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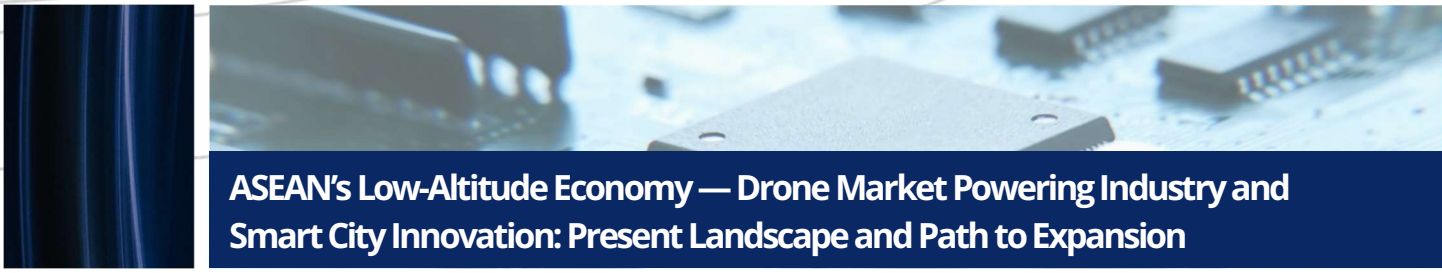

ASEAN's Low-Altitude Economy — Drone Market Powering Industry and Smart City Innovation: Present Landscape and Path to Expansion

ASEAN stands at the cusp of a new era in its **low-altitude economy**, with drones emerging as the leading technology. Recognized as the **first-mover** in Southeast Asia's aerial ecosystem, drones have already demonstrated **proven applications across multiple industries**. Their adoption is driven by their core advantages: low cost, ease of operation, adaptability and supportive government policies. In contrast, other dimensions such as **Urban Air Mobility (UAM)** and **Cargo Air Mobility** remain largely experimental in the region, with limited proven use cases.

Today, drones in ASEAN have moved beyond experimentation to become key enablers of **industrial transformation** and an **integrated component of smart city development**. Their applications go far beyond supporting **construction and infrastructure projects**—they also contribute directly to enhancing **urban livability and resilience**. From **traffic monitoring and medical deliveries** to **environmental management and public safety**, drones are shaping the essential features of future smart cities across the region.

This article explores the ASEAN's drone market landscape, highlighting **current trends, industry opportunities, and the challenges that must be addressed for to unlock future opportunities.**

ASEAN Drone Market Gaining Momentum and Transforming Smart City Development

The drone industry in ASEAN is experiencing strong growth. According to Statista, market revenue was valued at around **USD 43 million in 2025**, reflecting a **15% CAGR between 2020 and 2025**. Looking ahead, market revenue is projected to reach **USD 59 million by 2030**, supported by rising adoption across industries.

At present, drone applications in ASEAN are concentrated in 6 major sectors:

- **Agriculture** – precision farming, crop monitoring, and yield management
- **Construction & Infrastructure** – site mapping, monitoring, and project management
- **Mining** – exploration, mapping, and operational monitoring
- **Defense & Security** – surveillance, reconnaissance, target acquisition, crowd monitoring, and search operations
- **Energy** – asset inspection, maintenance, and grid monitoring
- **Oil & Gas** – surveying, exploration mapping, and pipeline inspection

Beyond these industries, drones are also emerging as a transformative force in **smart city development**. Their applications extend from the **construction phase**, such as urban planning and infrastructure monitoring, to **operational services** that directly improve quality of life. This includes road traffic monitoring and control, environmental surveillance, disaster management, medical transportation, and even logistics and delivery services with multiple pilot programs are already underway across ASEAN.

Feasibility Remain in Question: Technology and Commercial Gaps

A **GUTMA study** on **Unmanned Traffic Management (UTM) maturity shows ASEAN's varying readiness for scalable drone operations**:

- Singapore – Tier 2 (Advanced)
- Malaysia – Tier 3 (Developed)
- Indonesia & Thailand – Tier 4 (Emerging)
- Philippines & Vietnam – Tier 5 (Nascent)

The report identifies **limited progress in Technology and Business & Market aspects**, which could constrain the feasibility and attractiveness of the ASEAN drone market.

On the **technology side**, most ASEAN countries lack systems for dynamic airspace management and secure data exchange. **Only Singapore and Malaysia** have foundational UTM capabilities. Singapore operates a **Centralized Flight Management System (CFMS)** integrated with **eSOMS** and the **"FlySafe"** app, while Malaysia provides basic UTM services through the **LOOKA Platform**. Both countries are developing more advanced UTM systems to further enhance drone registration, monitoring, and airspace integration.

On the **business side**, market awareness remains low. Most ASEAN countries have **limited understanding of the economic potential of drone services**, lacking insights on market sizing, value chain mapping, and business models. Currently, **only Malaysia** has conducted a market size analysis, including an assessment of drone services' contribution to national GDP and the job market by 2030.

Fragmentation across ASEAN: Regulation and Needs for Adoption

The drone industry in ASEAN is evolving within a uniquely complex landscape shaped by **fragmented regulations** and **diverse national priorities for adoption**.

While most ASEAN-6 countries have already established general regulatory frameworks for drone operations, significant differences remain in how these rules are applied—creating barriers for seamless regional growth.

For example, Singapore requires drones weighing more than **250 grams** to be registered, compared

to **20 kilograms** in Malaysia and **2 kilograms** in Thailand. These variations in permit processes, licensing, import restrictions, and safety requirements reflect the broader regulatory fragmentation that complicates cross-border operations and market entry for drone businesses.

At the same time, ASEAN countries also pursue different **application priorities**. Agricultural economies such as **Malaysia, Indonesia, Thailand, and the Philippines** have focused on drones for **farming and forestry**, while **Singapore** has applied them mainly to **infrastructure monitoring and urban management**. More recently, **Indonesia, the Philippines, and Thailand** have expanded beyond agriculture into **security-related uses**, including **counter-insurgency and border surveillance**, reflecting rising domestic and regional security concerns.

Localization is Crucial for Expansion

The ASEAN low-altitude economy, particularly the drone sector, has strong growth potential. However, penetrating this market requires industry players to effectively manage both legal and commercial risks in order to capture the opportunities.

Given ASEAN's smart city ambitions, localization strategies will be critical. Each country has unique urban challenges, and solutions must address specific needs of each city, whether related to infrastructure, mobility, disaster management, or public safety, companies need to provide tangible value which accelerate smart city progress.

Achieving this requires **deep understanding of local markets and a physical presence** to navigate diverse regulatory and commercial landscapes. One effective strategy is to leverage government initiatives. For example, Malaysia has introduced a **regulatory sandbox** that enables companies to test and refine drone solutions in real-world conditions, ensuring they meet both regulatory requirements and actual market needs. Equally important is **building strong partnerships** with local stakeholders—from government agencies to industry players. Such collaborations not only help in navigating regulatory hurdles but also provide critical insights into local practices, enabling companies to deliver solutions that are both compliant and relevant.

To unlock full potential, companies must **take a structured approach, mapping the market landscape** across regulatory, technological, and commercial dimensions, while also **fostering regional collaboration** that will be integral for long-term growth.

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