

Development Trends of Japan's Space Industry and Prospects for Cooperation between Taiwan and Japan

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In recent years, Japan's space technology development goals have shifted from a technology supply-driven approach based on "scientific exploration" to a demand-driven innovation direction, focusing on "expanding private market demand and establishing commercial models." Various sectors have begun to recognize the importance of space industry development. This article explores the development strategies of Japan's space industry from three perspectives: the scope of the industry and market size, the transformation of the commercial ecosystem, and industrial development policies, while also offering suggestions for Taiwan-Japan cooperation.

The recent development trends of Japan's space industry exhibit several key characteristics. First, the scope of the industry has expanded from "research and development of space machinery and devices" to "value-added services utilizing space data," and even diversified into B2C-related sectors. Second, the operational model of the commercial ecosystem has evolved from a single-core, government-led stage, where large enterprises were driven by official initiatives, to a multi-core, self-renewal stage characterized by public-private collaboration, fostering the growth of startups and cross-industry innovation. Third, policy tools are being strengthened to encourage private sector investment in space technology and value-added data services. These developments show that Japan's space technology goals have aligned with the development models of major Western countries, shifting from a focus on "scientific exploration" to a mainstream approach of "expanding private market demand and establishing commercial models."

There are several potential avenues for Taiwan-Japan cooperation in space technology development. First, Taiwan has recently formed a national team for space technology development, inviting aerospace and electronics companies to participate. This has equipped domestic companies with the preliminary capability to produce components related to satellite and rocket launch systems. In the future, Taiwan can enhance opportunities for collaboration and exchanges with Japan's large corporations, seeking cooperative business opportunities in space technology components. Second, both Taiwan and Japan are actively promoting the

commercialization of low-Earth orbit satellites and communication networks. Taiwan's strengths in ground communication equipment and chip design and production could be integrated with Japan's expertise in payload technologies for space-based satellites, accelerating the expansion of Taiwan-Japan cooperation in B5G business opportunities. Third, in recent years, Taiwan has seen the emergence of service providers utilizing meteorological satellite data, and with the promotion of low-Earth orbit commercial satellite projects, the value-added data analysis service industry is expected to flourish. Taiwan's relevant agencies can further assist private companies in engaging with Japan's satellite data platform, "Tellus," to gain access to Japan's satellite data-sharing opportunities. This would help improve the quality of analysis for Taiwanese satellite data service providers and establish more business models in various application fields. Fourth, as the commercial ecosystem of space technology evolves, more startups will enter the space industry and gradually become core members. This will promote exchanges and cooperation between Taiwanese and Japanese startups in space technology, creating a cross-national link that fosters a "space technology innovation and entrepreneurship rainforest environment," generating more business opportunities for the application of Taiwan-Japan space technology development results.

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