ALTON AVIATION CONSULTANCY

Drafting the 4th Aviation Revolution

revolution.aero Dublin

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What is underpinning the 4th Aviation Revolution?

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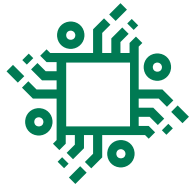
The Vision

New Vehicles
- Clean & quiet
- Economical

New Business Models
- Urban, regional, long range
- Pax, cargo, speciality
- On-demand / scheduled

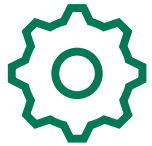
The Enabler

Sustainability
- Net-zero ambitions



Connected Data
- IoT
- Connectivity
- Algorithms

The Unlock



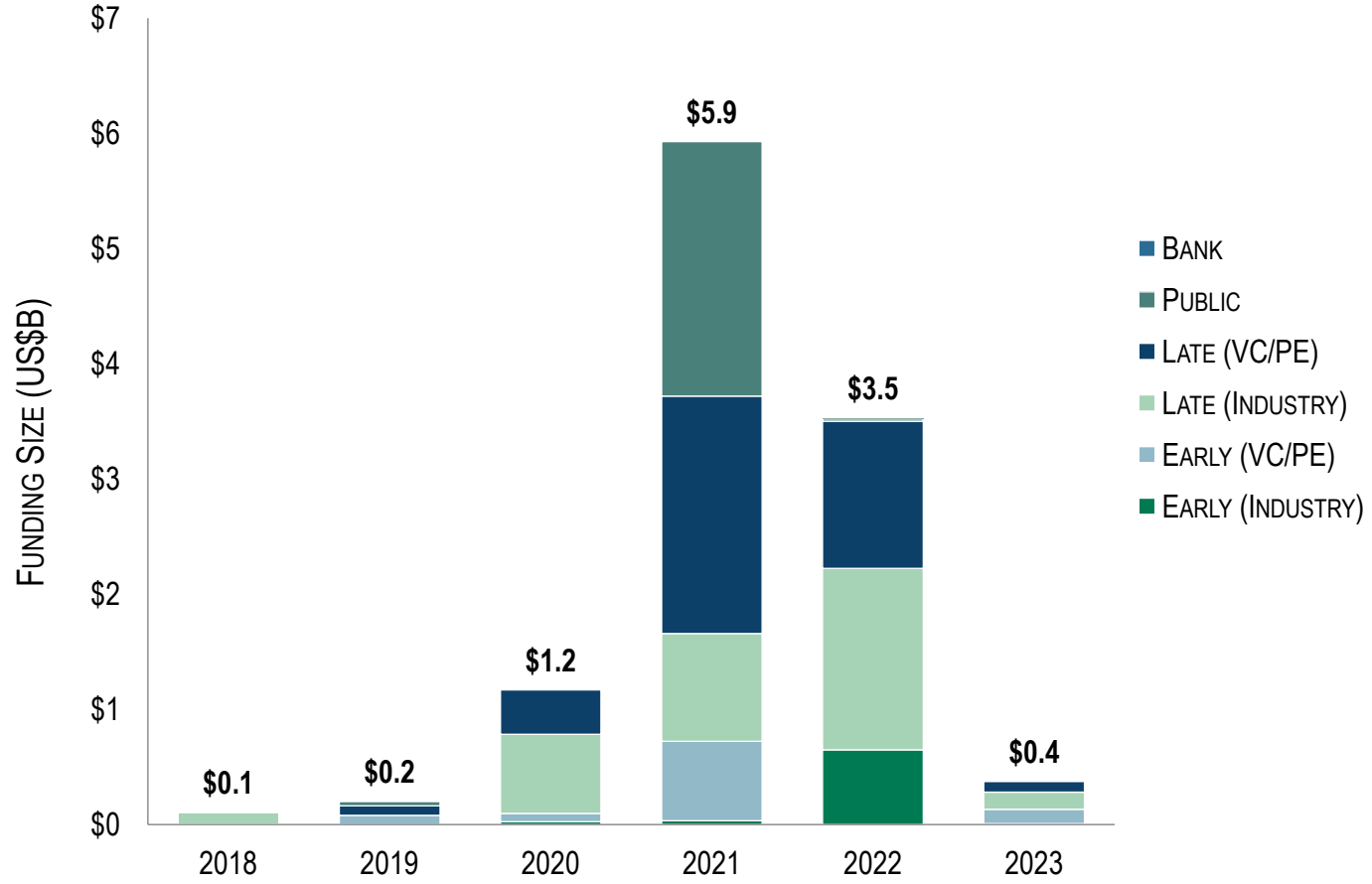
Propulsion Tech
- Battery/electric
- Hydrogen
- Hybrid

Efficiency
- Automation
- Optimization
- Autonomy

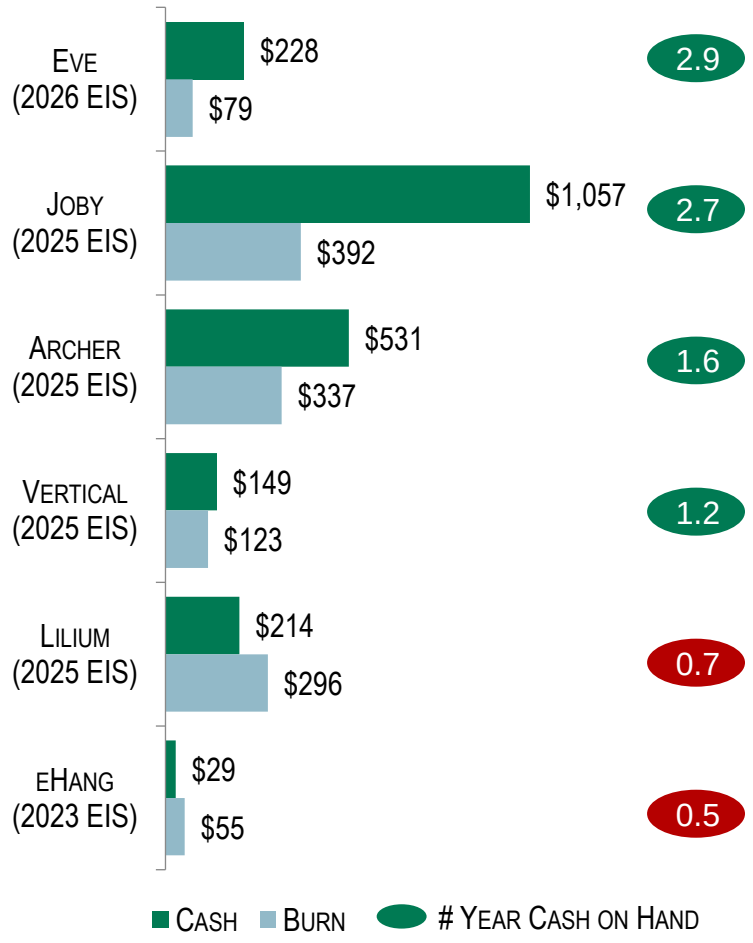
What are the “Need to Believe” statements for the 4th Aviation Revolution?

Need to Believe #1: More funding is needed for OEMs to design, manufacture and certify their vehicles

Historical AAM OEM Fundraising Activities[1]



OEM Cash On Hand and Cash Burn ($M)[2]



Note: [1] Includes tranche funding; Private includes PIPE and Secondary Transactions; Public includes IPO, M&A, Public Investment;
[2] As of December 2022

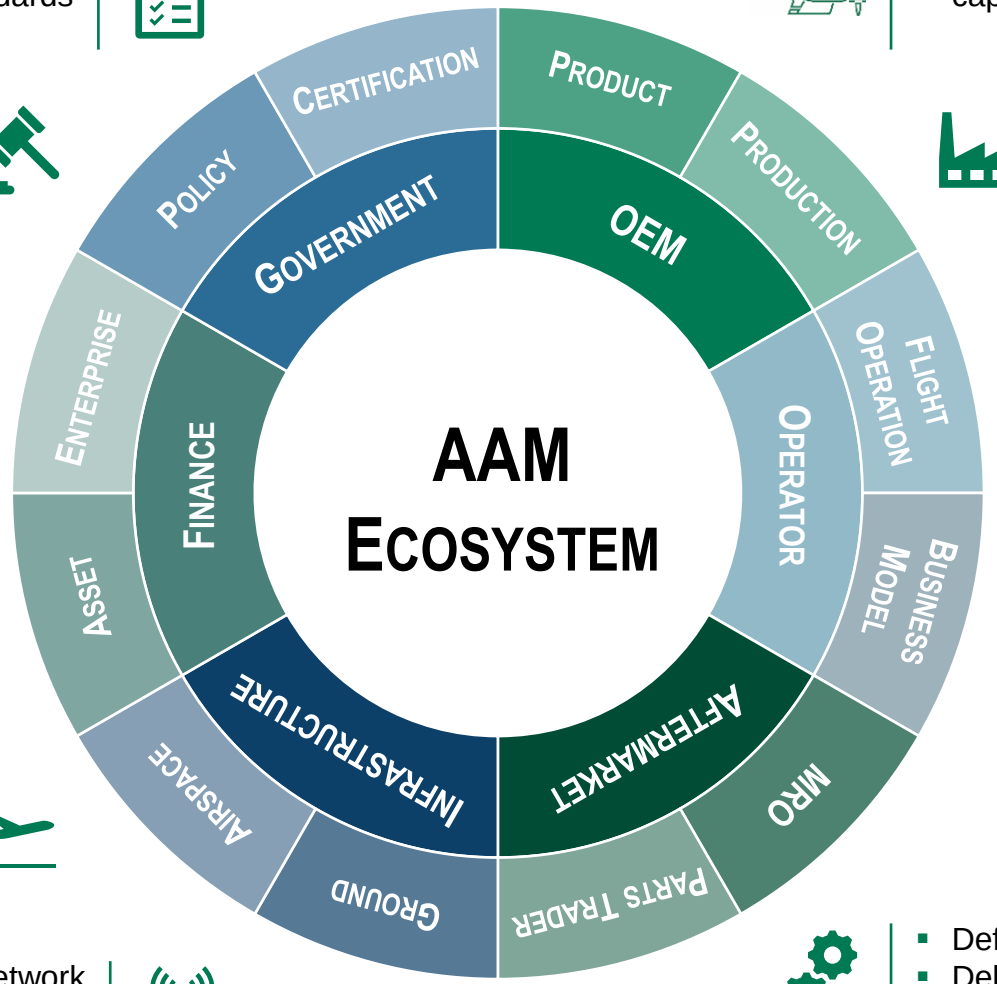
Need to Believe #2: Operators need to be convinced of use cases

Business Model	Have Acquired / Will Acquire[1]	AAM Orders / Current Fleet	Use Case / Rationale
Airline (FSC / LCC / Regional)	20%	10%	▪ **Airport shuttle service,** providing seamless door-to-door transport service ▪ **Expansion of route networks** to incorporate more short-haul inter-city flights
Cargo	14%	7%	▪ **Last mile service** to improve operational efficiency in cities and to improve service availability in remote areas ▪ **Middle mile service** between logistics hubs to support quick delivery cycles
Business & General Aviation[2]	3%	4%	▪ **Like-for-like replacement** of existing aircraft, focusing on sustainability and cost savings ▪ **Opportunistic play** to become regional partner for airlines ▪ **Expansion of service offering** to complement existing business jet services

Note: [1] Refers to fleet count of operators with eVTOL involvement (orders or funding)
[2] Includes business jets, turboprops, and helicopters
Source: Alton

Need to Believe #3: An ecosystem will develop to support the industry

- Definition and maintenance of safety and certification standards
- Transportation policy / planning
- Community acceptance & promotion
- Economic development
- Provide capital to fund innovation / growth in the industry
- Promote efficient capital allocation through financing of aircraft and AAM assets
- Airspace CONOPS
- UTM development and integration
- Green / brownfield vertiport network
- Development of service suite: energy mgmt, CNS, CEX etc.



- Continued product innovation to capture larger addressable market
- Define manufacturing strategy: sourcing, siting, production setup
- Human capital development
- Defining the operating model, esp. for unscheduled operations
- Commercialization of use cases
- Achieving business model sustainability
- Defining AAM maintenance programs
- Delivering MRO and supply chain services in a hyper-local environment

Need to Believe #4: There will be social acceptance of these new vehicles and new service models

Market Acceptance

Consumers
- Attractive use cases
- Strong value proposition

Capital providers
- Return on investment

Industry
- Business growth opportunities
- Financial returns

Community Acceptance

Residents
- NIMBY mindset
- Noise and visual pollution

Local authorities
- City / transportation planning
- Social equity

Political Acceptance

Regulators
- Safety
- Certification

Governments and policy makers
- Economic development / impact
- Sustainability impact

Vision x Reality: Are we there yet?

Vision x Reality: Are we there yet?

The Vision

New Vehicles

- Short-to-medium range
- Clean & quiet
- Economical

New Business Models

- Urban, regional, long range
- Pax, cargo, speciality
- On-demand / scheduled

The Challenge

OEMs

- Building technology is hard
- Certification needs to amortize the risks upfront
- Funding in a difficult capital markets environment

Operators

- Sustainable business models needed
- Use case envelope limited by technology

Ecosystem

- CONOPS / ecosystem integration
- Build out of air / ground infrastructure
- Development of aftermarket services
- Human capital development

Social Acceptance

- Individuals as residents and consumers
- Fulfilling public policy ambitions

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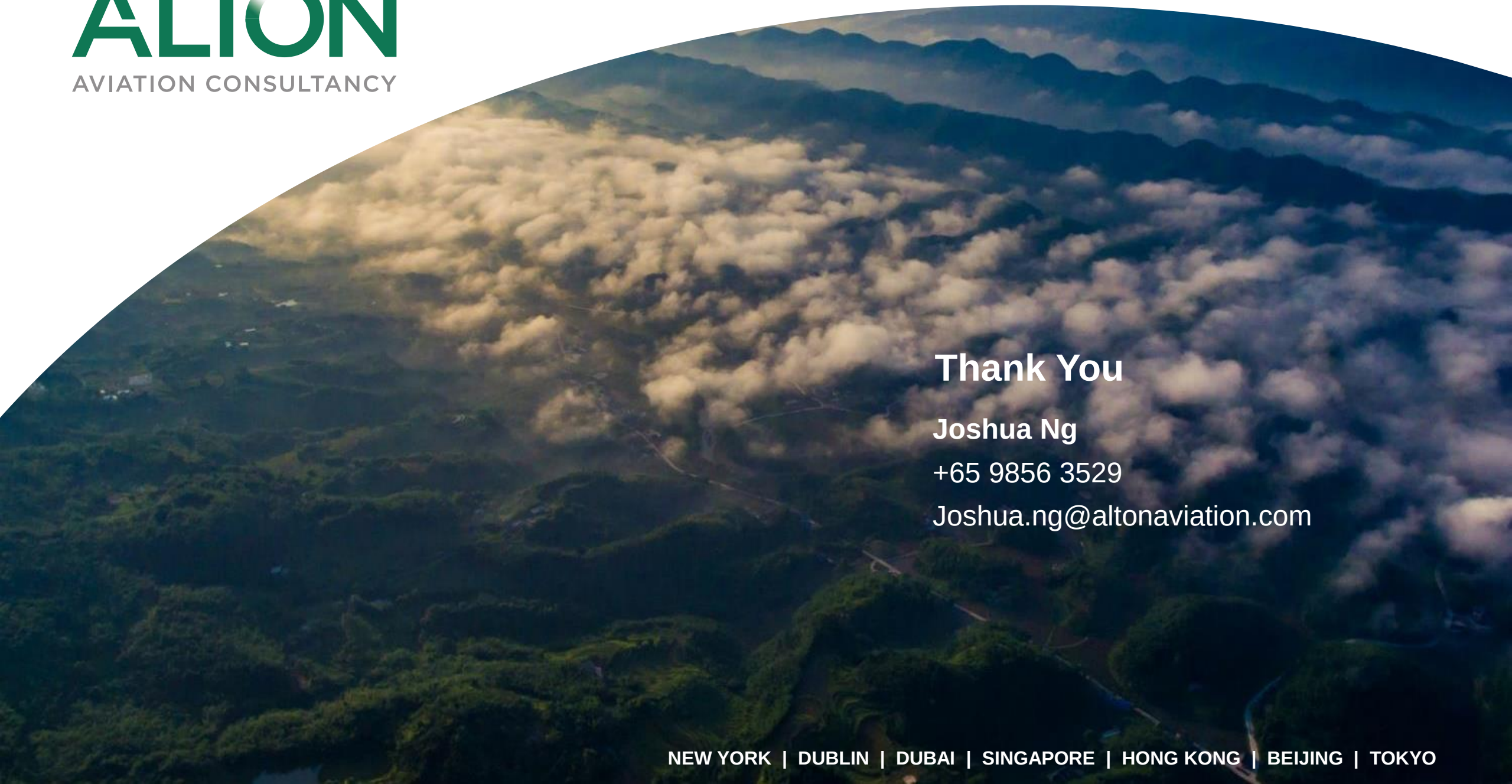

Thank You

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