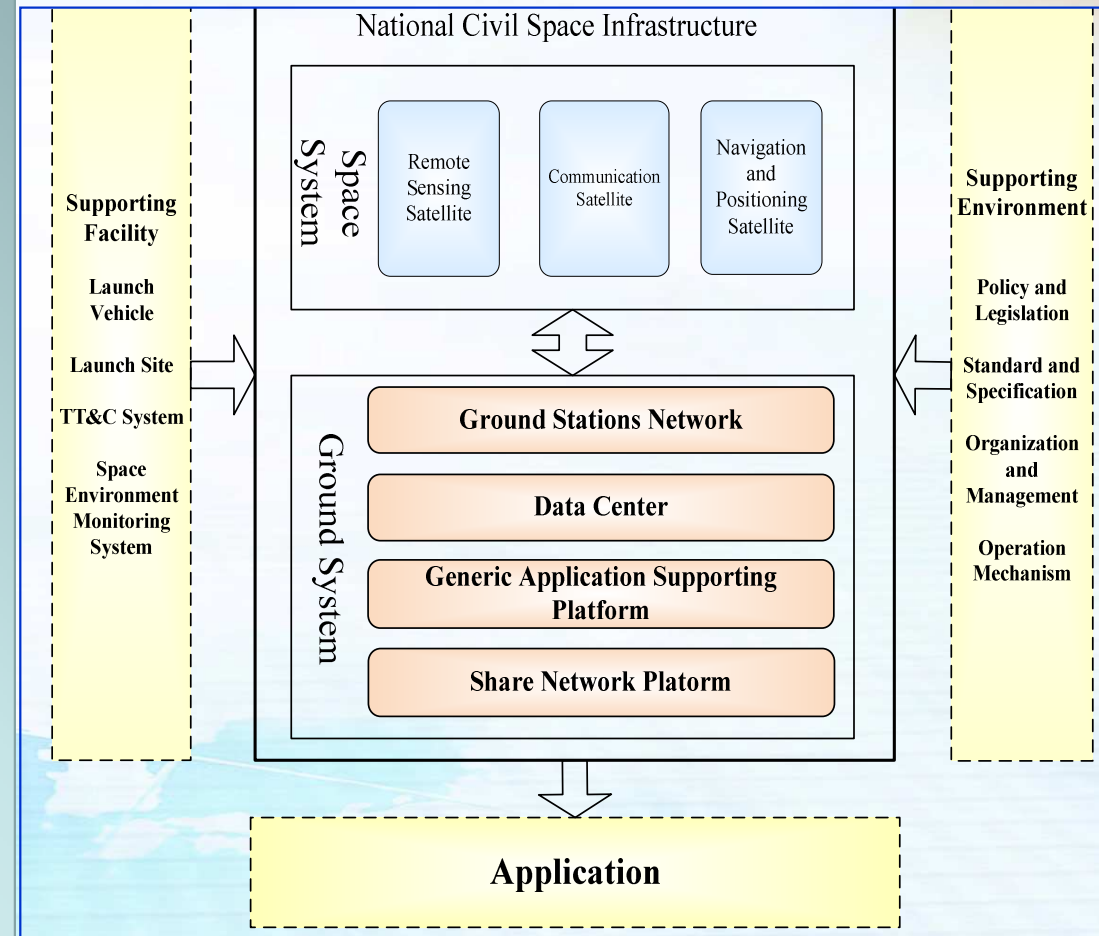
China's national civil space infrastructure consists of space system, ground system and related system.

Space system is composed of three sorts of application satellite systems, including remote sensing, communication and broadcasting, navigation and positioning.

Ground system is composed of ground stations network, data center, generic application supporting platform and share network platform.

Related system is composed of supporting facility and supporting environment.

Application includes industry, regional, enterprise application and public services.



# 2 Overall Framework and Development Objectives

## 2.2 Development Objectives

To establish major framework of national civil space infrastructure, operational satellite development pattern, service mechanism and national data policy

To establish three systems including satellite remote sensing, satellite communication, satellite navigation and positioning; To establish national civil space infrastructure system providing continuous and stable operation services; To complete data share service mechanism, provide standard regulation system, establish commercialization development pattern with the ability of international services

To establish an advanced, global and effective national civil space infrastructure system; To achieve internationally advanced level for business, marketing, industrial development; To gradually improve mechanism of innovation driving, requirement guiding, market configuration; To strongly support economy and society development, effectively participate in internationalization development

2015 or Beyond

2016-2020

2021-2025

## 3 Construction of Remote Sensing, Communication, Navigation and Positioning Satellite System

### 3.1 Remote Sensing Satellite System

According to the development concept of multiple usage of one satellite, network of multiple satellites, coordination of multiple networks, based on the technological characteristics and user requirements characteristics of observation missions, **land observation, ocean observation and atmosphere observation** should be developed for focus, with the construction of remote sensing satellite system composed of **seven constellations and three sorts of specific satellites**. Remote sensing satellite stations network, data center, share network platform and generic application supporting platform should be constructed, global receiving and services ability of remote sensing satellite data can be developed.



### 3 Construction of Remote Sensing, Communication, Navigation and Positioning Satellite System

#### 3.1 Remote Sensing Satellite System -Space System

Land, ocean and atmosphere series satellites should be manufactured, gradually developing the comprehensive and effective global observation capability with a reasonable configuration of high, medium and low resolution, as well as an optimal portfolio of multiple observation methods.

**1 Land Observation:** construction of three observation constellations of high resolution optical, medium resolution optical and SAR, as well as development of earth physical field satellite.

**2 Ocean Observation:** construction of ocean color and ocean dynamic satellite constellation, as well as ocean monitoring satellite.

**3 Atmosphere Observation:** construction of weather observation and climate observation satellite constellation, and atmosphere composition investigation satellite

### 3 Construction of Remote Sensing, Communication, Navigation and Positioning Satellite System

#### 3.1 Remote Sensing Satellite System-Ground System

According to the requirements of effective networking, cooperative operation, integrated services, using the existing resources of ground resources, to construct ground facilities such as remote sensing satellite receiving stations network, data center, generic application supporting platform, share network platform and so on.





# 3 Construction of Remote Sensing, Communication, Navigation and Positioning Satellite System

## 3.1 Remote Sensing Satellite System-Ground System

### Receiving Stations Network

To coordinate all sorts of requirements, establish domestic and polar low earth orbit, polar orbit antenna, as well as receiving facility at sea, to realize coordination among multiple stations and integrative receiving for global data

### Data Center

To upgrade existing land, ocean, weather satellite data center, support with each other, promote effective usage and share of satellite, data, calculating resource

### Generic Application Supporting Platform

Including public supporting platform for calibration and verification field network, generic technology development

### Share Network Platform

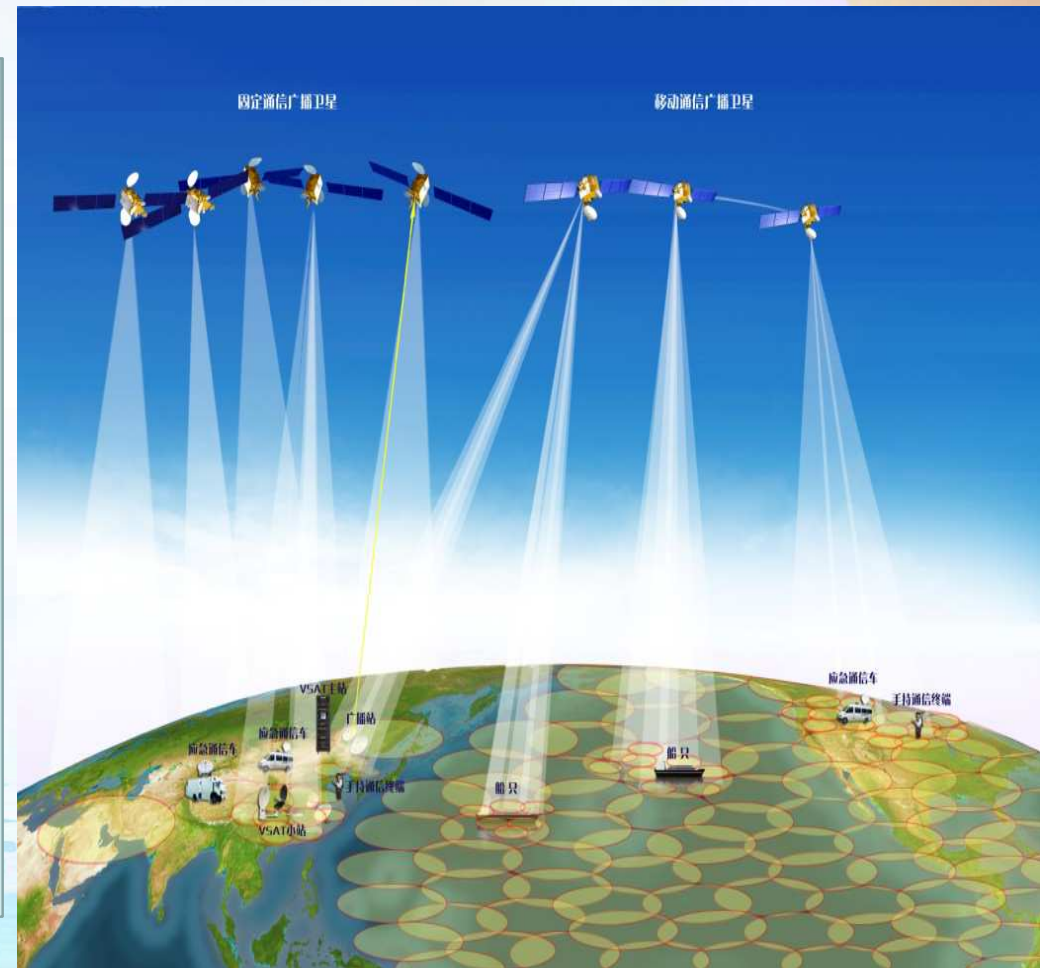
To connect three data centers and all levels of application systems, distribute satellite operation status and user observation requirements in time, effectively use all sorts of calculating and data resource, providing business services for users



# 3 Construction of Remote Sensing, Communication, Navigation and Positioning Satellite System

## 3.2 Communication Satellite System

Aiming at industrial and market application, focusing on commercialization, guaranteeing commonweal requirements, to develop fixed communication satellites and mobile communication satellites, synchronously construct ground facilities such as TT&C station, gateway station, uplink station, calibration field and so on, achieve services abilities of broadband communication, fixed communication, DTH, mobile communication, mobile multimedia broadcasting. To gradually construct global satellite communication and broadcasting system combining communication network covering worldwide main regions, provide services for Broadband China and Globalization strategy, promote international propagate ability.



## 3 Construction of Remote Sensing, Communication, Navigation and Positioning Satellite System

### 3.2 Communication Satellite System-Space System

To construct three sorts of satellites including fixed communication, DTH and broadband communication, provide fixed communication and broadcasting services for the country, neighborhood and other regions.

#### Fixed Communication Satellite

- Focusing on the industrial requirements of telecommunication, broadcasting and TV, ocean, petroleum, based on the current satellites in-orbit, to rapidly develop fixed communication satellite system and maintain continuous improvement of fixed communication capability

#### DTH Satellite

- To develop DTH satellite system on the current basis for the purpose of DTH realization

#### Broadband Communication Satellite

- To develop broadband communication satellite system with broadcasting and digital distribution capability for two-way communication business such as remote education, telemedicine, rural and agriculture informatization, internationalization development and so on

### 3 Construction of Remote Sensing, Communication, Navigation and Positioning Satellite System

#### 3.2 Communication Satellite System-Ground System

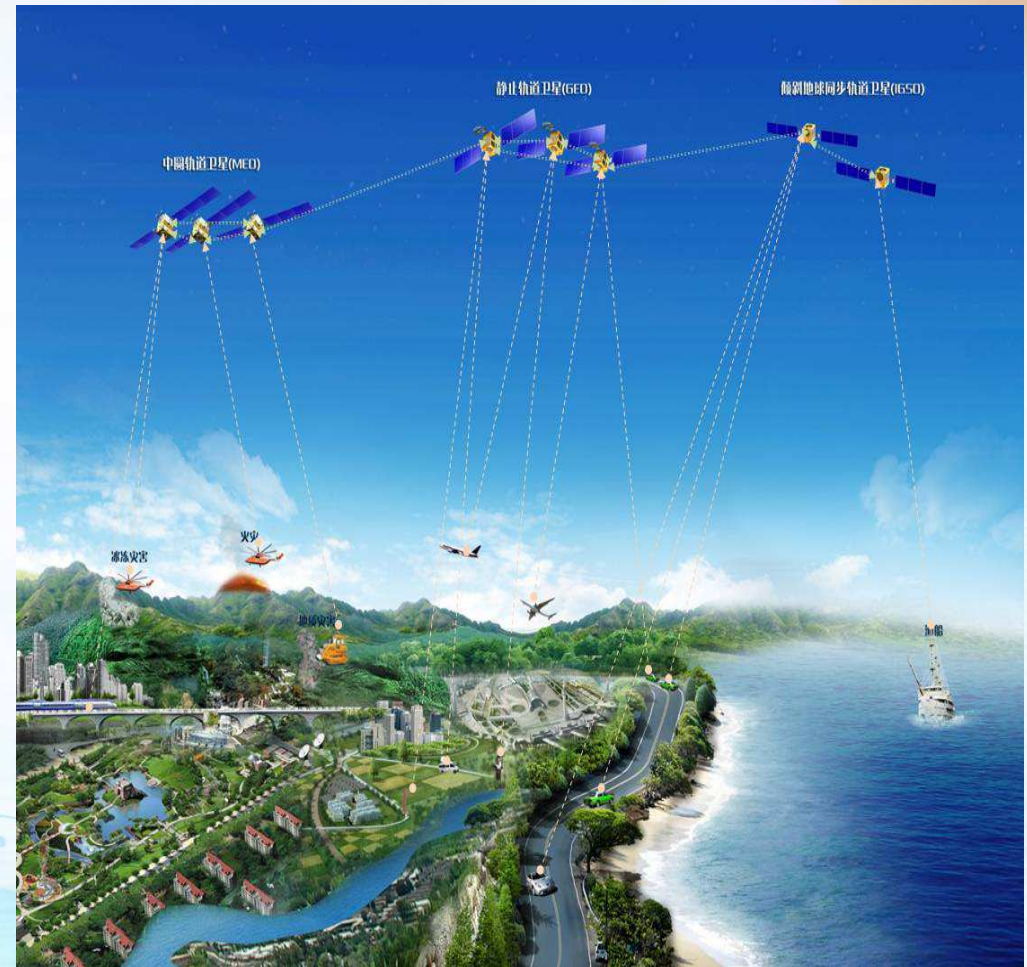
Based on current resources, according to the requirements of space system development, to synchronously construct ground facilities such as **TT&C station**, **gateway station**, **uplink station**, **calibration field** and so on, update or reconstruct all sorts of ground stations if necessary, take full use of satellite systems.

## 3 Construction of Remote Sensing, Communication, Navigation and Positioning Satellite System

### 3.3 Navigation and Positioning System

Satellite navigation space system and ground system construction belongs to nation's science and technology major project of China's second generation satellite navigation system.

By 2020, Beidou global satellite navigation system of 35 satellites will be completed, with positioning accuracy of 10m, timing accuracy of 20ns.



# 4 Active Promotion on Major Applications

According to business requirements and specific application objectives, to use diverse constellations, different series of satellite and data resources, construct satellite comprehensive application system and realize continuous acquirement and application multiple resource information .

Resource,  
Environment  
and Ecological  
Protection

Disaster  
Mitigation and  
Emergency  
Response

Society  
Management,  
Public Service  
and Safe  
Production

New  
Urbanization  
and Regional  
Sustainable  
Development,  
Integration  
Across Areas

Mass  
Information  
Consumption  
and  
Industrialization

Global  
Observation  
and Earth  
System Science

Internationalization  
Service and  
Application

## 5 Policies and Measures

Improve Space  
Law and  
Policies and  
Regulation

- ✓ To enact China Space Law and Space Infrastructure Operating Policies;
- ✓ Improve on study Satellite Products Standards, Promote Sharing and Efficiently Application.

## 5 Policies and Measures

Promotion on  
Diversification  
Investment and  
Industrialization  
Application

- ✓ To support private capital on satellite development and system construction and enhance the vitality of development;
- ✓ To support enterprises to be engaged in value-added product, operation services and industrialization application, forming a good development pattern of mutual complement among basic public service, diverse professional service and mass consumption.



## 5 Policies and Measures

### Stronger Support by Finance and Tax Policy

- ✓ On the basis of integration of current policy resources and full usage of current fund sources, to construct continuous and stable funding mechanism, support operation satellite system construction, scientific satellite development, generic technology development and major generic application supporting platform development, to support and guide major application paradigm of the industry and regions;
- ✓ To encourage innovation of finance support for financial organizations, enhance credit and loan support for space infrastructure development and application, improve and carry out innovative taxing policy.

## 5 Policies and Measures

Focus on  
Innovation  
Driving

- ✓ To establish and improve technology innovation system, support the construction of some key laboratories, engineering centers and other innovation platforms, improve the capabilities of original innovation, integrated innovation and re-innovation;
- ✓ To develop space and ground system's satellite technology and application pattern innovation, deploy generic technology development in advance according to national science and technology plan, strongly promote innovation development of core component, payload, application technology and so on, improve self-directed development, promote deeply combination of satellite and business application, carry out high-quality services;
- ✓ To establish and improve technology standard system of satellite development, terminal equipment, data product, information service and so on.

## 5 Policies and Measures

Encourage  
of  
International  
ization  
Development

- ✓ To study the specific measures of internationalization development, promote the utilization of domestic and foreign resources, domestic and foreign markets;
- ✓ To carry out international coordination, actively participate in related international organizations and the establishment important international regulations and standards. To extend international cooperation, carry out international cooperation on technology development, satellite development, system construction and data application;
- ✓ To encourage and support the construction of international cooperation comprehensive services, promote the export of satellite, data and services, improve internationalization capability and application benefits.

Thank You

