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從香港放眼全球：
From Hong Kong to the World:

低空經濟產業研究報告

A Research Report on the Low-Altitude Economy

摘要

摘要

低空經濟泛指三千公尺以下空域所開展之各類經濟活動，現已成為帶動全球經濟與社會發展的全新增長動能。伴隨人工智慧、先進製造、新能源、數位空域管理技術持續突破，以電動垂直起降載具（eVTOL）、無人機、無人機交通管理系統（UTM）為核心的完整產業生態圈快速成熟，為城市載客運輸、末端物流、工業巡檢、公共服務、緊急救援、空中觀光等場景提供高價值解決方案，有效提升營運效率、減低碳排放、擴大基礎公共服務覆蓋範圍。根據摩根士丹利截至 2026 年 4 月發佈之產業研究數據，預計 2050 年全球城市空中交通（UAM）市場規模將達 9 兆美元。

本報告完整分析全球九大區域低空經濟發展現況、政策架構、技術創新與商業落地進程，並針對拉丁美洲、非洲、大洋洲做深度產業梳理。透過全周期實地走訪、兩場產業焦點座談會、長期政策追蹤，為香港提出分階段、可落地的發展執行路徑。整體發展策略以差異化定位，深度銜接粵港澳大灣區、對接全球市場為核心，訂定三大發展重點：建構安全高效的一體化基礎設施、加速產業場景商業化規模擴張、強化高端人才培育與核心技術研發。

第一章 緒論

1.1 新興產業浪潮來臨

低空經濟是融合民航、高性能新材料、關鍵零部件、人工智慧、大數據、物聯網與數位空域管理的跨領域經濟模式，重塑全球立體運輸網絡，並創造數十個產業的價值鏈。全球主要先進經濟體皆將低空經濟視為科技與產業競爭的核心戰略領域；對於新興經濟體，低空經濟可在無需大規模地面基建投入的前提下，實現交通與公共服務跨越式升級。

中國內地將低空經濟列為國家戰略新興產業；美國、歐洲憑藉長年航空產業積累，主導全球載機適航認證與低空空域管理規則之制定。香港作為國際知名金融、航運、貿易與專業服務樞紐，必須把握本輪產業新浪潮，發展低空經濟是提升長遠競爭力、多元產業結構、深化融入大灣區發展戰略的關鍵佈局。透過盤點全球發展趨勢與各地發展模式，盤算香港對特殊事優勢、發展機遇與面臨挑戰，並提出具體基礎、務實可行之政策建議。

1.2 構成低空經濟的核心產業

低空經濟具備完整上中下游產業鏈：上游為核心研發與零組件製造、中游為載機組裝與基礎設施建置、下游為營運服務與場景應用。整體體系分為四大互相串聯的板塊：空中載具、通訊配套基礎設施、專業服務體系、跨域賦能技術。

空中載具：電動垂直起降載具與無人機

電動垂直起降載具（eVTOL，又稱空中的士）為城市空中移動核心載具，兼具直升機垂直起降能力與固定翼飛機高效能特性，具備低噪音、零碳排、營運成本低廉等優勢。Joby Aviation、Archer Aviation、億航智能等領頭企業持續推進適航認證與商業落地。

無人機已在物流、工業巡檢、農業領域獲得大規模應用，大疆等中港企業在全球無人機市場佔有顯著競爭地位。

基礎設施：垂直起降場與數位空域系統

垂直起降場為 eVTOL、無人機專屬停靠、充電、維護場域，是空陸無縫網絡銜接關鍵節點。數位層基礎係低空無人機交通管理系統（UTM）是作，不同於傳統空管系統，UTM 專為高密度自動化低空飛行設計，提供載具註冊、航線規劃、飛行衝突避讓等服務。

1.3 對產業與社會的變革價值

低空經濟不只是規模達數兆美元的新興產業，更是全面提升經濟運作效率、促進社會公平、落實全球永續發展目標的通用賦能技術。城市立體運輸可紓解地面嚴重塞車，將長距離通勤時間由數小時壓縮至數十分鐘，同時降低交通碳排，減輕地面基礎設施承載壓力。

物流領域中，無人機翻轉末端與跨水域配送模式，可快速將電商包裹、時效性醫療物資送達地面交通難以抵達之地區。對於偏鄉、島嶼、災區，低空配送網絡基礎物資與公共服務缺口，實現普惠發展。

除此之外，自動化設施縮短、快速救災、指揮專業、智慧城市管理等場景，透過低空載具提升公共服務與工業營運效率，降低營運成本與人員作業風險；同時催生空中觀光、沉浸式空中娛樂等全新消費場景。對於發展中經濟體，本產業提供交通與公共服務升級捷徑，避開傳統地面基建高投資與漫長建設周期。

第一章 緒論

第二章 全球低空經濟發展現況

全球各國與地區依自身資源條件與戰略佈局推動低空經濟發展，本章針對中國內地、香港、東南亞、中東、歐洲、美國、拉丁美洲、非洲、大洋洲九大區域，分析各地政策、基礎設施、技術研發與商業落地實況，更新截至 2026 年 5 月之重要產業里程碑與代表性商業案例。

2.1 中國內地

2.1.1 頂層設計與政策驅動

自 2024 年初中央經濟工作會議將低空經濟列為重點發展方向後，從中央到地方建構完整政策扶持體系，超過二十個省級行政區將低空經濟納入政府工作規劃，並設立專屬產業基金。

2.1.2 技術研發與完整產業生態

億航智能 EH216-S 取得中國民用航空局核發全球首張載人無人駕駛 eVTOL 型號合格證與生產許可證；國內另有多款自主研發 eVTOL 機型陸續進入民航局適航審查流程，持續掌握內地在該領域的技術領先地位。中國內地同時建構起全球最完整的低空載具產業供應鏈，深圳被為業界公認為「全球無人機之都」，形成規模龐大的上下游產業聚落，透過產業集群效應持續推動技術迭代與製造成本優化。

2.1.3 豐富應用場景與商業測試

多元地理環境造就豐富低空經濟落地場景，美團、順豐等企業已開展物流商業營運，空中觀光、電力巡檢、緊急救援等公共服務場域同步落地。粵港澳大灣區作為國家級示範區，深圳、廣州等城市加速基礎設施建設，探索跨境一體化營運模式。

2.1.4 發展挑戰

產業仍面臨空域管理協調難題，需軍方、民航、在地政府多方溝通；市區垂直起降場建置牽涉複雜系統規劃；此外，大眾對於載人飛行器安全、隱私的認同度仍需持續建立。

2.2 香港

2.2.1 戰略定位與政策規劃

香港特區政府憑藉國際金融、航運、貿易樞紐優勢，將低空經濟定位為全新經濟增長引擎。整體定位為超級灣區人與高價值服務供應商，致力發展國際範圍資中心、適航驗證標準樞紐，同時作為衛接大灣區跨境物流、商場客運的關鍵節點。

2.2.2 監管沙盒試點與產業合作

本地企業研發連接香港與深圳跨境 eVTOL 航線；無人機已廣泛應用於智慧城市框架下的工地監測、資產管理。香港生產力促進局（HKPC）深度參與技術研發與場域示範。

截至 2026 年 5 月，首批 38 個低空經濟監管沙盒專案當中，已有 33 個正式展開營運，場域涵蓋跨水域物流、三維測繪、電力巡檢、工地監測、緊急救援；全新升級的「監管沙盒 X」已收到超過百份申請，現正審核當中。香港生產力促進局設立工業無人機技術中心與低空經濟資料技能，專注高密度城市環境下 UTM 系統研發、適航驗證與技術展示。

2.2.3 挑戰與對應方向

香港受限於空域環境複雜、可供興建垂直起降場土地稀缺；跨境飛行營運需建立港深全新協調機制；民眾對於噪音、安全之顧慮、專業技術人才短缺亦為特別關鍵。整體而最後鏈關針章節對上述個點提出完整解決方案。

2.3 東南亞

2.3.1 市場需求與應用場景

東南亞低空經濟發展以在地市場需求為核心驅動。馬來西亞、印尼等農業大國大量運用無人機執行精準農業作業；群島國家透過無人機解決醫療物資、民生物資跨島「最後一海哩」配送痛點；新加坡率先將無人機導入智慧城市管理。

新加坡與馬來西亞簽於 2024 年 2 月簽署跨境無人機配送合作備忘錄，但雙方尚未開通常態化跨境商業物流航線。整個東南亞區域截至 2026 年 5 月，仍未誕生可持續營運的跨國低空經濟商業專案，反映區域監管標準不統一帶來的實施阻礙。

2.3.2 監管環境與發展落差

東南亞各國監管規則分歧顯著，無人機登記、飛行許可標準不一，阻礙跨境營運；各國 UTM 系統成熟度落差極大：新加坡、馬來西亞制度相對完備，菲律賓、越南等國仍處起步階段。截至 2026 年 5 月，東南亞航空安全局尚未發佈統一區域無人機監管架構，各成員國持續研討無人機登記、飛行員執照、營運流程共通標準。2026 年 5 月東南亞航空安全局與中國民用航空局簽署備忘錄，針對低空通航、專航、監管系統進域互惠合作，標誌區域與國際監管合作取得階段推展。

2.3.3 基礎設施與技術缺口

除新加坡、馬來西亞外，多數東南亞國家數位與實體基礎設施不足；區域載具、技術主要仰賴中國內地、歐美進口，本土企業仍處萌芽階段。

2.3.4 未來發展展望

若要尋求市場潛力，東南亞需強化區域監管協調，透過監管沙盒推動公私部門合作，並擴大基礎建設投資。

2.4 中東地區

2.4.1 國家戰略與大規模資金投入

阿聯酋、沙地阿拉伯等國採取由上而下、高資本投入發展模式，將低空經濟納入國家長遠願景。迪拜規劃推出商業空中的士服務；沙地阿拉伯新未來城市 NEOM 將城市空中移動作為重點體系核心版塊。迪拜正推進全域空中的士發展規劃，佈局多座商業垂直起降場；位於迪拜國際機場旁的旗艦示範起降場工程持續推進。Joby Aviation 是迪拜空中的士營家合作運營商，並於 2025 年 11 月在阿聯酋完成載人 eVTOL 示範飛行。依阿聯酋民航局規劃，相關載機場航線認證預計於 2026 年第三季完成，2026 年底有望推出商業載客服務，展示範計畫是全球載客 eVTOL 商業化落地推度領先的大型示範專案。

2.4.2 跨協合作與產業生態建置

中東各國採開放合作策略，引進全球頂尖 eVTOL 製造商，建置涵蓋垂直起降場營運、飛行員培訓的完整在地產業鏈，過去兩年，沙地阿拉伯陸續與多家 eVTOL 開發商簽署產業合作備忘錄；涉及地航空集團亦與 Lilium Jet 達成戰略合作意向，規劃導入載客飛行載具。涉及地阿時與 Archer Aviation、Joby Aviation、Vertical Aerospace 建立合作關係，展開載具飛行測試並研究擬定在地商業營運方案，應用場域以觀光與城際交通為核心。

2.4.3 前機監管與快銜落地

阿聯酋民航局已發佈垂直起降場專屬管理規章，為商業化鋪平道路，使該本區域成為全球常態空中的士服務先行者。

2.4.4 發展重點與挑戰

區域發展重心為高端物務、觀光城市空中移動與智慧城市服務；當地極端高溫環境會影響飛行載具電池效能；培育本土自主研發與製造能力為長期挑戰。

2.5 歐洲

2.5.1 統一監管架構：U-Space

歐盟於 2023 年推行 U-Space 低空空域監管體系，規劃分階段將無人機與電動垂直起降載具整合進常規空域運行，構建歐洲先進空中移動產業的監管基礎。歐盟航空安全局（EASA）發佈SC-VTOL 專項適航規範，作為區內載客 eVTOL 開展型號適航認證的統一法定標準。

截至 2026 年 5 月，歐洲僅 eVTOL 載機層級的型號適航經體系已發展成熟，一套同時覆蓋飛機適航審定以至日常商業營運的所有環節路監管規則仍在持續完善階段，尚未出台完整及具備全面執行效力的商業營運最終監管規章。

2.5.2 完備研發與製造基底

歐洲具備深厚研發與製造實力，空中巴士等傳統航空巨頭、德國 Lilium、Volocopter 等新創企業積極佈局；德國、法國、英國透過研發補助、專屬測試場地扶持產業發展。

2.5.3 跨國合作與示範專案

以 SESAR 計畫為代表的多國示範計畫，於歐洲各地大規模執行城市空中移動測試，驗證系統互通性，累積數據優化監管標準。

2.5.4 發展挑戰

歐盟各國對於商業化態度普保守，巴黎等地出現民眾反對噪音、隱私等擔之意見；歐盟成員國協調難度高、基礎設施投資進度緩慢，拖累產業發展。

2.6 美國

2.6.1 技術領先與企業聚落

美國已開低空移動創新產業生態成熟活躍，Joby Aviation、Archer Aviation、Wisk Aero 等企業持續推進 eVTOL 載具試飛與 FAA 型航認證工作，整體進度遙全球領先水平。Joby Aviation 已完成美國聯邦航空總署（FAA）五階段型號認證最終審查階段全部審查作業，僅剩最後階段行政與技術最終審核；該企業已提前取得FAA 第 135 部商業航空營運資格，待完整型號適航認證發佈，便可直接開展載客商業運營。

2.6.2 務實監管與認證路徑

美國聯邦航空總署（FAA）秉持務實、產業協同的監管思路，推出「Innovate28」行動計畫，目標 2028 年前在國內重點城市片區落地整合型先進空中移動商業營運服務。

FAA將電動垂直起降載具（eVTOL）歸類為動力升力航空器，搭建專屬且明確的適航認證程，確定產業市場發展預測；現行垂直起降場建設對應官方設計技術指引為工程簡報 EB 105A。

2.6.3 跨部門與地方全面參與

美國太空總署（NASA）、國防部、各州與地方政府共同投入低空經濟發展：NASA 提供標準制訂數據支撐，國防部透過採購與研發投入加速技術成熟；地方政府規劃超跨場網路並啟動試點計畫。

2.6.4 發展挑戰

全國垂直起降場網路建置需龐大資金與多方協調；爭取社區對於噪音、安全之顧慮、建構完整航空新職業人才培育體系為主要難題。

2.7 拉丁美洲

拉丁美洲低空經濟以巴西、墨西哥、智利為發展核心，整體市場仍處早期試點階段，產業規模小、商業成熟度偏低。產業應用完全依實務需求導向，以農業植保、礦區巡檢為主。

巴西農業領域廣泛落地無人機應用，大量投入穀田、咖啡種植園等場景發展精準農業。

智利、秘魯等多礦業企業導入無人機作業，用於高危礦區地形測繪、邊坡與採場安全巡檢，降低人員進入危險區域的作業風險。墨西哥、哥倫比亞等拉美國家已推出無人機小型物流試點，主要針對山區、偏遠鄉鎮民眾藥品與醫療物資配送；整體而言，當地城市空中移動載具尚未建到常態商業營運階段。

監管體系方面，拉丁美洲僅巴西、墨西哥、智利針對無人機產業出台專屬監管條文與產業沙盒機制，區域內多數國家仍沿用傳統民航法規管理無人機運行；跨國航空主管單位推動區域統一低空產業標準的整體進度偏緩。

拉丁美洲無人機裝備高度依賴海外進口，本地產業鏈缺乏完整自主研發與批量製造能力；同時行業長期面對產業資本投入有限、數位空域基礎設施不完善、專業技術人才缺口大等多重因素，限制低空產業規模化發展。

2.8 非洲

非洲低空經濟發展完全圍繞民生需求展開，核心作用彌補地面交通、基礎設施短板，盧旺達、南非、肯亞、加納是區域發展先行者，對餘多數國家產業尚處萌芽起步狀態。區域內尚乎未佈局城市空中移動相關專案，所有無人機應用均以填補地面基建缺口為核心目標。

醫療物流是當地發展最成熟的應用板塊。盧旺達搭建覆蓋全國的無人機醫藥配送網絡，實現全境無人機自動化醫療物資配送，為全球少數完成全域覆蓋的國家；加納、肯亞隨後參考該模式推廣同類醫療配送專案。國際無人機醫療配送企業 Zipline 累計執行大量藥品配送訂單，非洲市場承載其絕大部分配送業務，顯著提升偏遠地區緊急醫療響應效率。除此之外，無人機也普遍用於精準農業、電力線路巡檢、野生動物保護、自然災害監測等場景。

監管架構分化明顯：盧旺達建構積極開放的無人機監管體系，南非發佈契合國際民航組織（ICAO）標準的完備無人機法規；其餘數十個非洲國家普遍存在法規更新滯後、跨境運行協調機制缺失等問題。

非洲市場絕大多數無人機設備依靠進口，本土幾乎不具備核心技術研發與裝備製造能力。

2.9 大洋洲

大洋洲低空經濟發展以澳大利亞、新西蘭為核心，各太平洋島國僅少量開展災害應急、島島物資配送示範試點。澳、新兩國民航監管體系完備，本土技術研發實力先足，產業落地以工業級應用場景為重心，同時要前瞻城市空中移動長遠佈局規劃。

澳大利亞與新西蘭均追建對接國際民航組織（ICAO）規範的低空經濟完整監管框架；澳洲民航安全局發佈城際載貨航空器與先進空中移動產業長期監管發展路線圖；新西蘭引進 Wisk Aero 等海外 eVTOL 企業展開展載具試飛測試。

無人機已大規模應用於雨區畜牧資源管理、礦區安全巡檢等工業場景；雪梨、奧爾本等核心都市僅完成城市空中移動前期整體規劃，暫未開展常態化商業運營，區域產業發展面臨多重制約：低空飛行活動與既有通用航空空域的協調整合難度高、偏遠區域配套基礎設施建設成本居高不下、礦區民眾對低空載具帶來的噪音與隱私問題接受度仍有待提升。

2.10 全球低空經濟里程碑事件與代表性商業案例

2.10.1 產業關鍵里程碑

1.2021 年 4 月：歐盟 U-Space 監管框架正式生效，為全球首套區域性低空載具統一規範。

2.2023 年 10 月：中國民航局核發億航智能全球首張載人無人 eVTOL 型號合格證，載人無動力直起降載具正式進入商業階段。

3.2025 年 6 月 19 日：深圳獲核准為全國城市空中移動與低空空域管理改革試點區。

4.2025 年 10 月 19 日：第七屆中國直升機博覽會公佈，2025 年中國內地低空經濟市場規模突破 1.5 兆人民幣。

2.10.2 全球代表性商業營運案例

1.億航智能：全球首家取得完整載人無人 eVTOL 適航認證企業，於深圳、廣州、桂林等城市開通常態商業載客航線，服務空中觀光、跨江通勤、市區移動；同時與迪拜、沙地阿拉伯、印尼簽署戰略合作，輸出技術與營運模式。

2.Zipline：啟動無人機醫藥配送，業務擴展至 多个非洲國家，為偏遠醫療所所輸送血液、疫苗、急救藥品；模式獲世界衛生組織認可，作為地面基礎設施不足地區可複製解決方案。

3.美團無人機：2021 年於深圳開展首個市區無人機配送商業試點，後拓展至廣州，提供餐飲、生鮮、藥品配送；自主研發小型化垂直起降站與獨立空域管理系統，奠定城市密集都市大規模營運經驗。

4.峰飛自動飛行：V2000CG 貨運 eVTOL 於 2025 年 7 月取得完整適航證；2025 年 8 月完成全球首次海上油田大型載重運輸任務，相較傳統船舶大幅縮短運輸時長。

5.亞馬遜 Prime Air：2013 年啟動無人機配送計畫，2022年底於美國多州開展商業營運，2025至 2026 年拓展至英國與更多美國城市，主力配送日常用品與藥物。

財會港整裝起示

上述案例反映成熟低空經濟產業營運邏輯，香港應採取循序分階段發展策略：優先發展醫療配送、離島運輸等公共服務場域，累積營運數據並爭取民眾認同；參考土地稀缺地區緊密型垂直起降場設計，強化與大灣區低空產業發展聯動。整體定位應為全球低空經濟高價值服務樞紐，帶動融資、驗證、法律保險服務。

受土地與成本條件限制，香港大規模生產載人機及電動垂直起降飛行器（eVTOL）整機或不具經濟效益，但香港企業及研發機構在底層信賴鏈技術與零部件研發領域，仍擁有廣大發展機遇。香港可憑藉在其他產業累積的成熟製造經驗與精厚研發實力，開發核心零部件與賦能技術，實際生產環節則可交由香港企業營運的大灣區工廠，或是內地及海外生產基地負責。具備可觀潛力的關鍵技術領域包括輕量化複合材料部件、高性能馬達、固態電池、先進集群控制系統及數碼化空域管理系統 —— 香港在上述範疇均已擁有經驗證的製造經驗或扎實的研究基礎，值得關注的是，香港生產力促進局（HKPC）已在上述技術研發取得多項突破，涵蓋氫燃料電池、熱塑性複合材料氣瓶、儲電子模組及輕質鎂合金材料；常中自主研發的碳纖維一金屬泡沫複合材料，可同時提升結構剛性並實現機身輕量化，為標誌性創新成果。香港科技大學（HKUST）、香港理工大學（PolyU）等本地院校，亦在電動垂直起降飛行器旋翼降噪技術、輕量化複合材料、基於數碼孿生的空域管理系統等領域開展前沿研究，為本地製造商切入低空經濟領域、實現業務多元化提供堅實的技術支撐。這種「香港研發 + 大灣區製造」的模式，讓香港既能突破地理條件限制，又能牢握產業鏈中的高增值環節。

第三章 焦點小組會議

3.1 第一次焦點小組會議

本研究召開焦點小組會議，邀請政府部門、研究機構及產業企業代表共同探討香港低空經濟發展議題。會議旨在系統梳理產業現況、識別發展挑戰，並蒐集實務建議，為本研究報告的編撰提供支撐。

物流應用測沙盒計畫：

物流服務（包括餐飲外送及快遞服務）是低空經濟常見的應用場景。在香港現行低空經濟監管沙盒項目中，低空物流相較傳統地面運輸的效率優勢已得到明確驗證，尤其在跨水域等特定環境下表現突出（例如馬鞍山至香港科學園路線）。然而，受限政府「沙盒」計畫的企業反映商業順暢營運壓力，包括投資週期長（單一項目需 7-12 個月）、跨境設備關稅成本高昂、適航認證審批速度緩慢（內地與香港尚未建立適航認證結果互認機制），以及測試場地取得困難等問題。

核心挑戰：

會議識別出以下主要發展挑戰：

1. 空域與基礎設施：香港山巒起伏、高樓密集的複雜地形造成「訊號盲點」，現有風場數據解析度僅為 50 米，高精度數據不足帶來安全隱患；同時標準化垂直起降場供應短缺。

2. 跨境運營與人才：內地與香港對設備管理雙重認證要求，增加了企業成本與時間投入；此外，無人工程師、大型無人機（例如重量超過 150 公斤）駕駛員等專業崗位存在人才缺口，且兩地駕駛員資格尚未實現互認。

3. 社會與安全顧慮：高密度住宅區的噪音污染是主要公眾關切議題；同時，現役無人機電池缺乏完善回收體系，存在潛在環境風險。

產學研合作：

香港各大學與本地企業正聯合開展關鍵技術研發。其中一家大學衍生企業正在開發能量密度達 450–500Wh/kg 的固態電池，預期可將飛行續航力提升最高 60%。其他合作領域還包括碳纖維複合材料等輕量化材料研發，以及低噪音螺旋槳設計，目標將飛行噪音從 75–85 分貝降至 60–70 分貝，接近城市日常對話音量水平。

3.2 第二次焦點小組會議

在第一次焦點小組會議成果基礎上，本研究召開第二次會議，進一步深入探討香港低空經濟（LAE）發展議題，邀請了更廣泛的利益相關方代表，包括核心政府部門、行業協會、公用事業機構、領先低空經濟服務企業及教育機構。本次會議旨在深化對實務機遇、產業特定挑戰及可行政策建議的討論，豐富研究報告內容，並為香港低空經濟發展路線圖提供針對性洞察。

政府部門在會中重點介紹監管進展、安全優先事項及實務應用推進情況，強調安全與制度先行是低空經濟發展的基礎。民航處（CAD）強調適航性是首要前提，載客低空經濟設備的安全標準必須與大型商業飛機看齊。民航處更新了監管發展進度：重量介於 25 公斤至 150 公斤的小型無人機（UAVs）法規正在推進中，超過 150 公斤的無人機法規仍處於規劃階段，目前依據《第 448C 章》等監時法例進行管理。民航處同時指出，需要透過沙盒試點收集真實運行數據，拟明香港城市環境與內地的差異及其對設備性能的影響；並強調型號合格證（TC）是合法經營的核心要求，敦促企業嚴格遵循原廠（OEM）指引進行維護保養。

與此同時，香港警務處（HKPF）分享了無人機巡邏實務經驗。自 2024 年 5 月起，警務處已在邊境地區及油尖旺區部署無人機巡邏，郊區巡邏已累積 2-3 年，並計劃擴展至長洲及南丫島山頂。警務處強調嚴格遵守安全與隱私規範：飛行高度限制在 90 米以內，禁止平行於建築物窗戶飛行，無人機配備紅藍閃光燈及反光標識，且會提前 7 天發布公眾通告；同時指出操作人員培訓時長不足、人手短缺等挑戰，呼籲增建無人機停靠站，並拓展空中應援等更多執法應用場景。

地政總署（LD）介紹了長期運用無人機測量土地管理及數據收集的經驗，包括為智慧城市發展開發三維數字地圖的五年計劃，以及衛星定位參考網絡的建設進展（該網絡已應用於賽馬拼位、體育場自動劃線等場景），針對 GPS 干擾問題，地政總署表示雖然全面覆蓋意味著客測並不斤實，但正探索區域性監測舉措以加強監管。

行業協會與企業代表分享了實務經驗、市場洞察及技術需求，揭示了政策與實務之間的差距。香港航空業協會（Hong Kong AIA）強調香港連續獨特的地理位置、完善的法律體系、堅實的創新基礎，以及與大灣區（GBA）尤其是深圳的協同潛力，在國家政策支持下具備發展低空經濟的顯著優勢。協會提出分階段發展思路：上游產業研究已取得進展，本次會議聚焦中下游及用戶市場，後續將開展實地考察與數據收集以編制綜合報告。協會同時倡議加強跨區域合作、簡化固定航線申請流程，並探索低空經濟在旅遊及體育賽事領域的應用。

SAE 香港分會作為標準制定機構，表示可動放 SAE 國際專利及標準資源，協助香港低空經濟零部件生產及設備製造商與國際規範接軌；同時建議政府採取前瞻性規劃思路，充分認識低空經濟對陸路、海路及航空運輸業的雙重性影響。

企業代表分享了第一手的挑戰與願景：中華電力有限公司自 2018 年組建無人機機隊，2021 年取得物流許可，目前運營4條電力線路巡檢超視距（BVLOS）航線；但相較內地國家電網，香港受限空域及低密度場景制約了應用規模，呼籲在監管框架內明確安全標準，降低新應用測試的行政成本，並計劃拓展至電力設施維護及應急響應領域。

量視智能測繪服務有限公司作為沙盒參與企業，已完成三維測繪及城市建模超視距試點，但指出核心挑戰包括制度與法律框架落後於技術發展、香港《航空資料彙編》（AIP）中「低空」定義不明確、無人機交通管理系統（UTM）與航空交通管理系統（ATM）整合不足，以及航空法相關運行程序複雜；該公司建議政府與產業共同努力，明確空域規則、准動數據共享（例如空間數據基礎設施 CSDI 資源）、與 ICAO 標準接軌，並加強操作人員應急培訓。

Flightpro 無人機解決方案有限公司專注於無人機操作人員培訓，與地政總署展開合作。該公司強調高精度衛星訊號接收及定位增強的必要性，建議參考大型飛機的慣性導航系統（IRS）及增強型地面接近警告系統（EGBWS）提升無人機定位精度與穩定性，並將適航認證與維護標準掛鉤。

其他企業（如 AOC Skyland Limited、宇恩起有限公司）對盈利能力表示擔憂，指出儘管有政府支持，但實現可持續盈利的企業寥寥無幾；建議探索旅遊及物流領域的商業化路徑，同時降低行業進事門檻；並確定電池能量密度、鋰量化設計、通訊與定位精度、三維防撞技術及快速補能為核心技術研發重點。

教育機構及其他利益相關方聚焦人才發展、基礎設施建設及跨部門協調，回應長期基礎性需求。香港國際航空學院指出本地人規模低空經濟培訓市場及監管標準收緊的趨勢，建議香港持續培訓與考試機構分離以避免利益衝突，並加強培訓標準監管。學院強調，在香港人口稠密的環境中，安全是長期發展的關鍵，呼籲嚴格規範培訓要求、建立嚴格的考核機制，並提升公眾安全意識。

其他與會者強調基礎設施建設的緊迫性，呼籲優先建設全球導航系統增強站、起降場及充電設施；指出土地供應是核心挑戰，建議採用公私合作（PPP）模式推進實施。同時建議運用人工智能技術保障隱私（例如影像模糊處理）、設定數據存儲時限，並倡導發展定位、導航與授時（PNT）經濟以實現多設備協同與精確同步。此外，呼籲建立跨部門協調機制，明確標準及數據共享規則，簡化活動性及跨境物流場景的審批流程，推動低空經濟規模化發展。

核心挑戰

綜合利益相關方討論，香港低空經濟發展面臨的核心挑戰是多層面的：監管與制度缺口，包括低空空域定義模糊、法律框架落後於技術進步、UTM與ATM 系統整合不足；基礎設施與資源制約，例如標準化垂直起降場短缺、基礎設施建設用地有限、高精度環境數據（如風場數據）不足；人才與能力短板，適航工程師、大型無人機操作人員等專業崗位存在缺口，操作人員機會變應培訓不足；以及商業化與跨境障礙，包括盈利模式不明確、測試行政成本高昂、大灣區內部標準與資格互認缺失。

第四章 實地考察與實務洞察

為補充前低空經濟（LAE）的全球及區域性分析，優既產業應用實務的第一手資料，研究團隊到兩家低空經濟領域領先企業進行了實地考察：無人機表演解決方案提供商大漠大（Damoda），以及專注於餐飲外送的低空物流創新企業美團無人機。考察內容包括參觀生產線、產品展示區及企業內部展覽，並與企業代表進行了深入座談。本次實地互動所得成果，特別是在技術應用、場景適配及產業協作方面，為香港低空經濟發展戰略提供了寶貴的實務參考。

4.1 大漠大：無人機表演解決方案與技術優勢

大漠大專注於提供無人機表演整體解決方案，業務涵蓋表演級無人機硬體、集群控制軟件、技術培訓及現場表演服務。作為目前單場無人機表演數量最多的吉尼斯世界紀錄保持者，該公司已建立成熟的產業鏈及技術體系。

4.1.1 生產與產品成熟度

公司運營兩條規模化生產線，年產能達數萬台，可支持大規模商業應用。其產品已迭代至第四代，在安全冗餘設計方面取得顯著進步 —— 這是低空運行的核心技術要求。冗餘設計有效降低了設備故障帶來的風險，為低空航空服務的安全普及奠定了堅實基礎。

4.1.2 以用戶為中心的技術創新

大漠大的核心競爭力在於自主研發的集群控制軟件及配套通訊硬體，可實現對大規模無人機機隊的高效、直觀管理。自動返航充電、非接觸式啟動等使用功能，大幅降低了用戶學習門檻及運營成本。對於具備三維建模經驗的用戶，僅需數天即可熟練掌握無人機表演編排與執行，展現出對市場快速部署需求的強大適應能力。

4.2 美團無人機：餐飲外送領域的低空物流實踐

美團無人機專注於提供低空物流設備及技術支持，核心業務為餐飲外送服務。企業現場展示及技術研討會，全面呈現了其在低空物流領域的深度佈局及成熟應用能力。

4.2.3 場景應用與市場管理

得益於良好的政策環境及旺盛的市場需求，美團無人機將低空物流服務重點佈局於深圳，目前維持可觀的日均訂單量。這一實踐經驗驗證了低空物流在城市場景，尤其是最後一公里配送領域的商業可行性。公司旗艦六旋翼無人機已歷經多次迭代，可在複雜城市環境及多變天氣條件下穩定運行。

4.2.4 基礎設施與產品優化

作為核心基礎設施組件，美團起降站採用收窄一體化設計，在不增加佔地面積的前提下擴展了適用性 —— 這對於香港等土地資源稀缺地區具有重要借鑒意義。公司專利物流箱兼具防護性能、輕量化設計及可重複使用性，在滿足功能需求的同時兼顧節能環保，契合全球低空經濟可持續發展趨勢。此外，美團還探索了無人機與自動駕駛車輛融合的多式聯運解決方案，展現了多元化低空物流生態的發展潛力。

4.2.5 空域管理與技術交流

研討會的核心議題之一是美團的空域管理系統，特別是其關鍵的「時空膠囊」技術。該技術通過將低空空域劃分為特定時間、特定地理範圍的「膠囊」，優化航線規劃與衝突解決，確保運行安全高效。研究團隊還就空域管理行業標準制定、整合多家製造商及運營商進入統一低空交通管理系統的可行性進行了討論 —— 這些議題與香港的跨境低空經濟運營及基礎設施建設高度相關。

4.3 核心洞察

對大漠大及美團無人機的實地考察，得出三項關鍵實務洞察，補充了報告此前的分析：技術成熟度驅動場景擴展：成熟的硬體生產能力（如大漠大的量產線）及以用戶為中心的技術優化（如簡化操作、安全冗餘）是低空經濟商業化的先決條件。對於香港而言，優先與技術領先企業建立合作，可加速本地應用場景的驗證進程。基礎設施適配性是城市低空經濟發展的關鍵：美團節約空間的集成式起降站及環保物流解決方案，為土地資源稀缺的香港提供了典範。香港未來垂直起降場規劃必須強調緊湊設計、多功能整合及可持續性。統一空域管理與標準化是迫切需求：美團「時空膠囊」技術及行業標準討論所凸顯的跨主體空域協作挑戰，與香港可大灣區開展跨境空域協調的需求高度契合。建立兼容的技術標準及協同管理機制，是實現高效跨境低空經濟運營的核心。

這些實務洞察進一步強化了報告此前的結論與建議，強調香港發展低空經濟必須充分發揮自身在服務整合及標準制定方面的優勢，同時借鑑領先企業的成熟技術與運營模式，以應對本地制約因素。

第五章 結論與政策建議

5.1 整體結論

全球各地依自身資源條件採取差異化策略佈局低空經濟：中國內地在產業規模、完整供應鏈、大規模商業落地領先全球；美國民間技術創新能量突出；歐洲主導統一監管架構制訂；中東港注廣大資金加速落地；東南亞依在地需求循序發展；拉丁美洲、非洲、太洋洲聚焦分場域運術基礎設施缺口，市場潛力廣大。截至 2026 年 5 月，全球低空經濟由試點示範邁向大規模商業化關鍵階段，整體競爭格局初步成型。

香港在全球產業版圖具備獨特競爭優勢：作為國際金融、貿易、航運與專業服務樞紐，法制體系完備、本地大學研發能量充足，同時深度連結大灣區與全球市場，香港已完成低空經濟初步政策規劃、監管沙盒試點、產學研佈局，完全具備打造全球低空經濟價值服務樞紐之條件。

不同於製造導向區域，香港發展重心應聚焦產業高能服務與跨區域連結，不追求大規模生產製造；核心定位為全球低空經濟服務樞紐、標準參與制訂者、跨境超級聯繫人、高端創新研發中心。香港可向全球產業參與者提供國際融資、適航驗證、專業保險、法律諮詢、高端技術研發配套。此定位協助香港突破土地空間限制，多元產業結構，鞏固長遠全球競爭力。

除專業服務領域的既有優勢外，香港在低空經濟產業的高增值製造與技術研發方面，仍擁有廣大未開發潛力。作為香港核心的製造業支援機構，香港生產力促進局聯同本地大學及研發機構，已在電動垂直起降飛行器（eVTOL）及無人機智能升降的關鍵能技術領域建立了雄厚實力，相關技術涵蓋輕量化複合材料、氫燃料電池技術、先進降噪技術、固態電池創新，以及運用數碼孿生技術的精密數碼化空域管理系統。香港集團迎來大規模製生產，反而可採用專業化「微型工廠」模式，專注高精度零部件製造與技術對發，並按量產需要彈性同時連香港企業位於大灣區、內地其他地區或海外的生產基地推行。此模式讓香港製造商得以切入低空經濟價值鏈，實現業務多元化，在香港區域製造與發展的同時，把握商利潤環節的發展機遇。製造具研發能力的融合，將顯著提升香港在全球低空經濟生態體系中的綜合競爭力，在傳統服務業之外開闢全新產業機遇。

有別於以製造為導向的地區，香港不應以大規模生產為核心，而應著焦賦能服務與跨區域聯通。香港的核心定位，是成為全球低空經濟的服務樞紐、標準制定者、跨境超級聯繫人以及高端創新與高增值零部件製造中心，可為全球業界參與者提供國際融資、適航認證、專業保險、法律服務及高端研發製造支援。此定位有助香港突破地理限制，推動經濟結構多元化，並鞏固長遠的全球競爭力。

綜合全球低空產業發展趨勢與香港區位、基建、監管優勢，本文梳理香港低空經濟發展脈絡，制定「試點破限—規模擴張—樞紐成型」的三年梯次發展路徑，配套五大核心發展戰略，為香港低空經濟產業化、規模化、國際化發展提供完整執行建議。

一、分階段執行路徑

1. 場景試點、規範建構階段

以小範圍、低風險示範應用為核心，落地可控的低空場景試點。優先開展城市救援巡檢、偏遠區域應急保障、輕型低空物流等成熟場景測試，累計空域運行、設備維航、人員作業的實務數據。同步梳理香港空域管理、城市安全、隱私保護、噪音管控等約束條件，搭建基礎性的場景運行規範與安全標準，完成產業前期驗證，為後續規模化發展奠定基礎，避免盲目擴張帶來的監管與安全風險。

2. 場景擴容、產業蓄力階段

在試點驗證成熟的基礎上，逐步擴大低空應用場景覆蓋範圍與運行時長，推動示範項目常態化運營。強化與大灣區城市的產業協同，探索跨境低空演示運行、醫療物資精準配送、基礎設施聯合巡檢等跨界場景，同時完善本地配套體系，推動低空保險服務、技術維護、安全監控等配套產業落地，培育本土低空產業服務團隊，擴大產業生態規模，初步形成可複製、可推廣的商業運行模式。

3. 生態成型、樞紐落地階段

整合空域資源、基礎設施、產業主體、監管標準，建成具備國際示範性的低空經濟產業生態。打通境內外低空產業合作通道，依托香港國際航空、貿易、專業服務優勢，集聚全球eVTOL、無人機運營、低空技術研發、資本服務等產業資源。打造輻射大灣區、連接國際市場的低空經濟服務樞紐，實現場景商業化、產業集聚化、服務國際化的全面落地。

二、五大核心發展戰略方向

戰略一：場景優先、穩步落地，構建梯度化商業體系

立足香港城市空間緊凑、安全標準嚴謹、公共服務完善的特點，遵循「低風險到高價值、試點到規模」的原則，優先落地社會效益明顯、運行可控的低空場景。以服務巡檢、應急救援、醫療配送等公共服務場景為基礎，逐步延伸至城市空中通勤、立體交旅、高端物流等商業場景，形成分層分類、梯度推進的場景佈局模式，避免產業盲目擴容，保障低空經濟有序、穩健發展。

戰略二：監管創新、對接國際，搭建開放規範體系

依托香港成熟的民航管理體系，參考國際民航組織及歐美先進監管規範，持續優化本地低空運行監管機制。以彈性監管、包容創新為核心，完善無人機、eVTOL適航認證、飛行員資質、空域申報、超限場運營、安全管控等配套規則。持續運用監管沙盒機制，容許新技術、新場景、新模式先行先試，在保障城市安全與公共利益的前提下，降低產業創新門檻，打造與國際接軌、具靈活性與彈性的監管環境。

戰略三：灣區聯動、跨境協同，增益區位樞紐優勢

充分發揮香港背靠大灣區、面向全球的獨特區位優勢，強化與大灣區內地城市的低空產業協同發展。鞏固內地先進的低空製造、技術研發、場景落地資源，結合香港國際貿易、專業服務、國際認證、跨境資源整合優勢，優先探索跨境低空物流、聯合試飛、標準互認、人才互通等合作模式。打造「內地研發製造+香港服務輸出+國際市場對接」的產業協同模式，建立大灣區一體化低空產業生態。

戰略四：補齊配套、集聚資源，鞏固產業發展基礎

針對低空產業基礎短板，系統完善基礎設施、人才體系、資本服務三大核心配套，規劃佈局城市垂直起降點、低空監測網、數位空域管理平台等基礎設施，破以城市低空運行硬件制約；搭建專業人才培育與引進機制，補齊飛行運營、安全管控、空域規劃、技術維護等專業人才缺口；聯動國際資本與專業服務機構，完善低空產業投融資、法律合規、國際認證、商業運營等配套服務，全方位支撐產業長期可持續發展。

策略五：培育高增值製造與技術研發生態

鑑基於香港現時的產業基礎與卓越研發實力，政府將為本地企業及研發機構提供針對性支援，開發低空經濟關鍵技術與核心零部件，優先發展的技術領域包括：

1. 輕量化複合材料與先進製造工藝：涵蓋創新型碳纖維複合結構、高性能合金材料，以及用於精密無人機零部件的增材製造技術；
2. 新世代動力系統：包括高能量密度固態電池與氫燃料電池技術，承接香港現有學術研究與產業合作基礎
3. 電動垂直起降飛行器（eVTOL）及無人機運行降噪技術：運用航空工程領域在旋翼葉片設計與發聲優化方向的創新研究成果；
4. 先進集群控制系統與數碼化空域管理平台：整合數碼孿生技術與人工智能驅動的動態航線優化功能。政府將設立專項資助計劃，支援上述戰略領域的研發項目，同時推廣「香港研發+大灣區製造」模式：本地企業可在香港開展技術研發、原型製作及關鍵零部件微型工廠生產，規模量產則移師大灣區生產基地執行。本策略將推動香港製造業切入低空經濟價值鏈的高增值環節，創造全新增長機遇，同時鞏固香港作為區域創新樞紐的地位。

EXECUTIVE SUMMARY

The Low-Altitude Economy (LAE) refers to economic activities conducted within airspace below 3,000 meters, and it has emerged as a powerful new driver for global economic and social development. Fueled by advances in artificial intelligence, advanced manufacturing, new energy and digital airspace management, a complete industrial ecosystem centered on electric Vertical Take-Off and Landing (eVTOL) aircraft, Unmanned Aerial Vehicles (UAVs) and Unmanned Aircraft System Traffic Management (UTM) systems has matured rapidly. This ecosystem delivers high-value solutions for urban passenger transport, last-mile logistics, industrial inspection, public services, emergency response and aerial tourism. It effectively improves operational efficiency, cuts carbon emissions and extends the reach of essential public services. According to Morgan Stanley's research updated in April 2026, the global urban air mobility (UAM) market is projected to reach $9 trillion by 2050.

This report conducts a comprehensive analysis of the development status, policy frameworks, technological innovations and commercial progress of the low-altitude economy across nine major global regions, with in-depth research on Latin America, Africa and Oceania. Based on full-cycle field investigations, two rounds of industry focus group meetings and continuous policy tracking, this report puts forward a phased and actionable development roadmap for Hong Kong. The overall development strategy focuses on differentiated positioning, deep integration with the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) and global market connectivity. Three core priorities are defined: building safe and efficient integrated infrastructure, accelerating large-scale industrial application and commercialization, and strengthening high-end talent cultivation and core technological research and development.

CHAPTER 1: INTRODUCTION

1.1 The Dawn of a New Economy

The low-altitude economy is a cross-industry economic model that integrates civil aviation, high-performance new materials, key functional components, artificial intelligence, big data, the Internet of Things and digital airspace management. It brings three-dimensional transformation to global transportation networks and reshapes value chains across dozens of industries. Major advanced economies regard the low-altitude economy as a core strategic field for industrial and technological competition. For emerging economies, it serves as an effective tool to realize leapfrog development in transportation and public services without massive investment in large-scale ground infrastructure.

China has designated the low-altitude economy as a national strategic emerging industry. The United States and Europe leverage their long-standing aviation expertise to lead the formulation of global aircraft certification standards and low-altitude airspace management regulations.
As a world-renowned international hub for finance, shipping, trade and professional services, Hong Kong needs to seize the opportunities brought by the new industrial wave. Developing the low-altitude economy is a key strategic move to enhance long-term competitiveness, diversify economic structure and further integrate into the GBA development strategy. By sorting out global development trends and regional models, this report clarifies Hong Kong's unique positioning, competitive strengths, development opportunities and challenges, and proposes evidence-based and practical policy recommendations.

1.2 Core Components of the Low-Altitude Economy

The low-altitude economy features a complete industrial chain covering upstream core research and component manufacturing, midstream aircraft assembly and infrastructure construction, as well as downstream operational services and scenario-based applications. Its core components are divided into four interconnected parts: core aerial vehicles, critical supporting infrastructure, specialized professional service systems and cross-cutting enabling technologies.
Core Vehicles: eVTOLs and UAVs

Electric Vertical Take-Off and Landing (eVTOL) aircraft, commonly known as air taxis, are the main carriers for urban air mobility. They combine the vertical flight capability of helicopters and the high efficiency of fixed-wing aircraft, featuring low noise, zero emissions and low operational costs. Leading enterprises including Joby Aviation, Archer Aviation and EHang are moving steadily toward commercial certification.

Unmanned Aerial Vehicles (UAVs) have achieved large-scale application in logistics, industrial inspection and agricultural sectors. Enterprise from the Chinese Mainland and Hong Kong, such as DJI, hold a prominent position in the global UAV market.

Critical Infrastructure: Vertiports and Digital Airspace
Vertiports are dedicated facilities for eVTOLs and UAVs to land, charge and conduct maintenance. They act as key nodes connecting aerial and ground transportation networks. The digital infrastructure is supported by Unmanned Aircraft System Traffic Management (UTM) systems. Different from traditional air traffic control systems, UTM is designed for high-density automated low-altitude flights, providing services including vehicle registration, route planning and flight conflict avoidance.

1.3 A Game-Changer for Business and Society

The low-altitude economy is far more than a multi-trillion-dollar emerging industry. It acts as a universal enabling technology to improve overall economic efficiency, promote social equity and advance global sustainable development goals. In urban areas, three-dimensional aerial transportation can relieve severe traffic congestion, shorten long-distance commutes from hours to minutes and reduce transportation-related carbon emissions, easing pressure on overloaded ground infrastructure.

In the logistics sector, UAVs revolutionize last-mile and cross-water delivery. They can rapidly deliver e-commerce parcels and time-sensitive medical supplies to areas where ground transportation is inefficient or inaccessible. For remote rural regions, island communities and disaster-stricken areas, low-altitude delivery services help bridge the gap in basic supplies and public services and promote inclusive development.
In addition, the low-altitude economy improves the efficiency of public services and industrial operations through automated infrastructure inspection, rapid emergency response, precision agriculture and smart city management, cutting operational costs and improving workplace safety. It also creates new consumption scenarios and business models such as aerial tourism and immersive aerial entertainment. For developing economies, this industry offers a shortcut to upgrade transportation and public services while avoiding the huge costs and long construction cycles of traditional ground infrastructure.

CHAPTER 2: GLOBAL LOW-ALTITUDE ECONOMY DEVELOPMENT

Countries and regions around the world are actively advancing the low-altitude economy based on their own strengths and strategic plans. This chapter analyzes policies, infrastructure, technological innovation and commercial practices across nine regions including the Chinese Mainland, Hong Kong, ASEAN, the Middle East, Europe, the United States, Latin America, Africa and Oceania, and updates major milestones and typical commercial cases as of May 2026.

2.1 Chinese Mainland

2.1.1 Top-Level Design and Policy-Driven Approach

Since the Central Economic Work Conference identified the low-altitude economy as a key development priority in early 2024, a comprehensive policy support system has been established from central to local governments. More than 20 provincial-level regions have included the low-altitude economy in government work plans and set up dedicated industrial funds.

2.1.2 Technological Innovation and Industrial Ecosystem

EHang's EH216-S has obtained the world's first Type Certificate and Production Certificate for unmanned passenger-carrying eVTOL issued by the Civil Aviation Administration of China. Multiple self-developed domestic eVTOL models have successively entered CAAC's airworthiness review procedures, further consolidating the Mainland's leading technological position in this sector. The Chinese Mainland also boasts the world's most complete industrial supply chain for low-altitude aerial vehicles. Recognized globally as the "Drone Capital of the World", Shenzhen hosts a massive cluster of upstream and downstream enterprises, leveraging industrial scale to drive continuous technological iteration and manufacturing cost optimization.

2.1.3 Abundant Application Scenarios and Commercial Exploration

Diversified geographical conditions create rich application scenarios for the low-altitude economy in the Chinese Mainland. Commercial operations have been launched in logistics (Meituan, SF Express), aerial sightseeing and public services such as power line inspection and emergency rescue. The Guangdong-Hong Kong-Macao Greater Bay Area serves as a national demonstration zone. Cities including Shenzhen and Guangzhou are accelerating infrastructure construction and exploring cross-border integrated operations.

2.1.4 Challenges

The industry still faces challenges including complex airspace management that requires coordination among military, civil aviation and local authorities. The construction of urban vertiports also poses systematic difficulties. In addition, building public recognition of the safety and privacy of passenger-carrying eVTOL flights remains an important task.

2.2 Hong Kong

2.2.1 Strategic Positioning and Policy Planning

Leveraging its advantages as an international financial, shipping and trade hub, the Hong Kong SAR Government regards the low-altitude economy as a new growth engine. Hong Kong is positioned as a "super-connector" and high-value service provider, striving to develop into an international financing hub, standards and certification centre, as well as a key node for cross-border logistics and premium passenger transport connecting the Greater Bay Area.

2.2.2 Pilot Projects and Industry Collaboration

Local enterprises are exploring cross-border eVTOL routes connecting Hong Kong and Shenzhen. Drones have been widely applied in construction site monitoring and asset management under the smart city framework. The Hong Kong Productivity Council (HKPC) plays an active role in technological development and application.

As of May 2026, 33 out of the 38 approved first-phase regulatory sandbox projects have been officially launched, covering cross-water logistics, 3D mapping, power inspection, construction site monitoring and emergency rescue. The advanced "Regulatory Sandbox X" has received over 100 applications and is currently under review. HKPC has set up the Hong Kong Industrial Drone Technology Centre and the Low-altitude Economy Tech Hall, focusing on UTM system research, airworthiness certification and technology demonstration for high-density urban environments.

2.2.3 Challenges and Countermeasures

Hong Kong is constrained by complex airspace conditions and limited land resources for vertiport construction. Cross-border flight operations require innovative coordination mechanisms between Hong Kong and the Mainland. Public concerns over noise and safety, together with a shortage of specialized talents, are also key issues to be addressed. Targeted solutions for the above challenges are proposed in the final recommendations of this report.

2.3 ASEAN

2.3.1 Market Drivers and Application Scenarios

The development of the low-altitude economy in ASEAN is mainly driven by local market demand. Agricultural countries such as Malaysia and Indonesia widely adopt drones for precision farming. For archipelagic nations, drones solve the "last-sea-mile" delivery problem for medical supplies and daily goods. Singapore takes the lead in applying drones for smart city management.

Although Singapore and Malaysia signed an MoU on cross-border drone delivery in February 2024, regular commercial cross-border drone logistics routes have not yet been launched. As of May 2026, there are no sustainable cross-border commercial low-altitude operation projects across Southeast Asia, which reflects the barriers caused by fragmented regional regulatory standards.

2.3.2 Regulatory Environment and Uneven Development

Regulatory fragmentation is prominent across ASEAN member states, with varying rules for drone registration and flight permits, which hinder cross-border operations. The maturity of UTM systems also varies greatly: Singapore and Malaysia have relatively sound systems, while the Philippines, Vietnam and other countries are still in the initial stage. As of May 2026, ASEAN has not issued a unified regional regulatory framework for unmanned aircraft. Member states are conducting discussions on unified standards for drone registration, pilot certification and operational procedures.

2.3.3 Infrastructure and Technology Gap

Except for Singapore and Malaysia, most ASEAN countries face shortages of digital and physical infrastructure. The region mainly relies on technologies and products from the Chinese Mainland, Europe and the United States, while local enterprises are gradually emerging.

2.3.4 Future Outlook

To unlock market potential, ASEAN needs to strengthen regional regulatory coordination, promote public-private partnerships via regulatory sandboxes and increase investment in basic infrastructure.

2.4 Middle East

2.4.1 National Strategy and Massive Investment

Countries led by the United Arab Emirates (UAE) and Saudi Arabia adopt a top-down, capital-intensive development model and integrate the low-altitude economy into national long-term visions. Dubai plans to launch commercial air taxi services, while Saudi Arabia's NEOM futuristic city takes urban air mobility as a core part of its transportation system.

Dubai is pushing forward a city-wide air taxi development plan with multiple commercial vertiports in the pipeline. Construction work on the flagship demonstration vertiport adjacent to Dubai International Airport is ongoing. Joby Aviation holds an exclusive operational partnership for Dubai's air taxi service and completed manned eVTOL demonstration flights within the UAE in November 2025. Under the roadmap released by the General Civil Aviation Authority of the UAE, the aircraft type certification is expected to be completed in Q3 2026, with commercial passenger services projected to launch by the end of 2026. This demonstration scheme is one of the world's most advanced large-scale projects for the commercial rollout of passenger-carrying eVTOLs.

2.4.2 Open Cooperation and Ecosystem Building

The Middle Eastern nations have adopted an open collaboration strategy, attracting the world's top eVTOL manufacturers and building complete local industrial chains covering vertiport operation and pilot training. Over the past two years, Saudi Arabia has signed industrial memorandums of understanding with multiple eVTOL developers. Saudia Group has also reached a strategic cooperation letter of intent with Lilium Jet to explore the introduction of passenger aerial vehicles. Saudi Arabia has also established partnerships with Archer Aviation, Joby Aviation and Vertical Aerospace to conduct flight tests and design local commercial deployment plans, with tourism and intercity transport as core application scenarios.

2.4.3 Proactive Regulation and Rapid Implementation

The UAE's civil aviation authority has issued dedicated regulations for vertiports, paving the way for early commercialization and making the region a frontrunner for regular air taxi services worldwide.

2.4.4 Development Focus and Challenges

The region mainly promotes high-end urban air mobility for business and tourism, as well as smart city services. Extreme high temperatures in local areas will affect battery performance of aerial vehicles. Cultivating local independent R&D and manufacturing capabilities is also a long-term challenge.

2.6 Europe

2.6.1 Unified Regulatory Framework: U-Space

The European Union rolled out the U3Space low-altitude airspace regulatory system in 2023, outlining a phased plan to integrate drones and eVTOLs into routine airspace operations and forming the regulatory foundation for Europe's advanced air mobility industry. The European Union Aviation Safety Agency (EASA) issued dedicated SC-VTOL airworthiness specifications, which act as the unified legal standard for type certification of passenger-carrying eVTOLs across the region.

As of May 2026, Europe has a mature airworthiness certification framework solely for eVTOL aircraft. A complete end-to-end regulatory regime covering both aircraft certification and routine commercial flight operations remains under development, and comprehensive, fully enforceable final rules for commercial eVTOL operations have not yet been released.

2.6.2 Strong R&D and Manufacturing Base

Europe has solid R&D and manufacturing strengths. Traditional aviation giants such as Airbus and innovative startups including Germany's Lilium and Volocopter are active in this field. Germany, France and the United Kingdom support industrial development through research funding and dedicated test sites.

2.6.3 Cross-National Cooperation and Demonstration Projects

Multiple cross-national demonstration projects represented by the SESAR program are conducting large-scale urban air mobility tests across Europe to verify system interoperability and accumulate data for regulatory optimization.

2.6.4 Challenges

European countries adopt a prudent attitude toward commercialization. Public opposition over noise and privacy issues has been seen in some regions such as Paris. Coordination difficulties among EU member states and slow progress in infrastructure investment also hinder industrial development.

2.6 United States

2.6.1 Leading Technology and Corporate Clusters

The United States features a thriving private advanced air mobility innovation ecosystem. Companies including Joby Aviation, Archer Aviation and Wisk Aero have achieved remarkable progress in eVTOL flight testing and FAA airworthiness certification. Joby Aviation has fully completed the first four phases of the FAA's five-phase type certification framework and entered the final closing review phase. The company has already obtained its FAA Part 135 air carrier certificate, allowing immediate launch of commercial passenger flights once full aircraft type certification is issued.

2.6.2 Pragmatic Regulatory and Certification Path

The Federal Aviation Administration (FAA) adopts a pragmatic, industry-collaborative regulatory approach and launched the "Innovate28" initiative, aiming to deploy integrated commercial advanced air mobility operations in key urban areas across the United States by 2028.

The FAA classifies eVTOLs as Powered Lift aircraft and establishes a dedicated, clear airworthiness certification pathway to stabilize market expectations for the sector. Engineering Brief EB 105A serves as the official design guidance document currently applicable to vertiport construction.

2.6.3 Widespread Cross-Sector and Local Participation

NASA, the U.S. Department of Defense, state and municipal governments all participate in low-altitude economy development. NASA provides data support for standard formulation, the Department of Defense accelerates technological maturity through investment and procurement, and local governments plan vertiport networks and launch pilot projects.

2.6.4 Challenges

The construction of nationwide vertiport networks requires massive investment and multi-party coordination. Gaining community recognition on noise and safety issues, as well as optimizing the talent training system for new aviation jobs, are major challenges.

2.7 Latin America

The low-altitude economy in Latin America is mainly led by Brazil, Mexico and Chile. The overall market stays in the early pilot stage with a small scale and low commercial maturity. Industrial applications are driven by practical demands, mainly focusing on agricultural plant protection and mine inspection.

Drones are widely deployed across Brazil's agricultural sector for precision farming on grain fields and coffee plantations.

Many mining companies in Chile and Peru utilize drones to conduct topographic mapping and safety inspections in high-risk mining zones, cutting down human exposure to hazardous working environments. Countries including Mexico and Colombia have launched small-scale drone logistics pilots focused on delivering pharmaceuticals and medical supplies to remote mountainous communities. At present, urban advanced air mobility services have not entered regular commercial operation across these regions.

In terms of supervision, only Brazil, Mexico and Chile have formulated dedicated drone regulations and regulatory sandboxes for the drone industry across Latin America. Most other countries in the region still manage drone operations under traditional civil aviation laws. Regional aviation authorities have made slow progress in rolling out unified cross-border standards for low-altitude industries.

Latin American markets rely heavily on imported drone hardware, with incomplete local industrial chains lacking independent R&D and mass manufacturing capacity. The sector is further restrained by limited long-term industrial investment, inadequate digital airspace infrastructure and a severe shortage of specialized technical talents, hindering large-scale growth of the low-altitude economy.

2.8 Africa

The low-altitude economy in Africa is fully demand-oriented, designed to offset insufficient ground infrastructure. Rwanda, South Africa, Kenya and Ghana are regional pioneers, while the industry stays in its infancy in most other African countries. Few urban air mobility projects have been rolled out, and all drone applications aim to compensate for deficiencies in ground transportation networks.

Medical logistics is the most mature application segment. Rwanda has built a nationwide drone medical delivery network that delivers pharmaceuticals automatically across its entire territory, one of the few countries worldwide to achieve full national coverage. Ghana and Kenya have subsequently replicated similar medical drone programs. Zipline, a global medical drone delivery firm, has fulfilled massive commercial delivery orders, with the vast majority of its operations based in Africa, greatly boosting the efficiency of emergency medical services in isolated areas. Drones are also widely deployed for precision agriculture, power grid inspection, wildlife conservation and disaster monitoring.

Regulatory frameworks vary drastically across the continent. Rwanda has established a streamlined drone governance system, and South Africa has released comprehensive drone regulations aligned with ICAO standards. Dozens of other African countries suffer from outdated legislation and inadequate cross-border coordination mechanisms.

Nearly all drone equipment circulating in Africa is imported, with almost no domestic capacity for core technology research and hardware manufacturing.

2.9 Oceania

Australia and New Zealand are the primary markets for the low-altitude economy in Oceania, while Pacific island nations only operate small-scale drone pilots for disaster response and inter-island logistics. Both countries boast mature civil aviation systems and robust local R&D capacity. Their industrial layout centres on industrial use cases, with forward planning for future urban air mobility.

Australia and New Zealand have both established low-altitude regulatory frameworks aligned with ICAO standards. Australia's Civil Aviation Safety Authority released a long-term regulatory roadmap for remotely piloted aircraft systems and advanced air mobility. New Zealand has attracted international eVTOL developers including Wisk Aero to conduct local flight trials. Drones are widely deployed for livestock management and mine inspection across the two countries. Major cities such as Sydney and Melbourne have only finished preliminary planning for urban air mobility, without regular commercial operations launched yet. Key industry challenges include integrating low-altitude flights into existing general airspace, the high cost of building supporting infrastructure across remote territories, and low public acceptance of noise and privacy risks brought by urban aerial vehicles.

2.10 Landmark Events and Typical Commercial Cases of Global Low-Altitude Economy

2.10.1 Core Landmark Development Events

1.April 2021: The EU's U-Space regulatory framework officially took effect, becoming the world's first unified regional regulation for low-altitude aircraft.

2.October 2023: CAAC issued the world's first Type Certificate for Ehang's unmanned passenger-carrying eVTOL, marking the official entry of manned eVTOLs into the commercial stage.

3.June 19, 2025: Shenzhen was designated as a national pilot zone for urban air mobility and low-altitude airspace management reform in the Chinese Mainland.

4.October 19, 2025: It was announced at the 7th China Helicopter Exposition that the scale of the low-altitude economy in the Chinese Mainland would exceed RMB 1.5 trillion in 2025.

2.10.2 Global Typical Commercial Operation Cases

1.Ehang Intelligent: As the world's first enterprise with complete airworthiness certification for unmanned passenger-carrying eVTOLs, Ehang has launched regular commercial flights in Shenzhen, Guangzhou, Guilin and other cities. Its services cover aerial sightseeing, cross-river transportation and urban travel. The company has signed strategic cooperation with Dubai, Saudi Arabia and Indonesia to export relevant technologies and operational experience.

2.Zipline: Zipline launched drone medical delivery services in Rwanda. Its business has expanded to many African countries, delivering blood, vaccines and emergency medicines to remote medical institutions. This model has been recognized by the World Health Organization as a replicable solution for regions with inadequate ground infrastructure.

3.Meituan UAV: Meituan launched the first commercial urban drone delivery pilot in Shenzhen in 2021, with services expanded to Guangzhou. It provides catering, fresh food and pharmaceutical delivery services. The company has developed compact vertiports and independent airspace management systems, accumulating rich experience for large-scale operation in dense urban areas.

4.AutoFlight: AutoFlight's V2000CG cargo eVTOL obtained complete airworthiness certificates in July 2025. In August 2026, the aircraft completed the world's first large-load maritime transportation mission for offshore oil platforms, which greatly shortened transportation time compared with traditional ships.

5.Amazon Prime Air: Amazon launched its drone delivery project in 2013. Commercial operations started in multiple states of the United States at the end of 2022. The service expanded to the United Kingdom and more U.S. cities from 2025 to 2026, focusing on the delivery of daily necessities and medicines.

COMPREHENSIVE ENLIGHTENMENT FOR HONG KONG

The above cases reflect mature industrial logic of the low-altitude economy. Hong Kong shall adopt a steady and phased development strategy. First, priority can be given to public service scenarios such as medical distribution and remote island transportation to accumulate operational data and win public recognition. Second, Hong Kong can learn from compact vertiport designs suitable for land-scarce regions. Third, it is vital to strengthen low-altitude economic connectivity with the Greater Bay Area. In general, Hong Kong should position itself as a global high-value service hub for the low-altitude economy, focusing on financing, certification, legal and insurance services rather than large-scale manufacturing.

While large-scale production of complete drones and eVTOL aircraft in Hong Kong may not be economically feasible given land and cost constraints, significant opportunities exist for Hong Kong enterprises and research institutions to engage in high-value-added key technology and component development. Hong Kong can leverage its established manufacturing expertise in other sectors and strong R&D capabilities to develop critical components and enabling technologies, with actual production carried out in GBA factories operated by Hong Kong enterprises, or in Mainland China and overseas facilities. Key technology areas with substantial potential include lightweight composite parts, high-performance motors, solid-state batteries, advanced cluster control systems, and digital airspace management systems—domains where Hong Kong already possesses proven manufacturing experience or robust research foundations. Notably, HKPC has already made breakthroughs in upstream technology R&D, including hydrogen fuel cells, thermoplastic composite gas cylinders, microelectronic modules, and magnesium alloy materials, with successful innovations such as self-developed carbon fiber-metal foam composites that enhance both structural rigidity and airframe lightweighting. Local universities including HKUST and PolyU are conducting pioneering research in noise reduction technologies for eVTOL rotors, lightweight composite materials, and digital twin-based airspace management systems, providing a solid technological foundation for local manufacturers to diversify into the low-altitude economy sector. This "Hong Kong R&D + GBA manufacturing" model enables Hong Kong to capture high-value segments of the industrial chain while overcoming geographical limitations.

CHAPTER 3: FOCUS GROUP MEETING

3.1 First Group Meeting

A focus group meeting was held to discuss the development of Hong Kong's low-altitude economy, bringing together representatives from government departments, research institutions, and industry enterprises. The meeting aimed to systematically review the current development status, identify challenges, and gather practical recommendations to support the compilation of this research report.

Logistics Applications and Sandbox Program:
Logistics services (including food delivery and courier services) are common application scenarios in the low-altitude economy. In Hong Kong's current low-altitude economy regulatory sandbox project, the efficiency advantages of low-altitude logistics compared with traditional ground transportation, especially in specific environments such as crossing bodies of water—have already been clearly demonstrated (e.g. The route from Ma On Shan to Hong Kong Science & Technology Park). However, companies participating in the government's "Sandbox" program reported significant operational pressures, including long investment cycles (7–12 months per project), high costs related to cross-border equipment tariffs and the speed of airworthiness certification approval (the mutual recognition of airworthiness certification results between Chinese Mainland and Hong Kong has not yet been established), and difficulties in securing testing sites.

Industry-Academia-Research Collaboration:
Hong Kong's universities and local enterprises are collaborating on key technologies. One university-affiliated company is developing solid-state batteries with energy densities of 450–500Wh/kg, potentially increasing flight endurance by up to 60%. Other collaborations focus on lightweight materials like carbon fiber composites and developing low-noise propeller designs to reduce operational noise from 75–85 dB to 60–70 dB, which is closer to the level of urban conversation.

Key Challenges:
The primary challenges identified include:

1. Airspace and Infrastructure: Hong Kong's complex terrain of mountains and dense high-rises creates "signal blind spots," while a lack of high-precision wind field data (current resolution is 50 m) poses safety risks. There is also a shortage of standardized vertiports.
2. Cross-Border Operations and Talent: Double certification requirements in both the Chinese Mainland and Hong Kong for equipment increase costs and time. Furthermore, a talent gap exists for specialized roles like airworthiness engineers and large-drone (e.g., weighing over 150kg) pilots, with a lack of mutual recognition for pilot qualifications.
3. Social and Safety Concerns: Noise pollution in high-density residential areas is a major concern. Additionally, the absence of a comprehensive battery recycling system for retired drone batteries poses environmental risks.

3.2 Second Focus Group Meeting

Building on the outcomes of the first focus group meeting, a second session was convened to further delve into the development of Hong Kong's low-altitude economy (LAE), gathering representatives from a wide spectrum of stakeholders—including key government departments, industry associations, public utilities, leading LAE service enterprises, and educational institutions. This meeting aimed to deepen discussions on practical opportunities, industry-specific challenges, and actionable policy recommendations, with the goal of enriching the research report and providing targeted insights for Hong Kong's LAE development roadmap.

Government departments took centre stage to outline regulatory progress, safety priorities, and practical application advancements, emphasizing that safety and institutional improvement are foundational to LAE growth. The Civil Aviation Department (CAD) stressed that airworthiness is the paramount prerequisite, noting that safety standards for passenger-carrying LAE equipment must align with those of large commercial aircraft. It updated participants on regulatory developments: regulations for small unmanned aerial vehicles (UAVs) weighing between 25 kg and 150 kg are under advancement, while rules for UAVs exceeding 150kg are in the planning stage, currently governed by interim legislation such as Cap. 448C. The CAD also highlighted the need for sandbox pilots to collect real-world operational data, clarifying how Hong Kong's urban environment differs from Chinese Mainland and its impact on equipment performance, while underscoring Type Certificate (TC) as a critical requirement for legal operation and urging enterprises to adhere to OEM guidelines for maintenance. Complementing this, the Hong Kong Police Force (HKPF) shared its experience with drone patrols, which have been implemented in border areas and Yau Tsim Mong District since May 2024, with suburban patrols ongoing for 2–3 years and plans to expand to Cheung Chau and Lamma Island's peaks. The HKPF emphasized strict adherence to safety and privacy protocols—flight altitude is limited to 90 meters, flights parallel to building windows are prohibited, and drones are equipped with red and blue flashing lights and reflective markers, with public notices issued 7 days in advance—while noting challenges such as insufficient operator training duration and staffing shortages, and calling for expanded drone docking stations and more law enforcement scenarios like aerial broadcasting. The Lands Department (LD) added insights into its long-term use of drones for land management and data collection, including a 5-year project to develop 3D digital maps for smart city development, and its progress in building a satellite positioning reference network already applied in scenarios like horse racing rankings and automatic stadium line marking. It also addressed concerns about GPS interference, noting that while full-coverage high-density monitoring is impractical, regional monitoring initiatives are being explored to enhance oversight.

Industry associations and enterprises contributed practical experiences, market insights, and technical demands, shedding light on the gap between policy and practice. The Hong Kong Aviation Industry Association (Hong Kong AIA) highlighted Hong Kong's unique advantages—superior geographical location, sound legal framework, solid innovation foundation, and synergistic potential with the Greater Bay Area (GBA), particularly Shenzhen—backed by national support. It outlined a phased development approach: upstream industry research has been advanced, with this meeting focusing on midstream, downstream, and user markets, and subsequent steps including field visits and data collection to compile a comprehensive report. The association advocated for cross-regional cooperation, streamlined fixed route application processes, and exploration of LAE applications in tourism and sports events. SAE Hong Kong Section, as a standard-setting body, offered access to SAE International's patents and standards to align Hong Kong's LAE component production and equipment manufacturing with international norms, while advising the government to adopt a forward-looking approach to planning, given LAE's transformative impact on land, maritime, and aviation transport sectors. Enterprise representatives shared firsthand challenges and aspirations: China Light & Power Company Limited, which established a drone fleet in 2018 and obtained logistics permits in 2021, currently operates 4 beyond-visual-line-of-sight (BVLOS) routes for power line inspections but noted that Hong Kong's restricted airspace and low-density scenarios limit application scale compared to Chinese Mainland's State Grid, calling for clear safety standards within a regulatory framework to reduce administrative costs for new application testing and planning to expand into power facility maintenance and emergency response. Star Vision Intelligent Surveying and Mapping Services Limited, a sandbox-participating enterprise, has completed BVLOS pilots for 3D mapping and urban modelling but cited core challenges including institutional and legal frameworks lagging behind technological advancement, unclear "low-altitude" definition in Hong Kong's Aeronautical Information Publication (AIP), insufficient integration of UTM and ATM systems, and ambiguous aviation law-related operational procedures; it proposed joint efforts by the government and industry to clarify airspace rules, promote data sharing, align with ICAO standards, and strengthen operator emergency training. Flightpro Drone Solution Limited, which specializes in drone operator training and collaborates with the Lands Department, emphasized the need for high-precision satellite signal reception and positioning enhancement, suggesting reference to large aircraft systems like IRS and EGBWS to improve drone positioning accuracy and stability, while linking airworthiness certification with maintenance standards. Other enterprises, such as AOC Skyland Limited and Lee Wai Kee Limited, expressed concerns about profitability—noting that few enterprises have achieved sustainable profits despite government support—and recommended exploring commercialization paths in tourism and logistics while lowering industry entry barriers; they also identified key technical R&D priorities, including battery energy density, lightweight design, communication and positioning accuracy, 3D collision avoidance technology, and rapid energy replenishment.

Educational institutions and other stakeholders focused on talent development, infrastructure construction, and cross-sector coordination, addressing long-term foundational needs. The Hong Kong International Aviation Academy drew lessons from Chinese Mainland's large-scale LAE training market and tightening regulatory standards, suggesting Hong Kong separate training and examination institutions to avoid conflicts of interest and strengthen training standard oversight. It stressed that safety is critical for long-term development in Hong Kong's densely populated environment, calling for strict training entry requirements, rigorous assessment mechanisms, and enhanced public safety awareness. Other participants emphasized the urgency of infrastructure development, urging prioritization of global navigation system enhancement stations, take-off/landing sites, and charging facilities—highlighting land supply as a core challenge and proposing public-private partnership (PPP) models for implementation. They also recommended using AI technology for privacy protection (e.g., image blurring) and establishing data storage time limits, while advocating for the development of PNT (Positioning, Navigation, Timing) economy to enable multi-device coordination and precise synchronization. Additionally, they called for a cross-sector coordination mechanism to clarify standards and data sharing rules, streamline approval processes for event-based and cross-border logistics scenarios, and drive large-scale LAE development.

Key Challenges Identified
Synthesizing stakeholder discussions, the core challenges facing Hong Kong's LAE development are multi-faceted:

CHAPTER 4: ON-SITE INVESTIGATION AND PRACTICAL INSIGHTS

To supplement the global and regional analysis of the low-altitude economy (LAE) and gain first-hand insights into industrial application practices, the research team conducted on-site investigations of two leading enterprises in the LAE sector: Damoda, a drone performance solution provider, and Meituan UAV, a low-altitude logistics innovator focusing on food delivery. The investigations included visits to production lines, product demonstration sites, and in-house showcases, followed by in-depth discussions with enterprise representatives. The findings from these on-site interactions provide valuable practical references for Hong Kong's LAE development strategy, particularly in terms of technological application, scenario adaptation, and industrial collaboration.

4.1 Damoda: Drone Performance Solutions and Technological Advantages

Damoda specializes in integrated solutions for drone performances, encompassing performance-grade UAV hardware, cluster control software, technical training, and on-site performance services. As the current holder of the Guinness World Record for the largest number of drones in a single performance, the company has established a mature industrial chain and technical system.

4.1.1 Production and Product Maturity

The company operates two final assembly production lines with an annual production capacity of tens of thousands of units, supporting large-scale commercial applications. Its products have evolved to the fourth generation, with notable advancements in safety redundancy design—an essential technical requirement for low-altitude operations. The redundant design effectively mitigates risks associated with equipment failure, laying a solid foundation for the safe popularization of low-altitude aerial services.

4.1.2 User-Centric Technological Innovation

Damoda's core competitiveness lies in its self-developed cluster control software and supporting communication hardware, which enables efficient and intuitive management of large fleets of UAVs. User-friendly interactive functions such as automatic homing and charging, as well as contactless startup, significantly reduce the learning curve and operational costs. For users with 3D modelling experience, proficiency in drone performance choreography and execution can be achieved within just a few days, demonstrating strong adaptability to market demands for rapid deployment.

4.2 Meituan UAV: Low-Altitude Logistics Practice in Food Delivery

Meituan UAV focuses on providing equipment and technical support for low-altitude logistics, with a primary focus on food delivery services. The company's on-site exhibition and technical seminars showcased its in-depth layout and mature application capabilities in the low-altitude logistics sector.

4.2.3 Scenario Application and Market Landing

Benefiting from favorable policy frameworks and vibrant market demand, Meituan UAV has concentrated on its low-altitude logistics operations in Shenzhen, where it maintains a substantial daily order volume. This practical experience verifies the commercial viability of low-altitude logistics in urban scenarios, especially for last-mile delivery. The company's flagship six-rotor UAV has undergone multiple iterations and can operate stably under diverse working conditions, including complex urban environments and varying weather conditions.

4.2.4 Infrastructure and Product Optimization

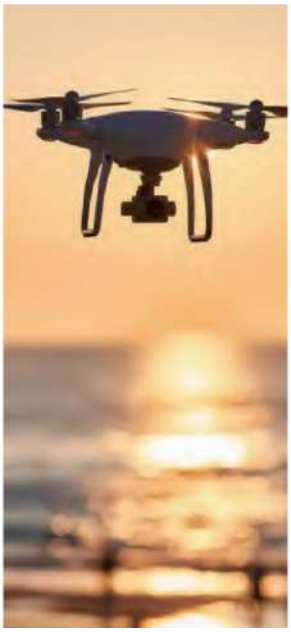
As a key infrastructure component, Meituan's takeoff and landing stations feature an integrated design for both receiving and dispatching, expanding their applicability without increasing land occupation—an important reference for space-constrained regions like Hong Kong. The company's patented logistics box incorporates protective performance, lightweight design, and reusability, balancing functional requirements with energy conservation and environmental protection, aligning with the global trend of sustainable LAE development. Additionally, Meituan has explored multi-modal delivery solutions integrating UAVs and autonomous vehicles, demonstrating the potential for diversified low-altitude logistics ecosystems.

4.2.5 Airspace Management and Technical Exchange

A core focus of the seminar was Meituan's airspace management system, particularly its key "time-space capsule" technology. This technology optimizes route planning and conflict avoidance by segmenting low-altitude airspace into time-specific, geographically defined "capsules," ensuring safe and efficient operations. The investigation team also discussed the feasibility of establishing industry standards for airspace management and integrating multiple manufacturers and operators into a unified low-altitude traffic management system—issues highly relevant to Hong Kong's cross-border LAE operations and infrastructure construction.

4.3 Key Insights from the Investigation

The on-site investigations of Damoda and Meituan UAV yielded three critical practical insights that complement the report's earlier analysis: Technology Maturity Drives Scenario Expansion: Mature hardware production capacity (e.g., Damoda's mass production lines) and user-centric technical optimization (e.g., simplified operation, safety redundancy) are prerequisites for LAE commercialization. For Hong Kong, prioritizing partnerships with technology-leading enterprises can accelerate the validation of local application scenarios. Infrastructure Adaptability is Critical to Urban LAE: Meituan's space-saving integrated takeoff and landing stations and environment-friendly logistics solutions provide a model for Hong Kong, where land resources are scarce. The city's future vertiport planning must emphasize compact design, multi-functional integration, and sustainability. Unified Airspace Management and Standardization are Urgent Needs: The challenges of cross-entity collaboration in airspace management, highlighted by Meituan's "time-space capsule" technology and the discussion on industry standards, resonate with Hong Kong's need for cross-border airspace coordination with the Greater Bay Area (GBA). Establishing compatible technical standards and collaborative management mechanisms is essential for realizing efficient cross-border LAE operations. These practical insights reinforce the report's earlier conclusions and recommendations, emphasizing that Hong Kong's LAE development must leverage its strengths in service integration and standard-setting while drawing on proven technological and operational models from leading enterprises to address local constraints.



CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Global regions are advancing the low-altitude economy with differentiated strategies based on their own conditions. The Chinese Mainland leads the world in industrial scale, complete supply chains and large-scale commercial applications. The United States takes the lead in private technological innovation, Europe dominates in unified regulatory framework formulation. The Middle East promotes rapid implementation with strong financial support. ASEAN develops based on local market demands. Latin America, Africa and Oceania focus on niche applications to make up for infrastructure deficiencies and have huge market potential. As of May 2026, the global low-altitude economy has entered a critical stage from pilot trials to large-scale commercialization, and the overall competition pattern has taken initial shape.

Hong Kong has unique advantages in the global landscape. It is an international hub for finance, trade, shipping and professional services with a sound legal system, strong university R&D capabilities and close ties with the Greater Bay Area and the whole world. Hong Kong has completed preliminary policy design, sandbox trials and industry-university-research layout for the low-altitude economy, and is fully equipped to build a global high-value service hub for this industry.

Different from manufacturing-oriented regions, Hong Kong shall focus on enabling services and cross-regional connectivity instead of large-scale production. Its core positioning is to become a global service hub, standard-setter, cross-border super-connector and high-end innovation centre for the low-altitude economy. Hong Kong can provide global players with international financing, airworthiness certification, professional insurance, legal services and high-end R&D support. This positioning helps Hong Kong break through geographical constraints, diversify its economic structure and consolidate long-term global

Beyond its established strengths in professional services, Hong Kong possesses significant untapped potential in high-value manufacturing and technological R&D for the low-altitude economy sector. As Hong Kong's key manufacturing industry supporting organization, together with local universities and research institutions, has already established robust capabilities in critical enabling technologies essential for eVTOL and drone development. These include lightweight composite materials, hydrogen fuel cell technology, advanced noise reduction, solid-state battery innovation, and sophisticated digital airspace management systems leveraging digital twin technology. Rather than pursuing large-scale final assembly, Hong Kong can adopt a specialized 'micro-factory' model for high-precision component manufacturing and technology development, with mass production executed through Hong Kong enterprises' manufacturing facilities in the Greater Bay Area, Mainland China, or overseas. This approach allows Hong Kong manufacturers to diversify into the low-altitude economy value chain, capturing high-margin segments while leveraging regional manufacturing synergies. The integration of manufacturing and R&D capabilities will significantly enhance Hong Kong's comprehensive competitiveness in the global low-altitude economy ecosystem, creating new industrial opportunities beyond traditional service sectors.
Different from manufacturing-oriented regions, Hong Kong shall focus on enabling services and cross-regional connectivity instead of large-scale production. Its core positioning is to become a global service hub, standard-setter, cross-border super-connector and high-end innovation centre for the low-altitude economy. Hong Kong can provide global players with international financing, airworthiness certification, professional insurance, legal services and high-end R&D support. This positioning helps Hong Kong break through geographical constraints, diversify its economic structure and consolidate long-term global competitiveness.

5.2 Development Recommendations

Based on global low-altitude industry trends and Hong Kong's strengths in location, infrastructure and aviation regulation, the article outlines a three-phase development roadmap of "pilot verification – scale expansion – hub formation", together with five core strategic directions, to support the industrialization, scaling-up and internationalization of Hong Kong's low-altitude economy.

I. Phased Implementation Roadmap

1. Pilot Application and Regulatory Verification Stage

This stage focuses on launching low-risk, controllable low-altitude demonstration applications. Priority is given to mature scenarios including urban facility inspection, remote-area emergency support and lightweight low-altitude logistics to accumulate practical operational data on airspace management, vehicle airworthiness and on-site operations. Meanwhile, key constraints concerning airspace administration, urban safety, privacy protection and noise control are systematically sorted out to establish basic operational specifications and safety standards. The preliminary industrial verification lays a solid foundation for future scaled development and prevents regulatory and safety risks arising from blind expansion.

2. Scenario Expansion and Industrial Accumulation Stage

Building on verified pilot outcomes, Hong Kong will gradually expand the coverage and operational hours of low-altitude applications and turn demonstration projects into regular commercial operations. Industrial coordination with Greater Bay Area cities will be strengthened to explore cross-border scenarios such as cross-region low-altitude flight demonstrations, joint medical supply delivery and integrated infrastructure inspection. Local supporting systems will be improved to introduce low-altitude operation services, technical maintenance and safety monitoring industries, foster local professional service teams, expand the industrial ecosystem, and form replicable and promotable commercial operation models.

3. Ecosystem Maturity and Hub Establishment Stage

By integrating airspace resources, infrastructure, industrial participants and regulatory standards, Hong Kong will build an internationally competitive low-altitude economic ecosystem. It will expand cross-border and global industrial cooperation channels, leveraging its advantages in international aviation, trade and professional services to gather global resources in eVTOL operation, drone services, low-altitude R&D and capital support. Hong Kong will develop into a low-altitude economic hub radiating the Greater Bay Area and connecting global markets, realizing comprehensive commercialization, industrial clustering and internationalized service capabilities.

II. Five Core Development Strategies

Strategy 1. Scenario-Driven Steady Development to Build a Gradient Commercial System

Considering Hong Kong's compact urban layout, rigorous safety standards and sophisticated public services, the industry follows a development principle of "from low-risk to high-value applications and from pilot testing to large-scale operation". Public service scenarios including facility inspection, emergency rescue and medical delivery are prioritized for implementation, followed by commercial scenarios such as urban air mobility, aerial tourism and high-end logistics. The gradient layout ensures orderly and stable industrial growth and avoids impetuous scale expansion.

Strategy 2. Regulatory Innovation and International Alignment to Build an Open and Standardized System

Based on Hong Kong's mature civil aviation governance framework and referencing ICAO and advanced international regulatory practices, local low-altitude operational mechanisms will be continuously optimized. Centred on inclusive and flexible regulation, Hong Kong will improve supporting rules covering eVTOL and drone airworthiness certification, pilot qualification management, airspace application, vertiport operation and safety supervision. Regulatory sandboxes will be fully utilized to accommodate trials of new technologies, scenarios and business models. While safeguarding urban safety and public interests, the framework lowers innovation thresholds and establishes a regulatory system that balances international compatibility, flexibility and robustness.

Strategy 3. Greater Bay Area Integration and Cross-Border Collaboration to Strengthen Hub Advantages

Leveraging its strategic location connecting the Greater Bay Area and global markets, Hong Kong will deepen cross-border industrial coordination. It will integrate mainland strengths in low-altitude manufacturing and technological R&D with Hong Kong's advantages in international trade, professional services, certification and cross-border resource integration. Priority cooperation areas include cross-border low-altitude logistics, joint flight testing, standard mutual recognition and talent exchange. A collaborative model of "mainland R&D and manufacturing + Hong Kong service export + global market docking" will be formed to build an integrated Greater Bay Area low-altitude industrial ecosystem.

Strategy 4. Consolidating Supporting Facilities and Aggregating Resources to Consolidate Industrial Foundations

To address industrial bottlenecks, Hong Kong will strengthen three core supporting dimensions: infrastructure, talent and capital. It will construct urban vertiport networks, low-altitude monitoring systems and digital airspace management platforms to eliminate hardware constraints on urban low-altitude operations. Comprehensive talent cultivation and introduction mechanisms will be established to fill gaps in flight operation, safety supervision, airspace planning and technical maintenance professionals. Collaborations with international capital and professional institutions will optimize industrial investment, legal compliance, international certification and commercial operation services, supporting the long-term and sustainable development of the low-altitude economy.

Strategy 5. Fostering High-Value Manufacturing and Technology R&D Ecosystem

Building on Hong Kong's established industrial foundation and research excellence, targeted support will be provided for local enterprises and research institutions to develop key technologies and components for the low-altitude economy. Priority technology development areas include: (1) Lightweight composite materials and advanced manufacturing processes, encompassing innovative carbon fiber composite structures, high-performance alloy materials, and additive manufacturing techniques for precision drone components; (2) Next-generation power systems, including high-energy-density solid-state batteries and hydrogen fuel cell technologies, building on ongoing academic research and industry collaborations in Hong Kong; (3) Noise reduction technologies for eVTOL and drone operations, drawing on advanced aeronautical engineering research in rotor blade design and acoustic optimization; (4) Advanced cluster control systems and digital airspace management platforms, incorporating digital twin technology and AI-powered dynamic route optimization. The government will establish dedicated funding schemes to support R&D projects in these strategic areas, while promoting a "Hong Kong R&D + GBA Manufacturing" model that enables local enterprises to conduct technology development prototype making and critical components micro factory production in Hong Kong, with scaled manufacturing executed in their Greater Bay Area facilities. This strategy will enable Hong Kong's manufacturing sector to diversify into high-value segments of the low-altitude economy value chain, creating new growth opportunities while reinforcing the city's position as a regional innovation hub.

主辦機構
Organiser

Hong Kong Aviation Industry Association
香港航空業協會

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