

Original Paper

Analysis of the Development Trends in the Commercial Satellite Market in Southeast and South Asia: A Case Study of Thailand, Indonesia, Malaysia and the Rest of Region

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Abstract

This paper examines the evolving trends in the commercial satellite market in Southeast and South Asia under the influence of geopolitical dynamics and technological advancement. Focusing on Thailand, Indonesia, and Malaysia, it analyzes each country's development priorities in satellite remote sensing, communications, and navigation.

By integrating insights from international cooperation, domestic policies, and technological pathways, the study proposes strategic entry points for Chinese enterprises into the regional market. The findings suggest that as demand for space infrastructure grows and regional autonomy in space strengthens, Chinese companies can play a significant role in shaping the local space ecosystem through data services, platform exports, and joint manufacturing.

Keywords

Satellite remote sensing, Commercial space, Southeast Asia, Geopolitics, Chinese enterprises, BeiDou, Space cooperation

Introduction

As the geopolitical landscape of the Asia-Pacific region undergoes restructuring and low Earth orbit (LEO) satellite technologies rapidly advance, countries in Southeast and South Asia are accelerating the development of their commercial space capabilities. This trend is evident not only in the increasing number of satellite manufacturing and launch activities but also in the broad expansion of satellite applications such as remote sensing data, communication services, and navigation systems.

Particularly under the frameworks of the Global Development Initiative and the Belt and Road Initiative, space cooperation between China and Southeast Asian countries has deepened. Against this backdrop, it is imperative for Chinese space enterprises to clearly understand the structure of regional markets and identify key technological entry points to enable strategic and effective engagement.

1. Brief of Regional Status Affected by Geopolitical Dynamics in Southeast and South Asia

Geopolitical dynamics have profoundly shaped the defense landscape of Southeast and South Asia. The strategic rivalry between major powers—especially China, the United States, and India—has intensified regional military engagement, spurred arms modernization, and heightened maritime tensions. In Southeast Asia, U.S. alliances with countries like the Philippines and Thailand are being revitalized under the Indo-Pacific Strategy, while China expands defense ties with Cambodia and Laos.

Meanwhile, South Asia sees growing competition between China and India, influencing the defense postures of smaller states such as Bangladesh, Sri Lanka, and the Maldives. Internal conflicts in Myanmar, Pakistan, and parts of India continue to spill across borders, increasing security pressure on neighboring states. Additionally, maritime disputes in the South China Sea and Bay of Bengal have accelerated naval buildup among coastal nations. As regional actors pursue a delicate balance between external partnerships and strategic autonomy, defense cooperation is increasingly shaped by multi-alignment, non-traditional threats, and dual-use technologies like remote sensing and GNSS.

2. Analysis of Regional Market Trends

2.1 Geopolitical Drivers: Diversified Cooperation as a Strategic Consensus

The evolving geopolitical landscape has accelerated multi-directional space collaboration between Southeast Asian countries and major global players. The United States, Europe, and Japan have notably increased their engagement with the region in the space sector. For instance, the Japan Aerospace Exploration Agency (JAXA) has partnered with Thailand's Geo-Informatics and Space Technology Development Agency (GISTDA) under the Sentinel Asia initiative to share disaster monitoring data (JAXA, 2023). Similarly, the National Aeronautics and Space Administration (NASA) supports Malaysia in flood monitoring and forest carbon tracking projects (NASA Earth Science, 2023).

At the same time, China is actively promoting regional space capability building through multilateral platforms such as the Asia-Pacific Space Cooperation Organization (APSCO), encouraging shared technological development and data collaboration within the region.

However, geopolitics also exerts a profound influence on the market behavior of commercial remote sensing companies in the region.

3. International Commercial Remote Sensing Collaboration in Southeast and South Asia

Driven by increasing demand for Earth observation in agriculture, disaster management, urban development, and climate monitoring, countries like Thailand, Indonesia, the Philippines, and India have actively engaged with providers from the United States, Europe, and Japan. This section highlights major international companies and their specific projects in the region, followed by an analysis of their technical advantages and market positioning.

3.1 U.S.-Based Companies

Planet Labs PBC

Planet Labs has established partnerships in countries such as the Philippines, India, Sri Lanka, and Vietnam. For example, it collaborates with the Philippine Department of Agriculture to monitor crop health using PlanetScope data. In 2023, Planet signed an agreement with India's Instituto Geográfico Agustín Codazzi (IGAC) to support land-use planning and disaster management through SkySat and PlanetScope imagery. Planet's high-frequency imaging is well suited for agriculture, forestry, and climate-sensitive applications, offering flexible data subscriptions ideal for small to mid-sized deployments.

Maxar Technologies

Maxar has provided high-resolution WorldView imagery to India's National Remote Sensing Centre for urban expansion and disaster analysis, and to Thailand for flood mapping. As a provider of sub-meter imagery, Maxar is favored for defense, infrastructure, and urban analytics, though its services are typically higher cost and aimed at government or institutional clients.

3.2 European Companies

Airbus Defense and Space

Airbus has worked with Vietnam's Ministry of Natural Resources and Environment using Pléiades and SPOT data for land-use monitoring, and with Malaysia's space agency (MYSA) on rainforest protection and carbon stock assessment. Its sensor diversity and institutional credibility make it suitable for large-scale environmental and governmental projects.

ICEYE

ICEYE has delivered Synthetic Aperture Radar (SAR) imagery to disaster agencies in Indonesia and the Philippines, offering all-weather monitoring for flood and volcanic activity. With its mini-SAR satellite constellation, ICEYE fills observational gaps in tropical and cloud-prone regions with cost-effective solutions.

3.3 Japanese Companies

Axelspace

Axelspace partners with Thailand's GISTDA for green space monitoring and with Indonesia's Ministry of Agriculture for rice cycle assessment. Offering affordable mid-resolution data and smallsat solutions, Axelspace is well-positioned to serve education, environmental, and urban development needs.

4. Chinese Commercial Space Companies' Market Expansion in Southeast and South Asia

In recent years, Chinese commercial space enterprises have accelerated their outreach to Southeast and South Asian countries, leveraging both government-led frameworks and private sector initiatives. Companies such as China Siwei Surveying & Mapping Technology and Chang Guang Satellite Technology Co., Ltd. (CGSTL) have actively engaged in satellite data provision, capacity-building programs, and localized partnerships.

4.1 Chang Guang Satellite Technology (CGSTL)

Chang Guang Satellite Technology, the operator of the Jilin-1 constellation, has signed data distribution agreements with partners in countries like Thailand, Malaysia, and Indonesia. The Jilin-1 constellation is well-known for its high-revisit, high-resolution video and optical imagery, making it attractive for environmental monitoring and infrastructure development (CGSTL, 2022).

4.2 China Siwei Surveying and Mapping Technology

China Siwei Surveying and Mapping Technology, a subsidiary of China Aerospace Science and Technology Corporation (CASC), supplies remote sensing data and mapping solutions for land resource management and maritime surveillance. Through collaborations with government agencies and universities in Sri Lanka and Bangladesh, the company promotes satellite data training and policy consultation (China Siwei, 2023).

These companies benefit from China's broader space diplomacy under the Belt and Road Initiative (BRI) and mechanisms like the Asia-Pacific Space Cooperation Organization (APSCO), which promote multilateral satellite data sharing and training programs.

However, geopolitical concerns—particularly regarding data sovereignty and dual-use technologies—have prompted some countries to maintain a balanced procurement strategy by working with both Chinese and Western satellite providers.

This diversified approach to space partnerships reflects a growing consensus among Southeast Asian nations to avoid alignment with any single major power and instead pursue balanced, multi-source cooperation in pursuit of technological autonomy and national development goals.

5. Technological Advancement and Regional Development

Recent technological breakthroughs—such as low Earth orbit (LEO) small satellites, high-throughput communication satellites (HTS), and satellite constellation networking—have significantly improved data acquisition frequency and broadband coverage in Southeast and South Asia. These advancements are enabling countries in the region to not only become consumers of commercial space services but also emerging contributors to the global space economy.

5.1 Indonesia

Indonesia made a major leap in 2023 with the launch of SATRIA-1, Southeast Asia's first government-owned high-throughput communications satellite. Built by Thales Alenia Space and launched via SpaceX, SATRIA-1 is designed to bridge the digital divide for over 150 million people. It offers 150 Gbps of capacity, with priority for schools, health centers, and public institutions. In parallel, Indonesia's space agency LAPAN (now BRIN) is developing its domestic Earth observation satellites.

5.2 Thailand

Thailand launched THEOS-2 in 2023, a high-resolution remote sensing satellite developed with Airbus Defence and Space. THEOS-2 offers 0.5-meter optical resolution and supports land use planning, agriculture, and disaster management. The project also includes THEOS-2A, a small satellite co-

developed by Thai engineers, indicating Thailand's growing technical capacity.

5.3 Malaysia

Malaysia's MYSA initiated the Merosat-1 project, aiming to develop its first high-resolution Earth observation satellite under a national commercial framework. The satellite will assist in environmental monitoring, maritime surveillance, and natural resource management. Malaysia's National Space Policy 2030 supports the growth of the domestic space economy and international cooperation.

5.4 India

India remains the dominant space power in South Asia through ISRO and a rapidly growing private sector. Following liberalization, startups like Pixxel and Skyroot are developing advanced satellite and launch technologies. India's NavIC GNSS and high-resolution Earth observation satellites such as CartoSat-3 provide services for both domestic and commercial international markets.

5.5 Commercialization is accelerating due to several key factors:

- (a) Miniaturization and cheaper launch services have opened the door for startups and smaller states.
- (b) The NewSpace movement is emerging in India (e.g., Skyroot, Agnikul, Pixxel) and Southeast Asia (e.g., MySatellite in Malaysia, STAMINA4Space in the Philippines).
- (c) Demand for remote sensing, IoT, and satellite internet (especially in rural areas) is growing rapidly. For instance, Indonesia's SATRIA-1 is a \$550 million high-throughput communications satellite launched in 2023 (Thales Alenia Space, 2023).

According to a 2023 Euroconsult report, the space economy in Asia is expected to reach \$100 billion by 2032, with commercial satellite services representing a large share (Euroconsult, 2023).

6. Key National Market Analyses

6.1 Thailand: Focus on Remote Sensing and Navigation

Thailand, through its Geo-Informatics and Space Technology Development Agency (GISTDA), is advancing the THEOS series of satellites and attempting to establish a regional remote sensing data center under its national space strategy. GISTDA has engaged in remote sensing data exchange collaborations with China, France, and Russia. In 2021, Thailand signed a Memorandum of Understanding with China on cooperation in the BeiDou Navigation Satellite System, aiming to promote high-precision BeiDou applications in areas such as agriculture and precision forestry (China Satellite Navigation Office, 2021). In the communications sector, Thailand relies on the Thaicom series of communication satellites to deliver television and internet services. Starlink was granted an operating license in 2022 and is disrupting the local market landscape (Thaicom, 2022).

6.2 Indonesia: Balancing Communications and Remote Sensing, Advancing Space Sovereignty

Indonesia's National Research and Innovation Agency (BRIN) leads the development of commercial remote sensing satellite projects and has collaborated with China and France on the development of several small satellites (e.g., LAPAN-A2) (LAPAN-BRIN, 2022). The country's remote sensing priorities include forest fire monitoring, geological disaster response, and agricultural management.

On the communications front, Indonesia has deployed the high-throughput satellite SATRIA-1, aiming to provide internet access to 60,000 schools and health clinics (Thales Alenia Space, 2023). Starlink entered full commercial operation in 2024, with President Joko Widodo personally promoting its deployment.

6.3 Malaysia: Strengthening Communications and Localizing Remote Sensing

The Malaysian Space Agency (MYSA) utilizes data from multiple international remote sensing satellites (such as Sentinel and Landsat) to monitor floods and land use, and it plans to launch its own remote sensing satellite “Merosat-1” by 2025 (MYSA, 2023). Malaysia was also one of the earliest Southeast Asian countries to conduct high-precision BeiDou navigation experiments and is currently advancing the development of a ground-based GNSS augmentation system. In the field of communications, MEASAT launched the MEASAT-3d high-throughput satellite in 2022 to serve remote regions, enabling last-mile internet connectivity.

7. Strategic Entry Recommendations for Chinese Enterprises

Based on the distinct priorities of key Southeast Asian markets, this section outlines targeted strategies for Chinese space enterprises to enter and expand their presence. The recommendations are structured according to each country’s core needs and institutional partnerships.

7.1 Thailand: Agriculture Remote Sensing and BeiDou Navigation

Thailand presents an opportunity for collaboration in agricultural remote sensing and satellite navigation. The Geo-Informatics and Space Technology Development Agency (GISTDA) has shown interest in building regional Earth observation platforms and implementing BeiDou-based services.

- Proposal 1: Partner with GISTDA to establish a remote sensing data processing and visualization platform tailored for rice crop monitoring and pest risk warning.
- Proposal 2: Deploy BeiDou differential base stations in agricultural hubs such as Chiang Mai and Nakhon Ratchasima to support centimeter-level precision farming applications aligned with Thailand’s Smart Farming roadmap.

7.2 Indonesia: Disaster Monitoring and Maritime Surveillance

Indonesia’s focus on disaster response and satellite communications opens avenues for collaboration in small satellite development and integrated monitoring services.

- Proposal 1: Co-develop a small satellite lab with Indonesia’s National Research and Innovation Agency (BRIN), featuring optical sensors tailored for forest fire and volcano monitoring. China’s optical payload expertise, such as Huawei’s hyperspectral tech, can serve as technical references.
- Proposal 2: Combine high-resolution EO imagery with Automatic Identification System (AIS) data to offer maritime vessel tracking and IUU (Illegal, Unreported, and Unregulated) fishing alert services to the Indonesian Maritime Affairs Ministry.

7.3 Malaysia: Flood Monitoring and GNSS Infrastructure

Malaysia is strengthening both its flood response capabilities and satellite navigation infrastructure,

offering collaboration potential for data services and GNSS enhancement systems.

- Proposal 1: Collaborate with the Malaysian Space Agency (MYSA) and National Disaster Management Agency (NADMA) to deliver a cloud-based SaaS platform for flood analysis and early warning, using data from Chinese EO satellites such as SuperView Neo constellation.

- Proposal 2: Provide BeiDou-based high-precision navigation services (PPP/BDS-RTK) and support the upgrade of Malaysia's ground-based GNSS augmentation system (MyRTKnet), enhancing its capacity for hybrid navigation applications.

8. Additional Strategies for Regional Expansion by Chinese Enterprises

Beyond country-specific strategies, Chinese space enterprises can strengthen their regional footprint across Southeast and South Asia through broader strategic initiatives. These approaches are aligned with emerging market needs such as localization, digital infrastructure, and governance in the space economy.

8.1 Co-developing Custom-Built Small Satellites

Southeast Asian nations increasingly seek tailor-made space solutions that align with their national development goals and constraints. Chinese companies can collaborate with regional space agencies to jointly develop small satellites focused on localized applications, such as urban development, agriculture, and disaster monitoring. For instance, co-designing optical or hyperspectral payloads with Indonesia's BRIN or Malaysia's MYSA allows technology transfer while supporting capacity-building.

This approach helps position China not only as a vendor but as a long-term technological partner in sovereign space asset development.

8.2 Delivering 'Data-as-a-Service' Platforms

There is a rising demand in Southeast Asia for turnkey platforms that deliver processed data products, particularly in agriculture, environment, logistics, and maritime surveillance. Chinese providers can leverage their Earth observation and BeiDou infrastructure to offer cloud-based services that provide analytics, alerts, and visualization on a subscription basis. This lowers the entry barrier for end-users such as local governments and enterprises that lack technical capacity.

Examples include delivering flood risk maps for Vietnam, crop stress alerts for Thailand, or ship tracking for the Philippines through API-driven EO and GNSS data services.

8.3 Deploying Local Ground Infrastructure

To ensure autonomy, resilience, and compliance with local data laws, many countries are encouraging localization of space infrastructure. Chinese firms can support this trend by deploying ground stations, BeiDou-compatible GNSS receivers, and regional data centers. These installations would enable low-latency data access, enhance sovereignty, and improve BeiDou positioning performance in equatorial regions.

Collaborating with telecom providers or academic institutions can ease regulatory entry and enable co-investment in ground segment development.

8.4 Participating in Regional Space Policy and Data Governance

As regional space cooperation intensifies, initiatives are emerging to harmonize standards, promote data sharing, and establish ethical frameworks for space-based data use. Chinese enterprises can actively engage with regional forums such as the ASEAN Working Group on Space Cooperation or bilateral space policy dialogues to contribute to and shape data governance mechanisms.

By offering open-access datasets or capacity-building programs, China can position itself as a responsible stakeholder, easing concerns over data control and enhancing its soft power in the regional space ecosystem.

9. Geopolitical Impacts and Future Outlook

The evolving geopolitical landscape has become a defining force in shaping the commercial space ecosystem in Southeast and South Asia. Countries across the region are increasingly investing in space technologies not only for developmental benefits but also as tools of national sovereignty and strategic autonomy. Remote sensing and Earth observation satellites are at the forefront of this transformation, underpinning critical sectors such as agriculture, disaster management, and national security.

As the strategic rivalry between global powers such as the United States and China intensifies, regional governments are placing greater emphasis on owning or controlling satellite data to reduce dependency on foreign providers. This shift is reinforcing demand for local infrastructure, sovereign satellites, and secure data services — areas in which Chinese space enterprises are uniquely positioned to contribute.

China's increasing role in the region's space development is already evident through cooperative satellite launches, technology transfer agreements, and BeiDou-based navigation services. Chinese companies offer competitive advantages in terms of cost, speed of delivery, and integrated service capabilities, and have formed meaningful partnerships with agencies like GISTDA (Thailand), BRIN (Indonesia), and MYSA (Malaysia) (OECD, 2022; CGSTL, 2023; Thales Alenia Space, 2023).

10. Forecast: The Next 10–15 Years

Looking ahead, Chinese commercial space enterprises are expected to play an increasingly central role in the region's space economy. Over the next 10 to 15 years, their influence will likely deepen in the following ways:

- China will become a leading provider of small satellite platforms customized for regional applications, supporting the localization of EO capabilities.
- Data-as-a-Service (DaaS) platforms will expand, especially in climate risk, food security, and maritime surveillance.
- Ground segment and BeiDou infrastructure will be deployed more widely across ASEAN states, enhancing service resilience and precision.
- Chinese firms will actively participate in shaping regional norms, standards, and data governance mechanisms for the New Space era.

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