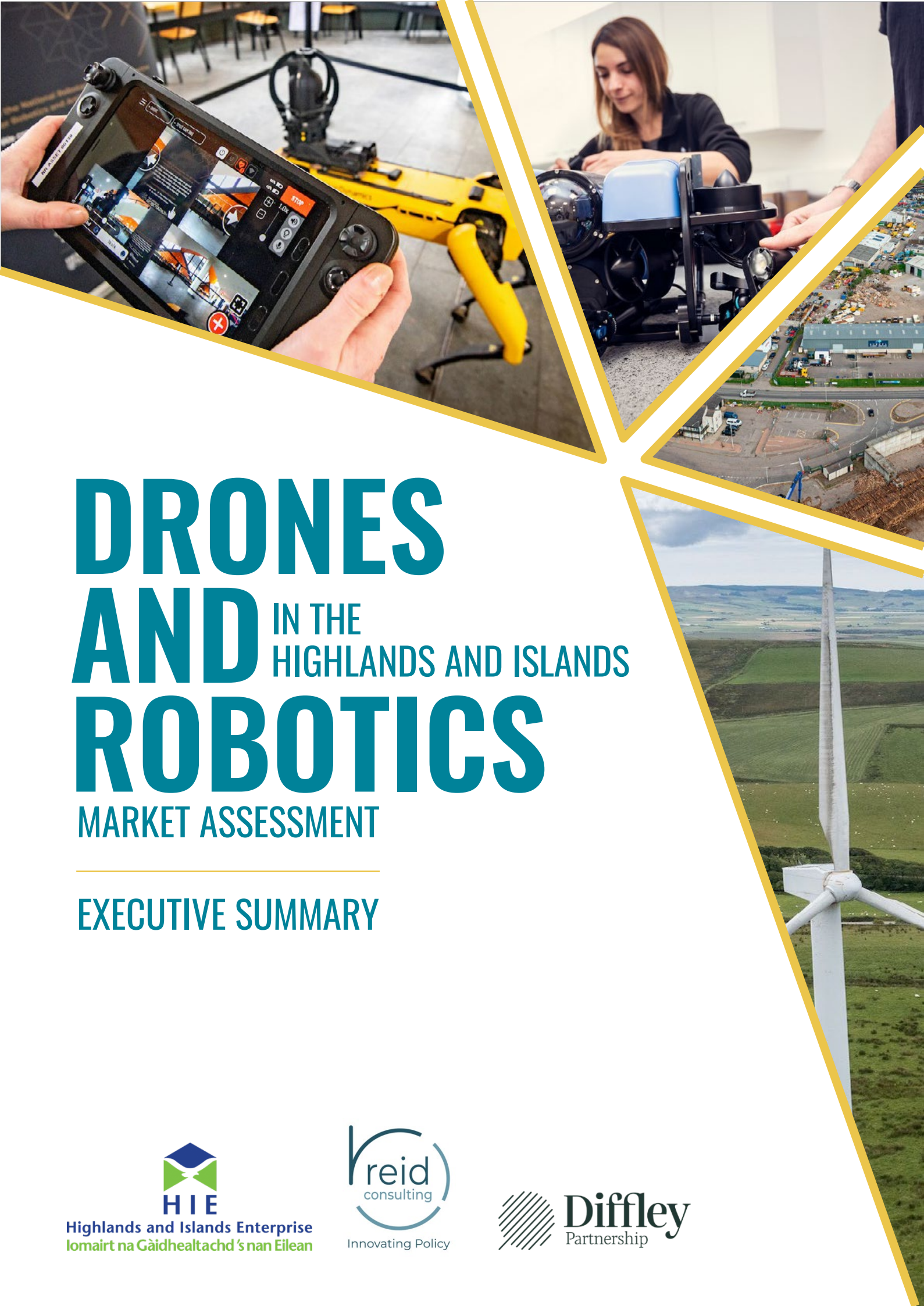




DRONES AND IN THE HIGHLANDS AND ISLANDS ROBOTICS

MARKET ASSESSMENT

EXECUTIVE SUMMARY

Introduction

This small but comprehensive research study, commissioned by Highlands and Islands Enterprise, assesses the market potential for drones, marine robotics and related autonomous systems in the Highlands and Islands, with particular focus on Argyll and the Islands and an emerging cluster in Oban and North Lorn. It considers aerial drones, uncrewed surface and underwater systems, and, more selectively, ground-based robotics, examining their market prospects, regulatory conditions, infrastructure and skills requirements, and strategic fit with regional economic development. The purpose is not only to assess whether these technologies matter, but to identify how the region can use them in practical ways to improve services, strengthen key sectors and support longer-term regional transformation opportunities and rural and island population well-being. The study recognises that other parts of the region, notably Orkney, are also progressing related activity, with some points of overlap. This creates synergies which add to rather than detract from the overall regional proposition.

The study is grounded in stakeholder consultation as well as desk research. It combined a market and policy review with semi-structured interviews and a regional survey. In doing so the assessment captured not only market trends, but also regulatory barriers, skills requirements, infrastructure gaps, social acceptance and delivery conditions. Fieldwork took place during February and March 2026, including interviews with 19 individuals from 13 organisations across public, private and research sectors, alongside a survey that received 49 responses. The evidence is rooted largely in practitioner and user perspectives: 71% of survey respondents were businesses, with additional input from universities, research organisations, public bodies and others, and responses were drawn from Oban and wider Argyll, the Highlands and Islands more broadly and locations elsewhere in Scotland and the UK.

Key Findings

This study finds that drones, marine robotics and related autonomous systems represent a credible strategic opportunity for the Highlands and Islands, not as a narrow technology niche but as enabling infrastructure for better services, safer operations and a more resilient rural economy. The strongest immediate case is not based on speculative manufacturing growth, but on practical deployment in sectors where distance, weather, safety risks and workforce constraints already create high operating costs: offshore renewables, aquaculture, marine science, infrastructure inspection, environmental monitoring, emergency response and logistics. Within that wider regional picture, **Oban and North Lorn stands out as a credible and distinctive location to anchor a cross-domain hub** because it brings together airport infrastructure, marine science capability, access to demanding coastal conditions, and links to sectors that can become early users rather than passive observers.

For decision makers, the report's central message is that **the opportunity should be approached as a place-based delivery system rather than a stand-alone technology project**. In other words, the value of a hub in Oban lies not simply in building facilities, but in connecting regulation, test activity, operator training, research, service demand and public investment so that uncrewed systems can move from pilots to repeatable operations. If that coordination is achieved, the region can support year-round high-value jobs, strengthen public

and industrial services in remote areas and create a distinctive role for the Highlands and Islands within Scotland and the wider UK autonomy ecosystem.

The consultation evidence shows that awareness and use of uncrewed systems are already established in the region, but uneven across domains and sectors. Most widely used, especially for mapping, site surveys and inspection, are aerial drones. Underwater and ground systems are less widely understood but already embedded in specialist marine, scientific and environmental tasks. Interviewees consistently described unmanned systems as most valuable where they solve a practical problem: reducing risk, avoiding costly vessel or helicopter use, extending reach into hard-to-access areas, and improving the frequency and quality of data collection. This is important because it suggests the market is strongest where adoption is service-led and problem-led, not where the technology is promoted in the abstract.

The broader Highlands and Islands context is central to the case for investment. Across the region, the same characteristics that create economic and public-service challenges also create a strong use environment for autonomy: dispersed settlements, island-mainland connections, exposure to severe weather, complex coastlines, growing offshore energy activity, extensive environmental assets and pressure on workforce availability. These conditions mean the region is particularly well suited to applications such as healthcare logistics, coastal and seabed monitoring, remote inspection of energy and utility assets, aquaculture operations, search and rescue support, and environmental surveying. **The report therefore argues that the Highlands and Islands should be seen not simply as a market for drone services, but as a real-world proving ground for integrated air, surface, subsea and, over time, ground-based systems.**

This regional opportunity is not concentrated in a single place. The report identifies a wider Highlands and Islands autonomy ecosystem in which different locations offer different strengths. Orkney is already one of the region's most important assets, particularly through the Sustainable Aviation Test Environment (SATE) centred on Kirkwall Airport, through the European Marine Energy Centre (EMEC), which has helped establish Orkney as a recognised location for testing and demonstrating autonomous systems in demanding island and marine conditions. Alongside this is the development of the Blue Robotarium which plans to leverage robotics, data management and AI expertise to facilitate the safe and sustainable growth of the global blue economy. In that context, **Oban and North Lorn should be seen not as a substitute for Orkney, but as a complementary west-coast anchor within a distributed regional proposition, with strong links into marine science, aquaculture, the Argyll economy and the wider Rural Growth Deal investment framework.**

Within that regional system, Oban and North Lorn have an especially strong combination of assets. On the marine side, the area benefits from the presence of the Scottish Association for Marine Science (SAMS) and the European Marine Science Park (EMSP). These ecosystems provide research capability, marine operations expertise, facilities, and direct links into ocean science, aquaculture, environmental monitoring and blue economy activity. These are not abstract strengths, they create a foundation for everyday use, testing and refinement of remotely operated and autonomous marine systems such as Remotely Operated Vehicles (ROVs), Unmanned Underwater Vehicles (UUVs) and Unmanned Surface Vehicles (USVs) in

conditions that matter to commercial and public users. The surrounding marine environment is itself an asset because it offers the harsh and variable operating conditions needed to validate systems for offshore renewables, marine observation, subsea inspection and environmental compliance.

The aerial proposition is also significant. Oban Airport gives the area a practical foothold for test, training and deployment activity. The report positions the airport as a potential Unmanned Aerial Vehicle (UAV) logistics, research, maintenance and testing facility with applications in healthcare delivery, energy inspection, island connectivity and emergency response. This matters because the region's competitive strength is less about large-scale aircraft manufacturing and more about operational validation in low-density but demanding airspace, especially as the Civil Aviation Authority's roadmap is intended to make beyond visual line of sight operations routine across the UK by 2027.

In parallel, recent regional trials show that rural Scotland is already moving beyond proof of concept toward early operational readiness. Argyll and Bute Council collaborated with Skyports to explore practical use cases such as inspections, sample collection and service delivery for remote communities. Project CAELUS, a Scotland-wide medical logistics programme led by AGS Airports with NHS and technology partners, tested how drone networks could support the movement of medical supplies and diagnostics. The Sustainable Aviation Test Environment (SATE), led by HITRANS and based in Kirkwall Airport in Orkney, has established a nationally significant low-carbon aviation and drone test environment supporting use cases in healthcare, freight, island logistics and public services. Taken together, these initiatives show that **the main challenge is now less about proving the technology works and more about regulation, operating models, infrastructure and long-term demand.**

The value of the Oban and North Lorn area proposition is therefore in combining assets across marine and aerial systems rather than forcing a single-technology model. The report's evidence suggests that **the strongest long-term proposition is a broader autonomy hub that can connect air, sea and eventually land applications, linking airport operations, marine science, test environments, service deployment and skills provision.** This **cross-domain model matters** because major user markets increasingly need integrated solutions: for example, offshore energy inspection can combine aerial survey, surface communications and subsea monitoring, while public services may need drones, digital platforms and remote logistics systems to work together rather than separately. Oban and North Lorn's role is therefore best understood as a centre of gravity within a distributed Highlands and Islands ecosystem, complementing other regional assets (notably the testing and development of aerial, marine and land autonomous systems on Orkney).

The policy and investment context strengthens this case. At UK and Scottish levels, support for autonomy is shifting from strategy toward deployment through Future of Flight, maritime autonomy initiatives, innovation funding, offshore energy transition programmes and regulation for more routine advanced operations. At Highlands and Islands level, policy is strongly place-based and focused on economic resilience, net zero, innovation in core sectors and strengthening fragile communities, which means autonomous systems align with wider goals rather than sitting outside them. In this context, **the proposed hub is relevant not only**

because of the technology itself, but because it can help deliver outcomes that policy already values: better connectivity, improved service delivery, safer operations, economic diversification and retention of skilled people in rural areas.

The Argyll and Bute Rural Growth Deal is an important part of that delivery framework. The Growth Deal is a response to long-standing structural challenges including depopulation, limited connectivity, labour shortages and reliance on seasonal or lower-value activity. **The drones and robotics hub should be understood as enabling infrastructure within this wider programme rather than as a stand-alone project.** Its relevance comes from the way it can connect with other priorities on transport, housing, skills, innovation and business development, while also reinforcing strategic sectors such as marine science, aquaculture, offshore energy and public services. In practical terms, this means the hub can add coherence to wider public investment by acting as a shared platform for trials, training, maintenance, operations and innovation across multiple Growth Deal objectives.

The report's SWOT assessment reinforces this strategic case, while also highlighting the conditions for success. Key **strengths** include the combination of Oban Airport, SAMS, EMSP, marine robotics capability, and access to relatively uncongested airspace and demanding coastal waters. The main **weaknesses** are limited local skills depth beyond specialist niches, dependence on public funding, and the need to move from promising assets to a more mature commercial cluster. The strongest **opportunities** lie in offshore renewables, aquaculture, marine monitoring, logistics and public-service delivery, especially as BVLOS regulation evolves, as well as collaborative opportunities at regional level; the main **threats** are regulatory delay, competition from better-established test locations, continued workforce constraints and the risk that activity remains fragmented or pilot-based rather than scalable.

The report also makes clear that this is about more than aerial systems. A broader robotics and autonomy proposition can support defence-related capability spillovers linked to Faslane, strengthen year-round employment in a seasonal economy, and help ensure that regional waters and airspace become part of the UK's future operating environment for uncrewed systems. It can also support population retention indirectly by creating higher-value technical jobs and by strengthening the case for complementary investment in housing, infrastructure and skills. Hence, **the hub should be treated as a connecting layer across Argyll and Bute Growth Deal projects and broader regional activity, helping individual investments contribute to a longer-term economic transformation rather than operating in isolation.**

The evidence does, however, point to real constraints. The main barriers are not lack of interest nor lack of plausible use cases. **Barriers are regulatory complexity, fragmented coordination, skills shortages, infrastructure gaps and the challenge of building sustained demand beyond one-off pilots.** Stakeholders were especially clear that beyond visual line of sight approvals, access to test environments, clearer routes through regulation, and a stronger local skills pipeline are all necessary if the region is to move from demonstration to adoption at scale. They also stressed that public confidence and market credibility will depend on visible practical benefit, strong governance and communication that explains safety, privacy and community value in plain language.

Comparative evidence from other UK, Nordic and European hubs suggests that successful autonomy clusters are not built around infrastructure alone. The strongest examples combine clear specialisation, access to real operating environments, streamlined testing and approvals, anchor customers, strong institutional coordination and a visible pipeline from research to deployment. **For the Highlands and Islands, the main lesson is that competitive advantage will come less from trying to replicate large urban or more densely populated or defence-led facilities and hubs and more from offering a distinctive rural, coastal and island operating environment in which autonomous systems can be tested and deployed in real service conditions.**

Conclusions and recommendations

The evidence suggests that investment should be phased and tightly focused. The report recommends progressing Oban and North Lorn as an integrated test, training and deployment hub; building demand through a small number of flagship deployments in areas such as NHS logistics, energy inspection, aquaculture monitoring and emergency response; securing anchor customers while strengthening technician and operator training pathways; and improving coordination, positioning and public communication across the regional ecosystem. This sequence reflects a simple principle: the Highlands and Islands should build from real demand and visible service value, not from infrastructure alone.

The report recommends a phased approach built around four priority actions:

1. Establish Oban and North Lorn as an integrated test, training and deployment hub across air and marine systems;
2. Build demand through a focused portfolio of flagship deployments in areas such as NHS logistics, energy inspection, aquaculture monitoring and emergency response;
3. Secure anchor customers and strengthen skills pathways, particularly technician, operator and data-skills pathways; and
4. Improve coordination, positioning and public communication across the regional ecosystem, emphasising collaborative potential within and across the region.

The proposed roadmap moves in stages from enabling conditions and partnership building, to demonstrator activity and skills development, and then to more routine operations and wider commercial adoption. This reflects a consistent finding from the consultation: the region should build from visible service value and operational demand, not from infrastructure in isolation.

Overall, the report concludes that **the Highlands and Islands have the ingredients to become a nationally significant location for drones and robotics, with Oban and North Lorn offering a strong, distinctive and immediate platform for a multi-domain hub.** The opportunity is credible because it is rooted in the region's geography, industrial profile, science base and service needs. Moreover, it aligns with the wider economic aims of the Argyll and Bute Rural Growth Deal and the Highlands and Islands regional transformation agenda. The next step is therefore not to ask whether the technology matters, but to decide how quickly partners can assemble a demand-led hub model that can turn a series of promising assets and trials into a durable regional capability.

Outline Roadmap

Phase	Timeframe	Key Focus	Core Activities	Outcomes
Phase 1: Foundation	0–12 months	Establish leadership and vision	Create single accountable governance structure Align with regulators (e.g. Civil Aviation Authority, Maritime and Coastguard Agency) Define priority use cases (healthcare, energy, aquaculture) Map regional assets and gaps Launch early pilot projects	Clear regional proposition Coordinated stakeholder ecosystem Initial pilots demonstrating value
Phase 2: Capability Build-Out	1–3 years	Develop infrastructure and technical capability	Establish managed test zones (air and marine) Deploy infrastructure (landing sites, charging, data platforms) Attract R&D programmes and industry partners Develop skills and training pathways	Operational test environment Increased industry engagement Strengthened local workforce capability
Phase 3: Integration & Scaling	3–5 years	Transition to routine operations	Scale pilots into commercial services Integrate multi-domain systems (air–sea–land) Expand use cases (logistics, energy, environment) Mature regulatory frameworks (e.g. BVLOS)	Routine autonomous operations Recognition as a national testbed Multi-sector adoption at scale

