

Japan's Drone Industry Development Strategy and Implications for Taiwan

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Japan's drone industry development strategy represents an emerging pathway for building a non-red, democratic supply chain. Its key features include the domestic development of strategically important technologies in controllable niche areas, rapid government procurement and the expansion of mass production driven by both defense and civilian applications, as well as field testing of business models aimed at addressing social challenges. The implications for Taiwan are threefold. First, the domestic development of key technologies should focus on achieving autonomy in strategically critical technologies rather than pursuing complete localization. Second, demand arising from defense and social challenges should be leveraged to establish mass-production capabilities and capture emerging international opportunities for dual-use drone platforms. Third, Taiwan and Japan could jointly develop testing and validation environments conducive to the growth of the low-altitude economy and routine commercial operations.

First, the solution to misconceptions surrounding technology localization lies in pursuing “strategic autonomy in core technologies” rather than complete domestic production. The purpose of localization is not to ensure that every component is developed and manufactured domestically, but to strengthen technological sovereignty and supply-chain resilience. Taiwan could classify drone components according to their strategic importance and the difficulty of substitution. Highly sensitive and irreplaceable architectural technologies should be developed entirely within Taiwan or through internationally collaborative R&D arrangements that remain under domestic control. For important components that are available from established overseas suppliers but cannot be developed and mass-produced by Taiwanese companies in the short term, Taiwan could negotiate medium- and long-term supply agreements with democratic partners and like-minded countries while establishing mechanisms for technology transfer and localized modification. For components with low strategic sensitivity, a high degree of standardization, and easy substitutability, a more flexible international procurement model could be maintained.



Taiwan could also draw on the experience of Japan's New Energy and Industrial Technology Development Organization (NEDO), which uses R&D programs to bring together companies from related fields to jointly develop prototype aircraft and flight-control system architectures, with lead companies subsequently commercializing the technologies under domestic brands. This approach could help Taiwan gradually establish a sustainable mechanism for developing strategically critical technologies. Japan's drone software strategy also seeks to create trusted interfaces and an open innovation architecture between fully closed proprietary systems and completely open-source models. This allows flight-control operating systems, aircraft management platforms, and applications to be jointly developed and further integrated by companies from democratic countries. Such an approach merits further exploration by Taiwan's industrial, academic, and research institutions.

Second, demand from defense applications and solutions to social challenges should be used to stimulate mass-production capacity and implement a dual-use platform development strategy. Japan's policy shift from proof of concept to the establishment of production capabilities demonstrates that competition in the drone industry has expanded beyond technological R&D to encompass complete-platform manufacturing, supply-chain integration, and cooperation between central and local governments in creating forward-looking demand. Taiwan could establish a dual-use procurement mechanism centered on national defense, coast guard operations, disaster prevention and response, infrastructure inspection, and medical logistics for rural and remote areas. This would create stable domestic demand and strengthen the mass-production capacity of Taiwanese drone manufacturers.

Taiwan could also draw on the rapid procurement system and competition-driven model adopted by Japan's Ministry of Defense to establish mechanisms that enable small and medium-sized enterprises and start-ups to participate directly in defense procurement. In addition, Taiwan could connect with Japan-Ukraine drone alliances to jointly pursue business opportunities for dual-use systems within non-red, democratic supply chains.

Third, Taiwan should establish testing and validation environments conducive to the development of the low-altitude economy and routine commercial operations. Japan's gradual progression from one-off demonstration projects to dedicated drone corridors, digital airspace management platforms, and potentially commercial applications shows that testing environments are evolving from purely technical test sites into platforms for validating business models and regulatory systems. Taiwanese institutions could invite Japanese start-ups developing digital airspace management platforms, as well as public agencies implementing dedicated drone-corridor projects,

to participate in exchanges in Taiwan. These discussions could examine the feasibility of piloting Japanese models at relevant Taiwanese testing sites. They could also explore mutual recognition of drone testing and certification procedures, as well as the development of common Taiwan–Japan standards, thereby helping both countries expand their opportunities in the global smart-city market.