

Summary

[Title] Monitoring on High Technology in China in 2017 and Building a Database: Focused on Space Development

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1. Introduction

China's space technology has developed through various trials and errors. Firmly based on its consistent efforts for space development, China has applied space technologies in a wide range of industries including defense industry. The scope of application and impact of Chinese space technology are expected to be further widened.

2. China's space development policy and system

The administrative system of China's space development has been formed with three key layers; government ministries in charge of space technology, research institutes under these ministries, and plants. The administrative system has developed by periodic stage with distinctive characteristics.

China's space industry was first initiated by the support from the former Soviet Union in the late 1950s. Since the 1960s, China has conducted comprehensive planning and management by linking space R&D system specialized by area with production. Research institutes have been established for each space development model. Their planning and management roles have been separately defined and, accordingly, administrative and technology-related roles and responsibilities have been specified separately.

3. China's space development platform ①: Launchers

China’s launcher development started in a full swing under the lead of Chen XueSen. Since the launching of “Chang Zheng #1” in 1970, China’s launcher technology has evolved to develop “Chang Zheng #5”, a next-generation launching system.

A review on the trends of China’s launcher development offers the following implications. First, The Chinese military plays an active role in creating demand and offering necessary support for space technology development. It is also involved in planning of national space policies, contributing to the country’s enhanced technological capabilities in space development. Second, China has set a long-term space development plan, based on which the country makes significant investments in pioneering research. In this system, once a model enters into the production stage, the development of a next model starts. A system of researching base technologies of the new model is being established at an early stage. Last, by capturing these opportunities, China has built a virtuous cycle of development, profit generation and reinvestment by making inroads into the global market and creating profits.

4. China’s space development platform ②: Satellites

As of now, China is the world’s second powerful country in terms of artificial satellite programs by possessing more than 150 artificial satellites. A qualitative growth of Chinese satellite programs is expected with the country’s leading role in space science and experiments. (Korea Astronomy & Space Science Institute, 2015).

China became the world’s fifth country to possess an artificial satellite with a successful launching of its first artificial satellite in 1970. Since then, China has developed and successfully launched various kinds of satellites for different purposes including earth observation, communication, satellite navigation, and science and technology.

Purpose	Classification
Earth observation	Meteorological satellite, research satellite, marine satellite, environmental satellite, remote exploration satellite, high-resolution observation

Purpose	Classification
Communication	TV and radio satellite, mobile communication satellite, relay satellite
Satellite navigation	Beidou series
Science and Technology	Satellites for science and technology, exploration and experiments, next-generation space program

Currently, China is building advanced satellite designing and launching capabilities on its own initiative and is promoting technology innovation to be disseminated into other relevant areas.

5. China's space development platform ③: Manned space missions

In the process of space development, China was a late-comer in developing manned spaceships relative to other rivaling countries. China first started with copying technologies of the former Soviet Union and later it has developed its own space development roadmap.

Key characteristics of China's manned space technology development include sequential development of space technologies to serve the military purposes and a stable policy implementation in accordance with the country's long-term space development plan.

6. China's space development platform ④: International cooperation

China has competitive advantage in the international cooperation for space development as international cooperation offers China chances to promote its competitiveness in high value added R&D and services and maximize profits. And China's international cooperation in space development started in 1990, when China successfully launched a U.S.-made satellite with its locally manufactured Chinese rocket. Since then, China has been also active in international space cooperation for commercial purposes.

China's space science and technology has evolved tremendously. However, the country's status in the global space arena is not solid enough, so China is working hard to promote international cooperation.

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