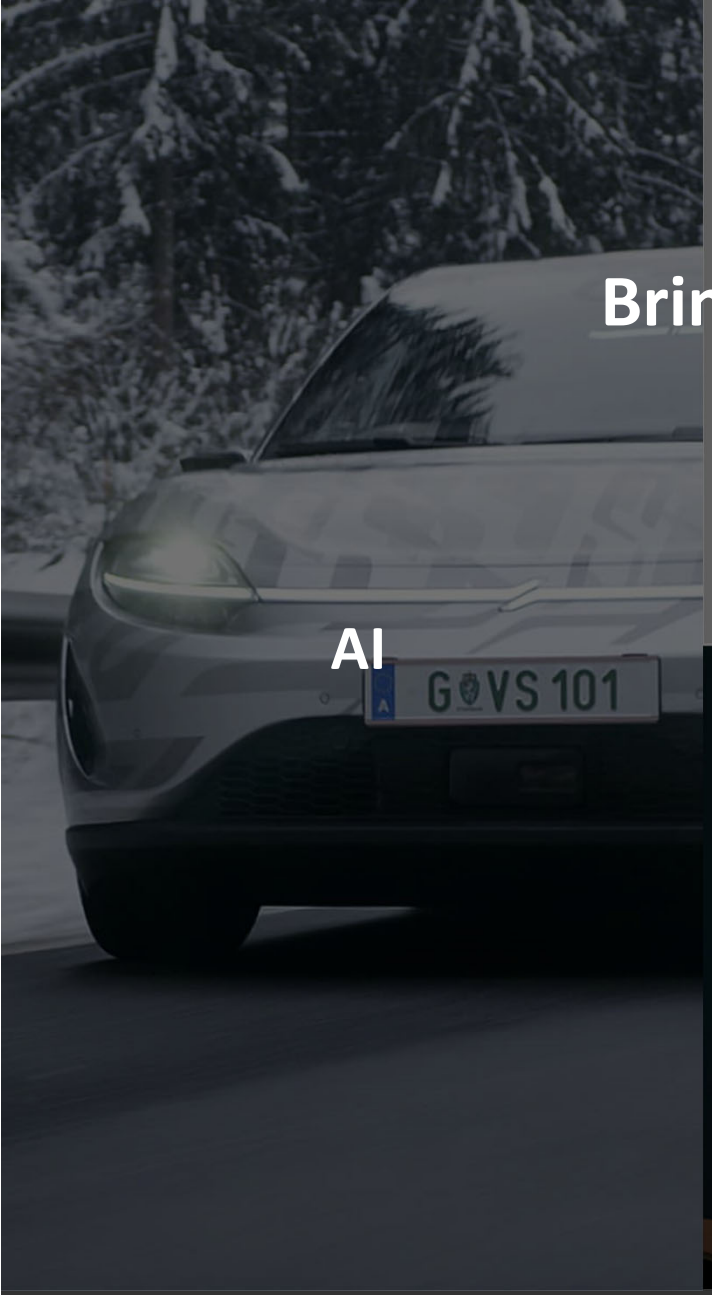
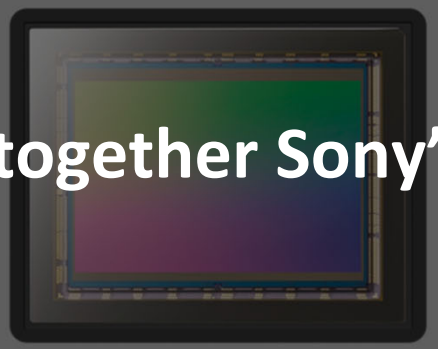
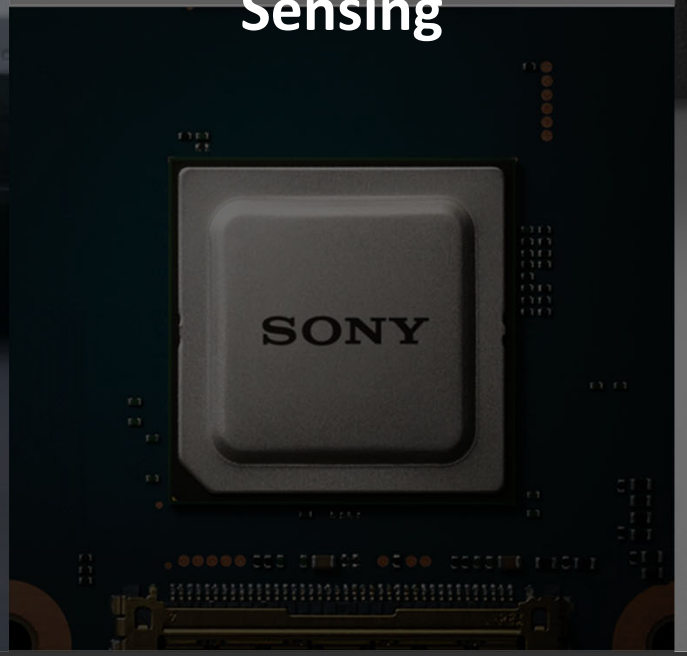
SONY

Airpeak

Brings together Sony’s technology expertise







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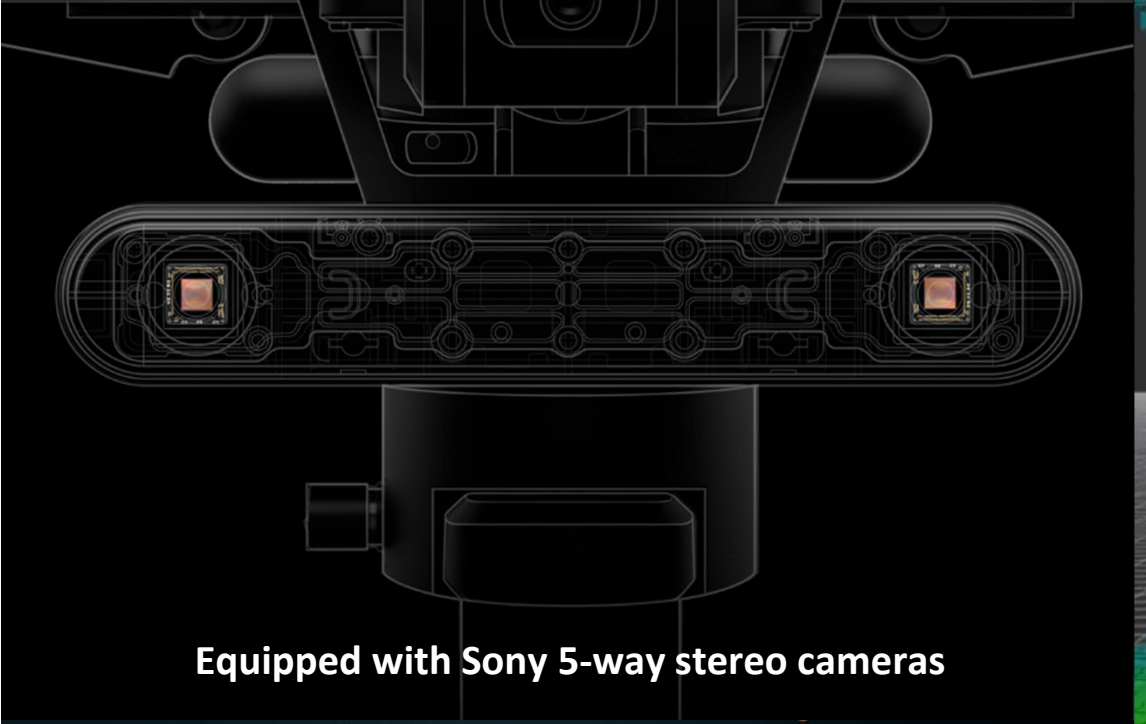
Build from the
ground up by Sony.

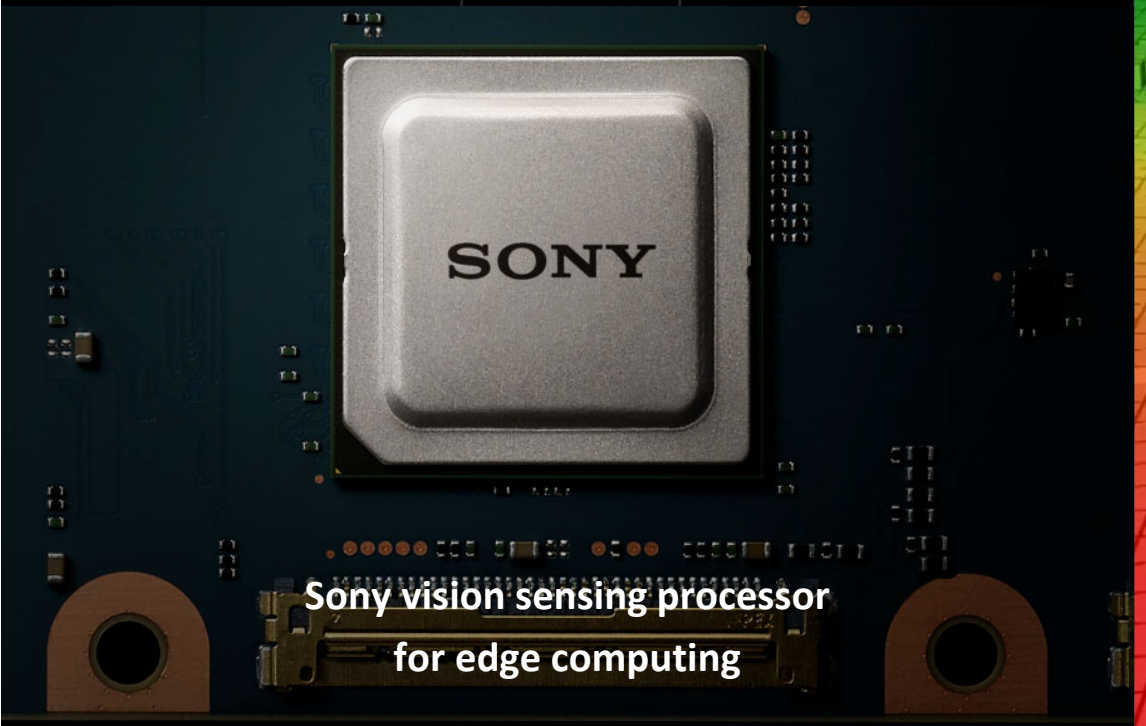
Key Concepts of Airpeak

© 2022 Sony Group Corporation

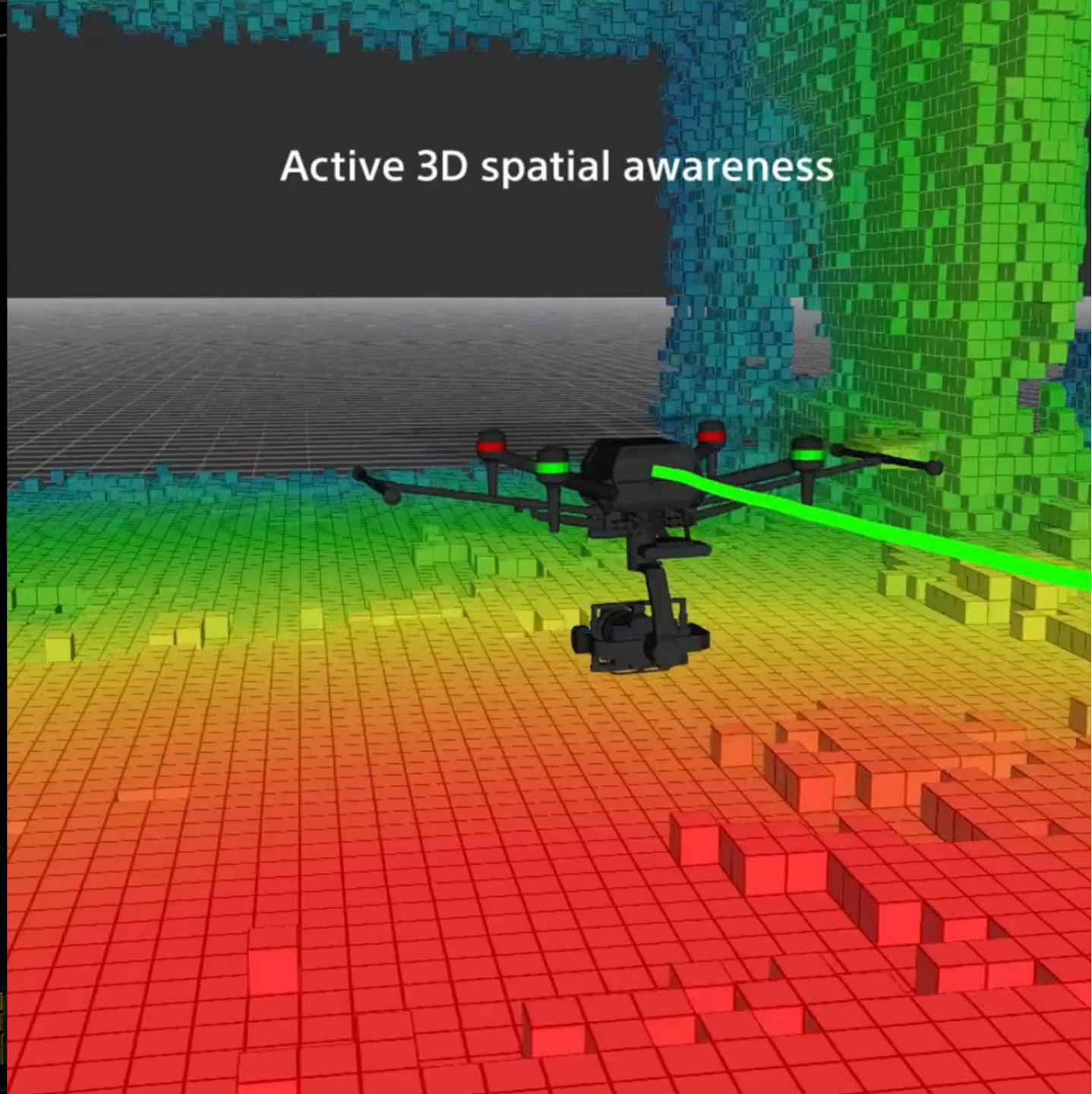

Propriety
propulsion system

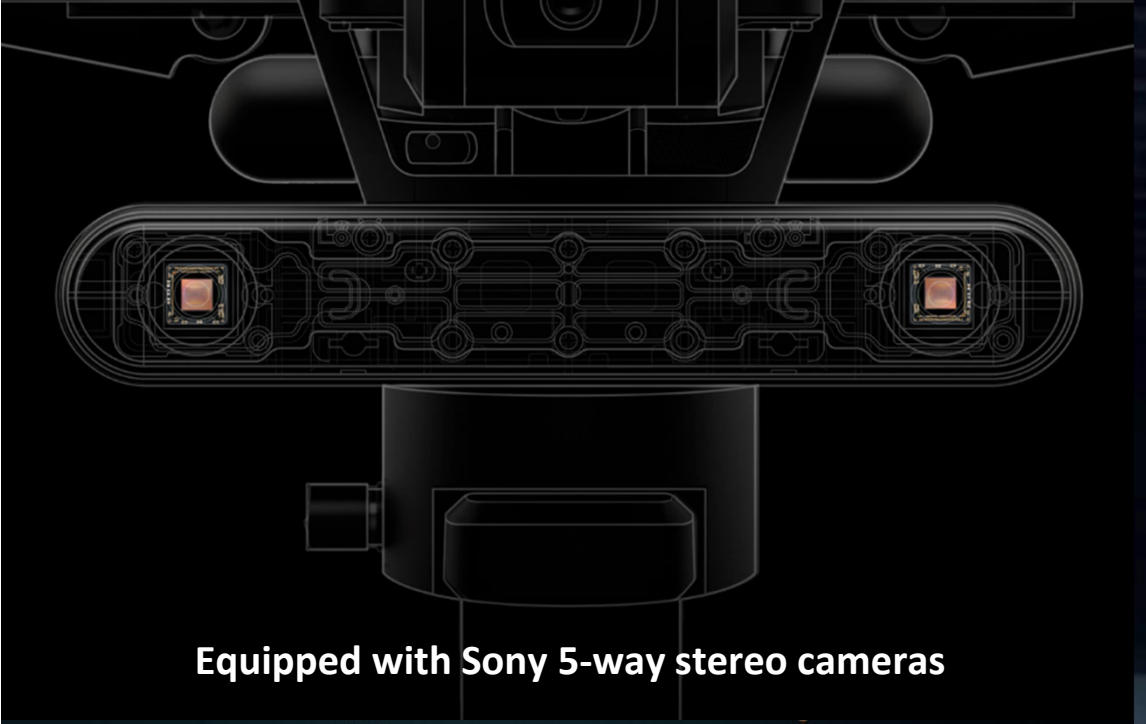


Equipped with Sony 5-way stereo cameras



Sony vision sensing processor
for edge computing





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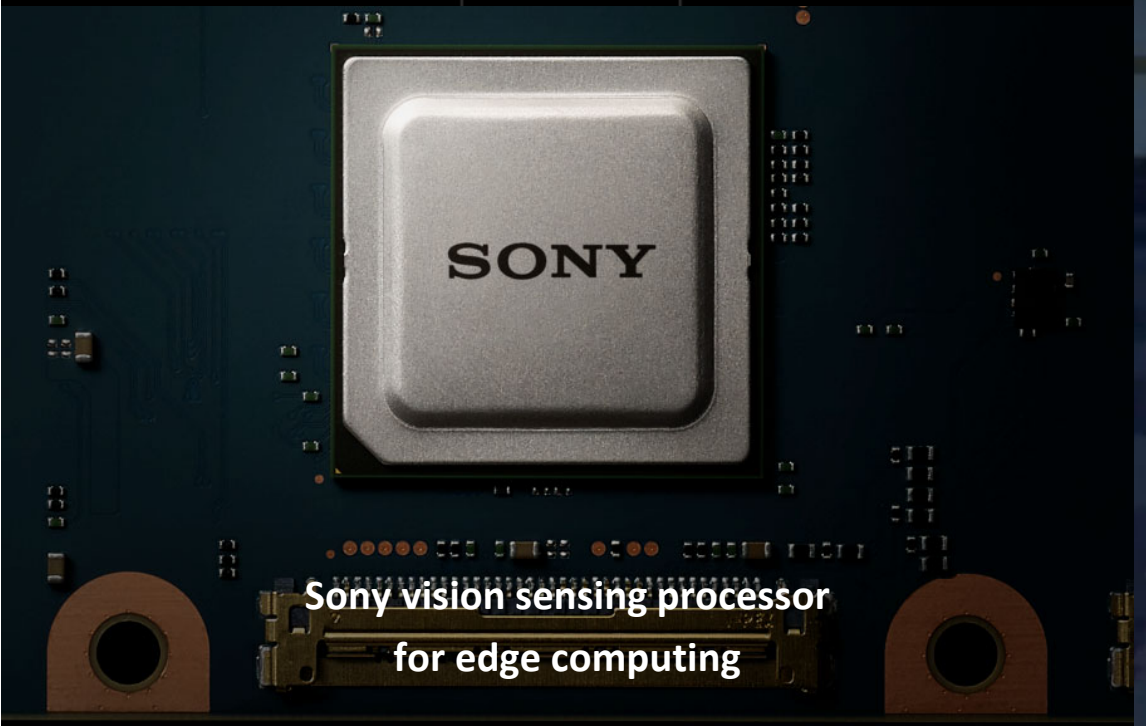

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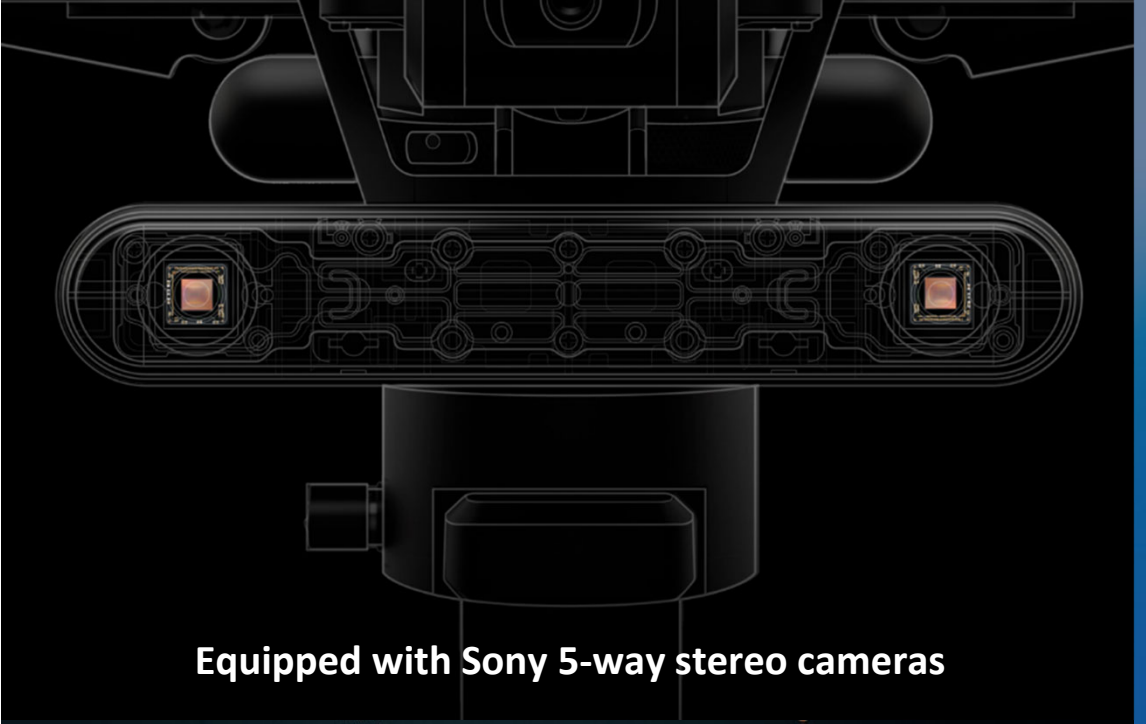

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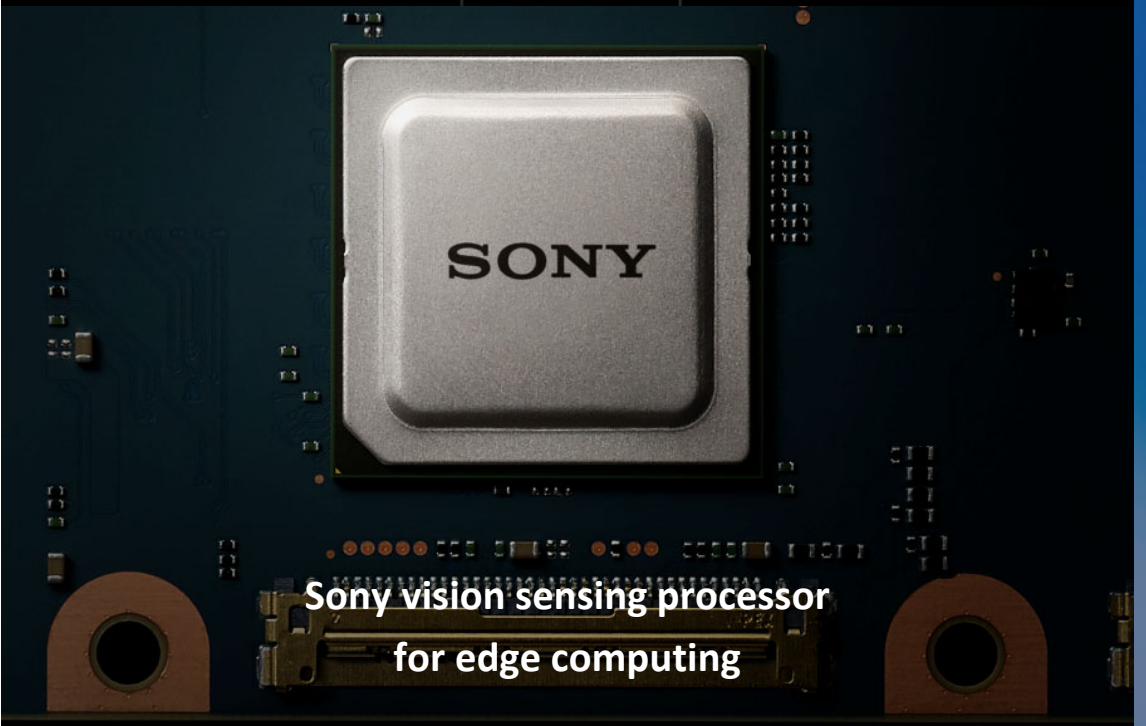
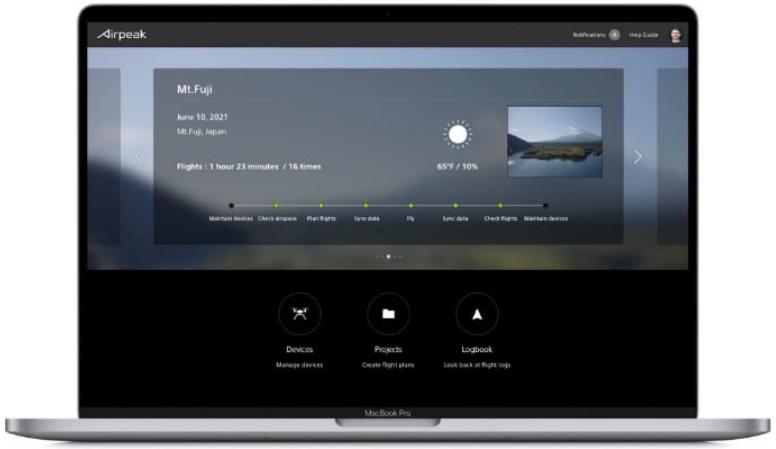


Sony vision sensing processor
for edge computing

Obstacle Avoidance

Flight apps for Alpha camera integrated & cloud-based flight automation

Airpeak Flight



Airpeak Base

API integration coming soon...

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Exceptional Performance for Job Efficiency

Rapid Acceleration

3.5 secs (0-50mph)*

*no payload,
obstacle brake function disabled.

Max Speed

55.9mph (25m/s)*

*no payload,
obstacle brake function disabled.

Max Wind Resistance

44.7mph(20m/s)*

*no payload

Attitude Angle

up to **55°** *

*obstacle brake function disabled.

Hot Swap Batteries

In **15** secs

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Versatile Payloads & Compatibility

© 2022 Sony Group Corporation

Comparison of Aircraft Size

Interchangeable Payload at the Size of an Inspire 2

*Payload becomes interchangeable only at Matrice 600 size drone for DJI

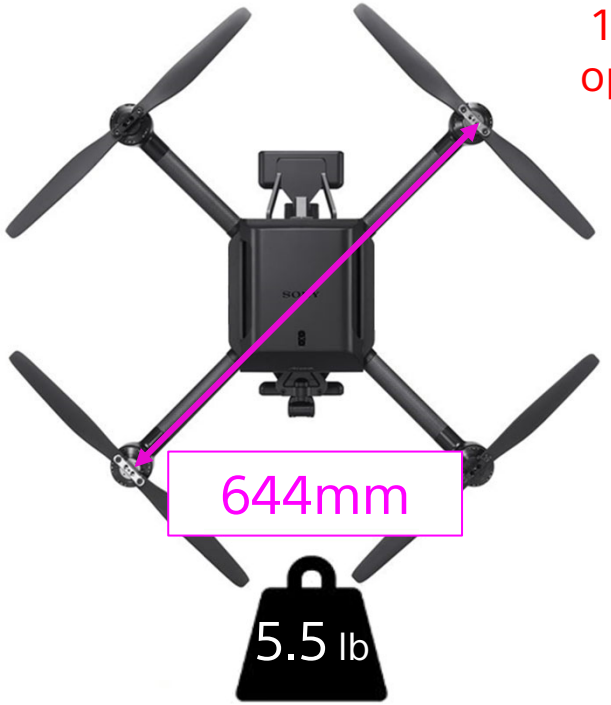
DJI
Inspire 2

Diameter

605mm

Inspire2 Custom Camera

Airpeak



644mm

5.5 lb

Non-custom Camera

1 person operation

DJI
Matrice600 Pro

1,133mm

13lb

Non-custom Camera

© 2022 Sony Group Corporation

70+ Compatible Full-Frame Mirrorless Camera & Lens Combination

ALPHA

α1

8K

α9 Series

Speed

α7R Series

Resolution

α7S Series

Sensitivity

α7C

Compactness

FX3

4K/120p

*There may be combinations of camera and lens which cannot be loaded on the aircraft due to the total weight.

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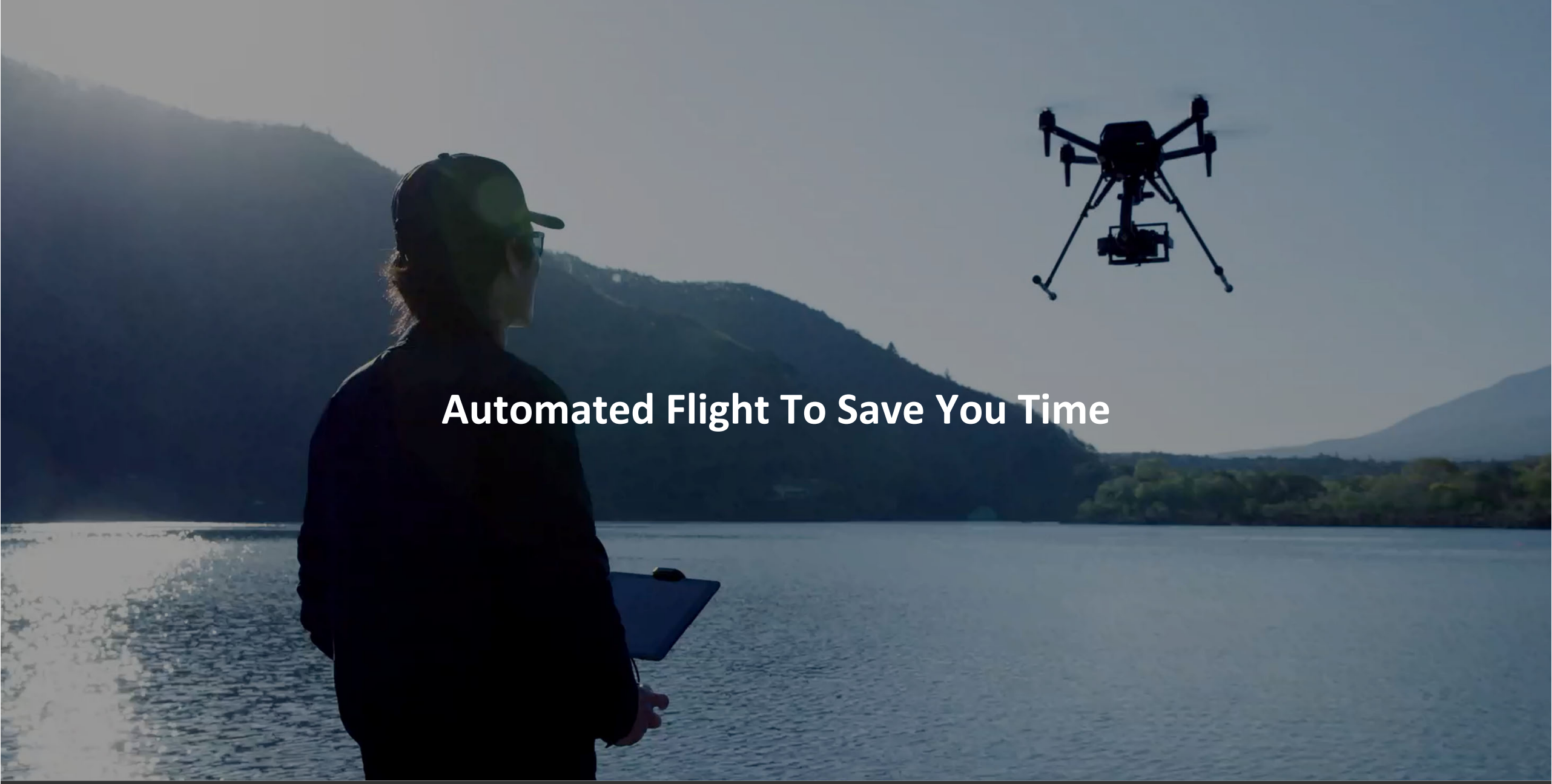
Carry a range of payloads under 5.5 pounds

Manage the weight.
Balance the plate.
She’ll carry it mate.

© 2022 Sony Group Corporation



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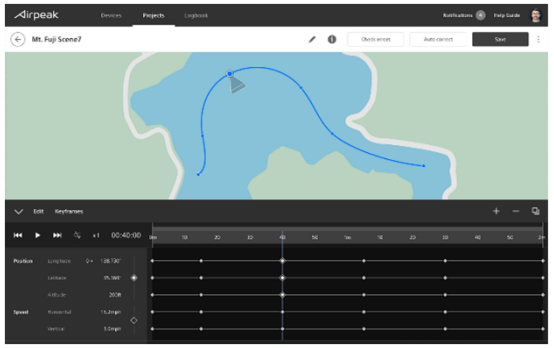
Automated Flight Missions Save You Time

Airpeak Base

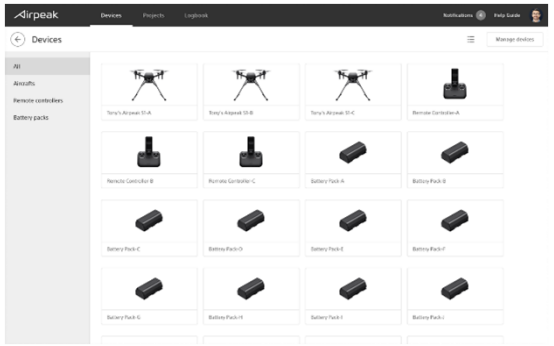
Create flexible and advanced flight plans



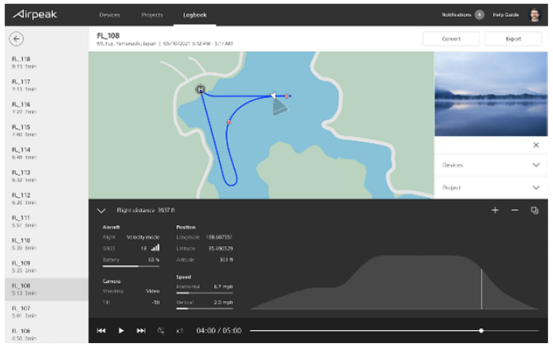
Airpeak Flight Execute Mission

Automatically fly the aircraft based on the flight plan

Airpeak Base Equipment used is automatically managed based on the flight log



Upload flight logs to the cloud



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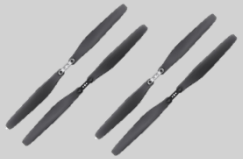
S1 Drone Kit

Airpeak

World's smallest class aircraft to mount full frame Alpha mirrorless cameras

- 70+ Compatible Full-Frame Mirrorless Camera & Lens Combinations
- **5.5 lbs** max payload, **15 lbs** takeoff weight
- Rapid acceleration w/ max flight speed **55.9mph**
- Stable in winds up to **44.7mph**
- Hot swap batteries in less than **15 seconds**
- Stable flight **without GNSS** location
- 5 stereo cameras, 2 range sensors for safety & stability
- Dual Operator & Automated Flight Modes

Included Accessories:


Propellers (4x)


Remote (1x)


Batteries (2x)


Battery Charger (1x)

Price: $8999.99 (SURE)
Customer Delivery Date: December 30, 2021
Country of Origin: Japan

*at 9lb 12oz with batteries, excluding camera, lens & gimbal

© 2022 Sony Group Corporation

Accessories

Gremsy Gimbal “T3 for Airpeak”

Remote Control

GPC Rugged Carry Case*

Propellers (Set of 2)

Battery Pack

Battery Charger

* 3rd party product, not sold by Sony but popular among Airpeak pilots

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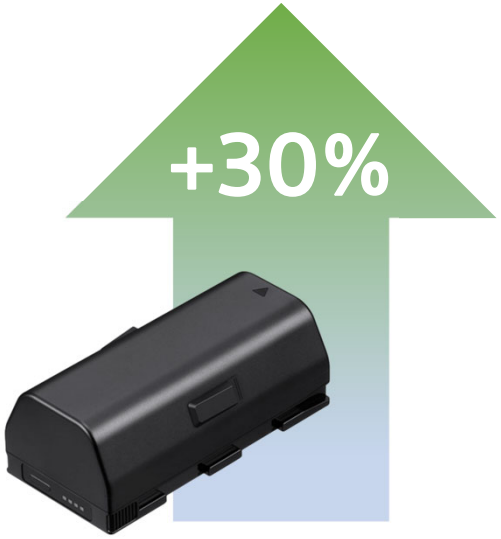
Upcoming Releases



30% Higher Capacity Battery

Multi-charging Battery Station

RTK System for Airpeak with Base Station

Coming by the end of 2022...

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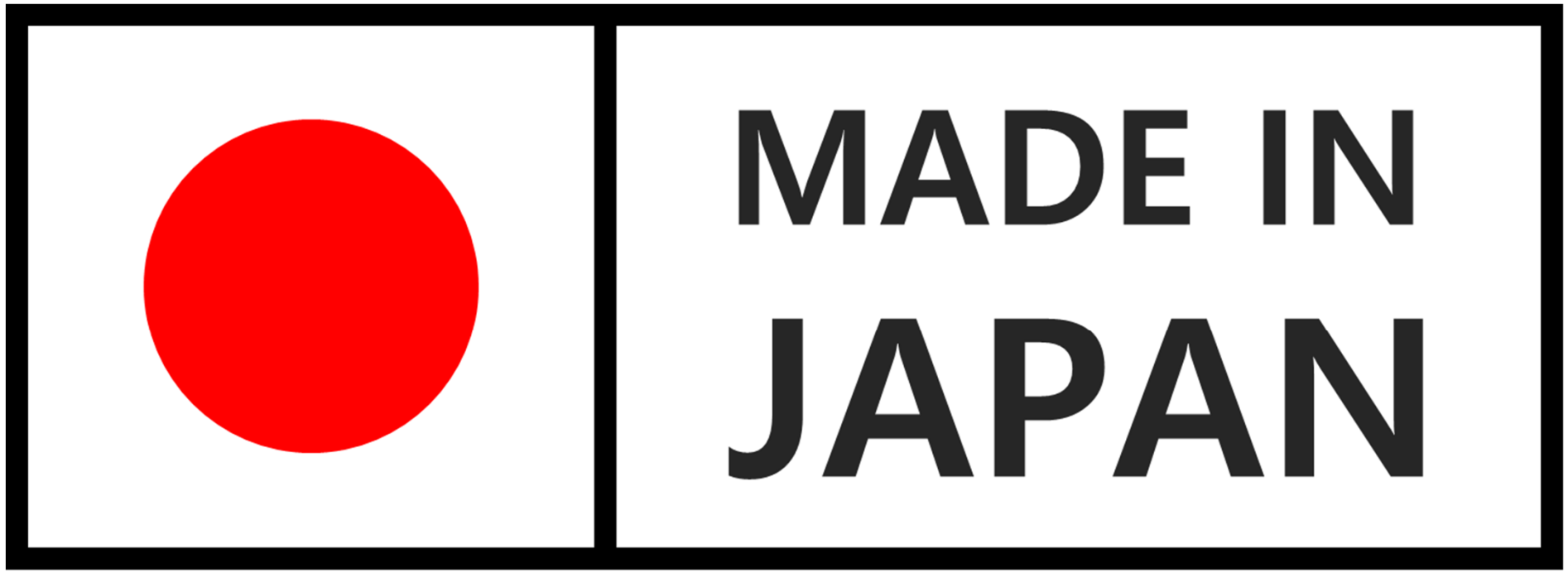

MADE IN
JAPAN

SONY

Airpeak

BLACKMORE CREATIVE TECHNOLOGIES

WHEN FAILURE IS NOT AN OPTION

BCTECH.SPACE
IBLACKMORE@BCTECH.SPACE

DRONES THAT RETURN HOME SAFE

DRONES ARE SAFETY-CRITICAL SYSTEMS

DRONE PILOTS CAN BE HELD LIABLE FOR PERSONAL INJURY AND PROPERTY DAMAGE

DRONE COMPANIES AND OPERATORS HAVE A STRONG INTEREST IN MAKING THEIR DRONES SAFER AND MORE RELIABLE

Credit: Bloomberg

CREDIT: VOLOCOPTER

OTHER DRONES CAN TOLERATE MOTOR FAILURES BY ADDING MORE MOTORS

YUCK! THAT'S:
-COSTLY
-HEAVY
-INEFFICIENT
-SLOW

INDUSTRY EXPERTS AGREE THAT FEWER, BIGGER MOTORS ARE BETTER

THIS APPROACH SACRIFICES YAW CONTROL

HIGH ROTATION SPEED
=
CONTROLLED CRASH

OUR FLIGHT CONTROL SYSTEM IS SUPERIOR:

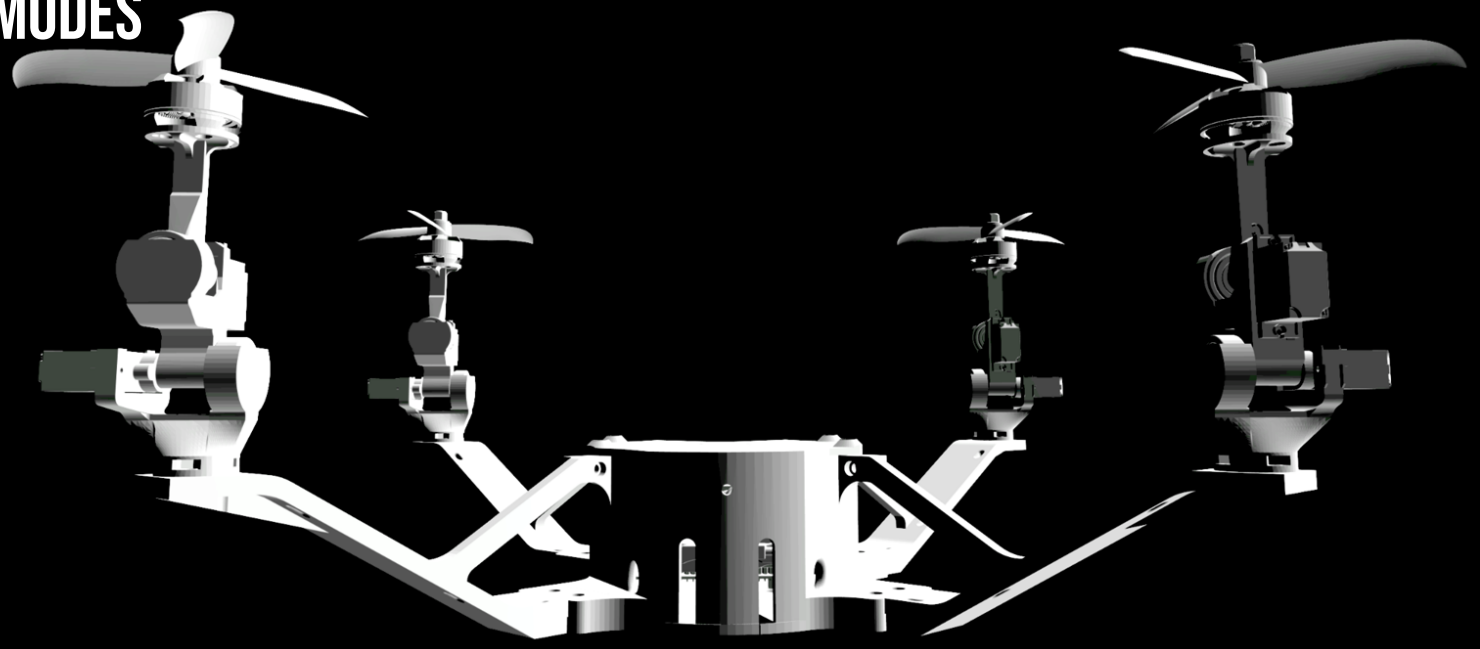
-MORE AFFORDABLE THAN ADDING MORE MOTORS

-LIGHT WEIGHT, LESS THAN ONE POUND, INCREASES PAYLOAD CAPACITY

-IMPROVES MANEUVERABILITY TO TOLERATE ADVERSE WEATHER CONDITIONS

-MORE EFFICIENT, LESS POWER CONSUMPTION

-INCREASES TOP SPEED, OPTIMIZED FLIGHT MODES



B2B
MULTIPLE INDUSTRY APPLICATIONS

INDUSTRIES WE EXPECT TO BENEFIT FROM THIS TECHNOLOGY:

- LAW ENFORCEMENT
- MILITARY/DEFENSE
- COAST GUARD
- FIRE FIGHTING
- DELIVERY-VTOL
- CINEMATOGRAPHY
- CONSTRUCTION
- INSPECTION
- MAPPING (GIS)
- AGRICULTURE

PRODUCT DEVELOPMENT ROADMAP

Conceptualization	Basic Flight Code	Proof of Concept	Controls Integration	High-fidelity User Prototype Design	Flight Test Plan	Level 1 Control System
Market Research	IP Protection	Model Simulation	Sensor Selection	Prototype Fabrication	Prototype Demonstration	Beta Testing
Preliminary Design	Feasibility Prototype	Control requirements	Component Testing	Unit Tests	Beta Test Units Assembly Line	Final Product Maturation
Team Assimilation	Computer Modeling	Control Laws	Sensor Fusion	Pre-orders and Manufacturing Plan		Final Assembly Line
		Level 3 and 2 Control System	Sensor Software			Inventory Planning and Maintenance
						Commercialization

BLACKMORE CREATIVE TECHNOLOGIES

WHEN FAILURE IS NOT AN OPTION

WWW.BCTECH.SPACE
IBLACKMORE@BCTECH.SPACE
INFO@BCTECH.SPACE

National Aeronautics and Space Administration

NASA SBIR Entrepreneurial Engagement Overview

Quenton Bonds

NASA SBIR/STTR Program

nasa.sbir.gov

Why Does NASA Need Entrepreneurs?

NASA's strategic goals in the 2022 strategic plan

01

Expand human knowledge through new scientific discoveries

02

Extend human presence to the Moon and on towards Mars for sustainable long-term exploration, development, and utilization

03

Catalyze economic growth and drive innovation to address national challenges

04

Enhance capabilities and operations to catalyze current and future mission success

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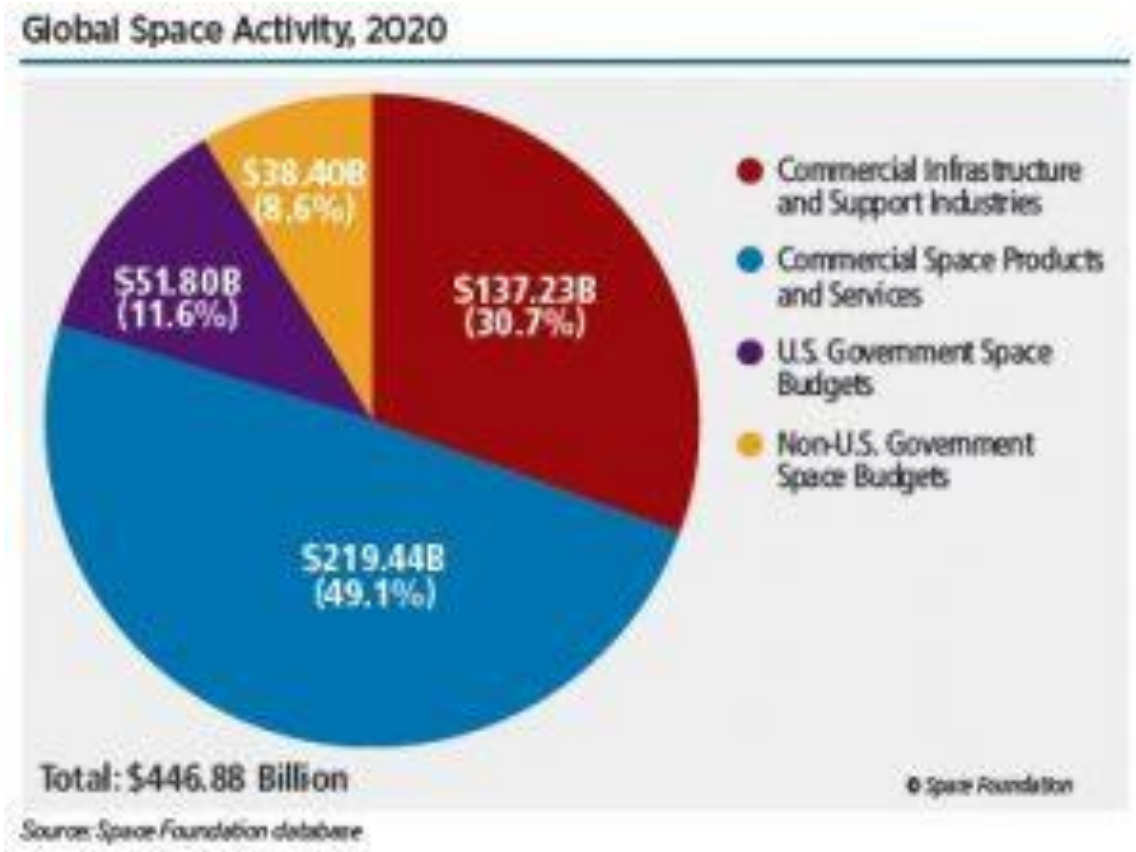
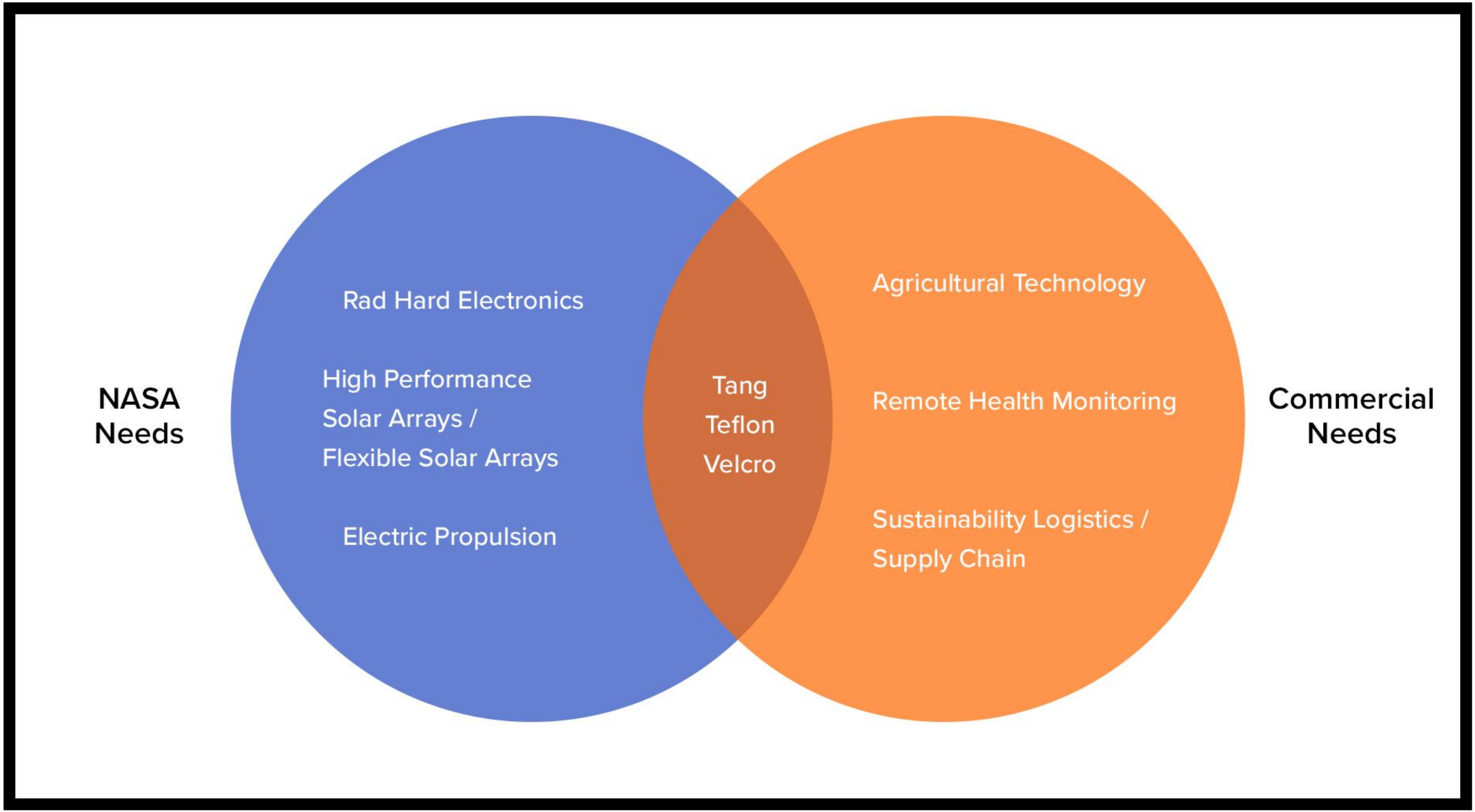
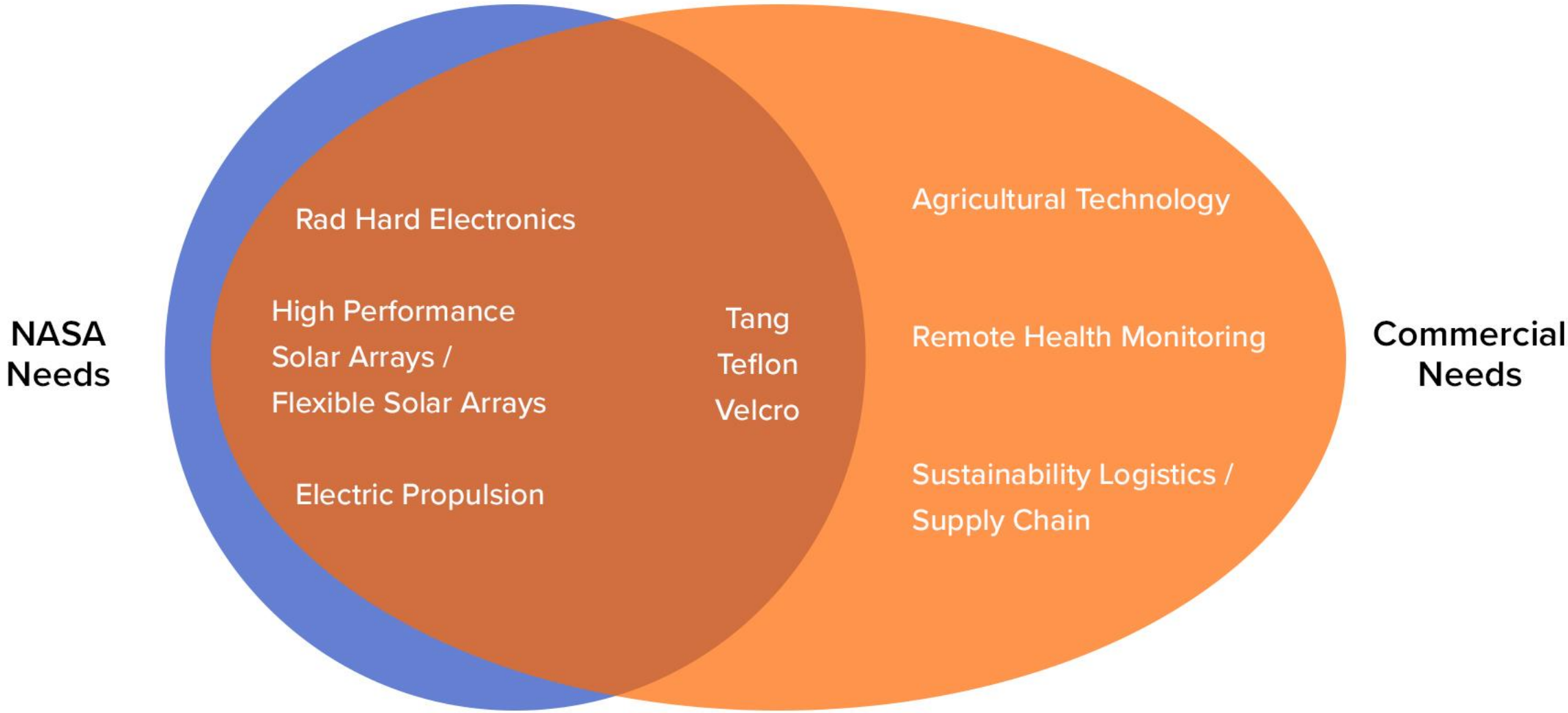
Space Spending




NASA Needs
Rad Hard Electronics
High Performance Solar Arrays / Flexible Solar Arrays
Electric Propulsion
Tang
Teflon
Velcro
Agricultural Technology
Remote Health Monitoring
Sustainability Logistics / Supply Chain
Commercial Needs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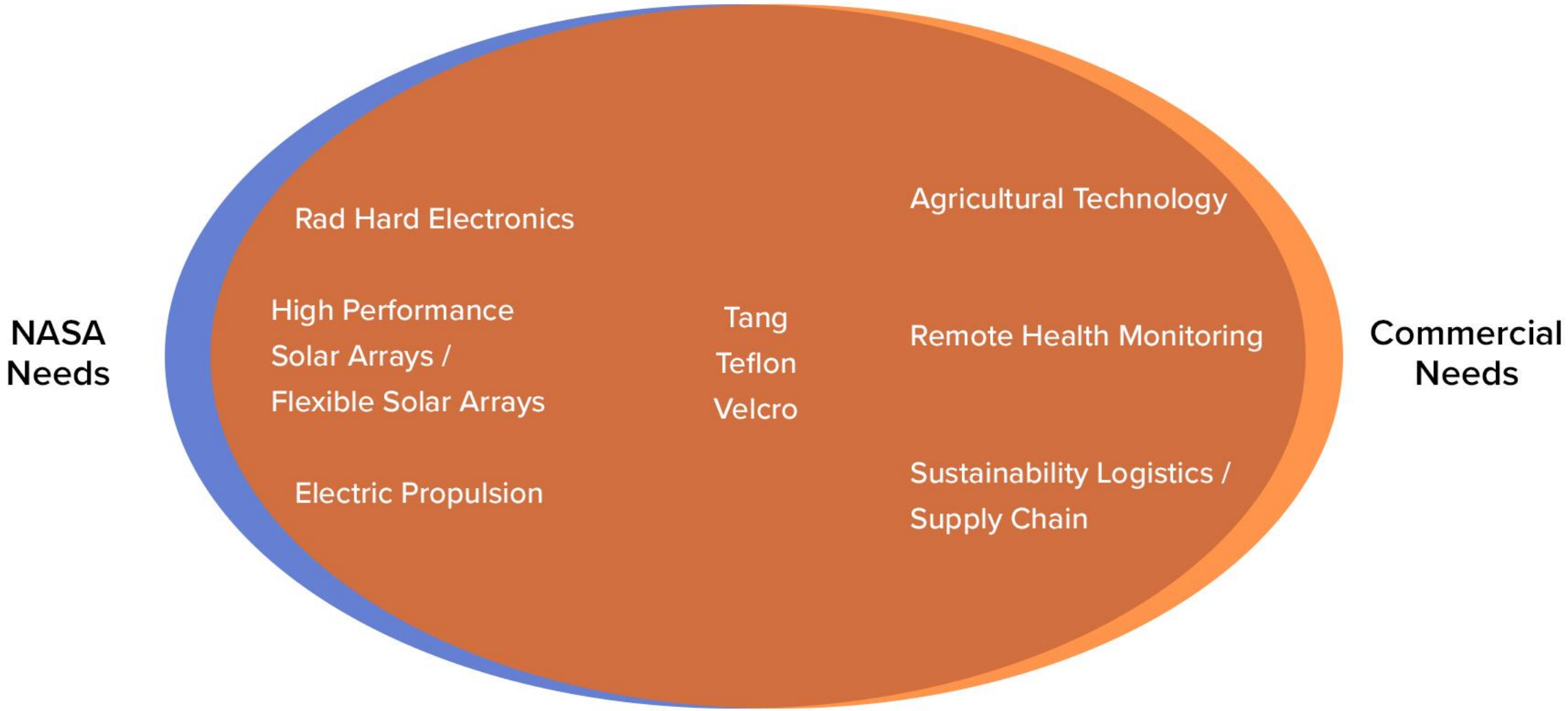
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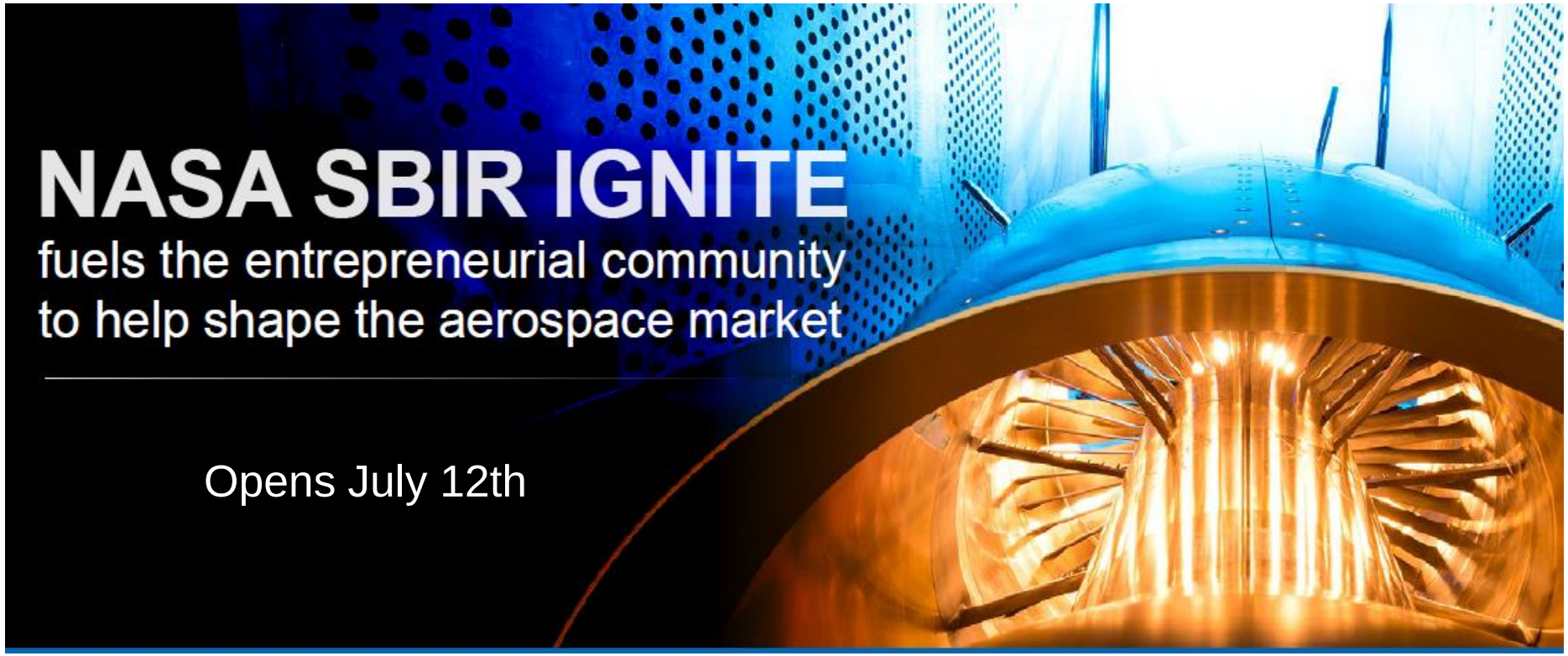

https://sbir.nasa.gov/ignite

Goals of SBIR-Ignite

Identify topics that are relevant to both NASA and commercial markets

- Coordinate with NASA iTech to evaluate potential topics

Encourage participation from product-driven companies NOT looking at NASA as their primary revenue stream

- Increase the emphasis of commercialization and business plan in scoring
- Reduce proposal requirements

Increase the pace and certainty of technology development and programmatic funding

- Shorten review time
- Reduce gap between Phase 1 and Phase 2
- Encourage shortened period of performance in Phase 2
- Increase Phase I to Phase II transition Rate

Intended Outcomes

New Pool of Innovators

Private Sector Interest After SBIR

- Private sector investment in Post-Phase II SBIR (II-E and CCRPP)
- Private sector investment directly in companies (outside of SBIR)

Contributions to NASA Programs Focused on Commercial Market Stimulation

Economic Impact

- Capability delivered to NASA relevant commercial markets
- Job growth, revenue growth, valuation growth

NASA iTech

POST PHASE II OPPORTUNITIES

Phase II – E/X
Reqs matching funding
Up to $375,000
6 to 12 months

Phase II Sequential
Occasional opportunity (not routine)
Varying award amount
24 months+

CCRPP
Reqs matching funding
$500,000 to $2,500,000
24 months

https://sbir.nasa.gov/ignite

A New Era in Aviation Demands New Infrastructure

Stuart Bloomfield – Chief Development Officer, Urban-Air Port Ltd

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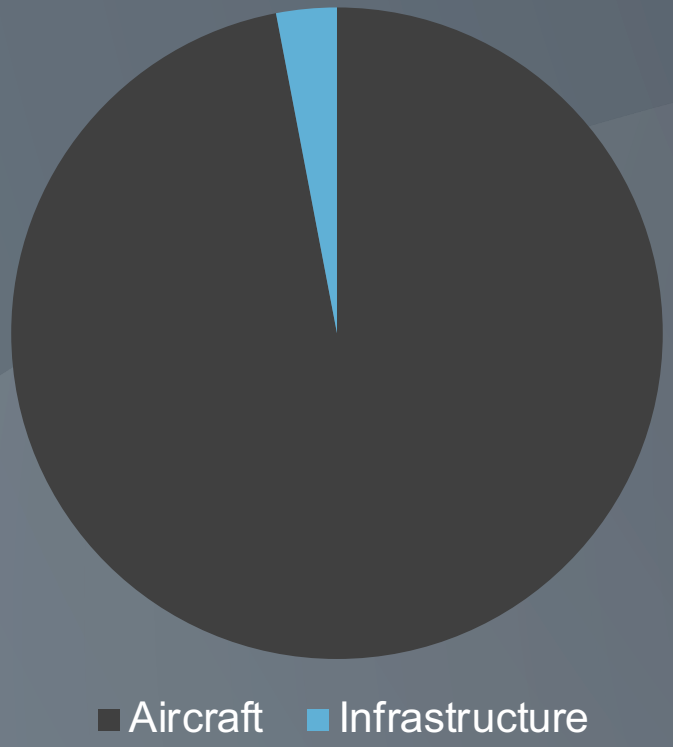
Infrastructure investment vital for Advanced Air Mobility success

>$5bn disclosed AAM investment so far, but only 3% into Infrastructure *UAP Internal Analysis



» Existing infrastructure not sufficient to enable seamless journeys and rapid industry growth

» Cost-effective, Sustainable and Vehicle Agnostic infrastructure must be deployed now to enable AAM

> If leaders want to scale the Urban Air Mobility market… they must establish many more ports, as well as more routes among them."

To take off, flying vehicles first need places to land – McKinsey & Company

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The Solution | Urban-Air Port®

Enabling Advanced Air Mobility through Innovative Infrastructure

- Ultra-Compact
- Rapidly Deployable
- Modular
- Scalable
- Sustainable

Passengers

Logistics – autonomous drone deliveries

Disaster emergency management

Mobile Defence Operations

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Unique selling points

Air One | Marine One | Resilience One

Enabling Zero Emission Flight
Using renewables in off-grid locations

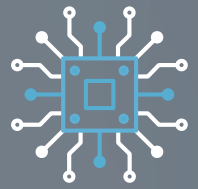
Cost Efficient
CapEx and OpEx far lower than airports with comparable throughput

Scalable
Multiple sizes for customers to match to their market

Rapidly deployable
Portable and quick to install. Designed for transport in shipping containers

Delivered, Tried and Tested
Air One delivered successfully in Apr 22 – ready for further deployments

Compact footprint
60% the land take of a comparable heliport, reducing cost in urban locations



Technology driven
With patented 3Dimensional airfield

Modular
Integrated pax and cargo operations increase flights and reduce operational costs

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Urban-Air Port® ltd

AIR ONE® | **Government backed project**

- **Delivered on Time**
- **Delivered on Budget**

11 Months design and fabrication, 11 weeks installation | 25 Companies | 250+ jobs created

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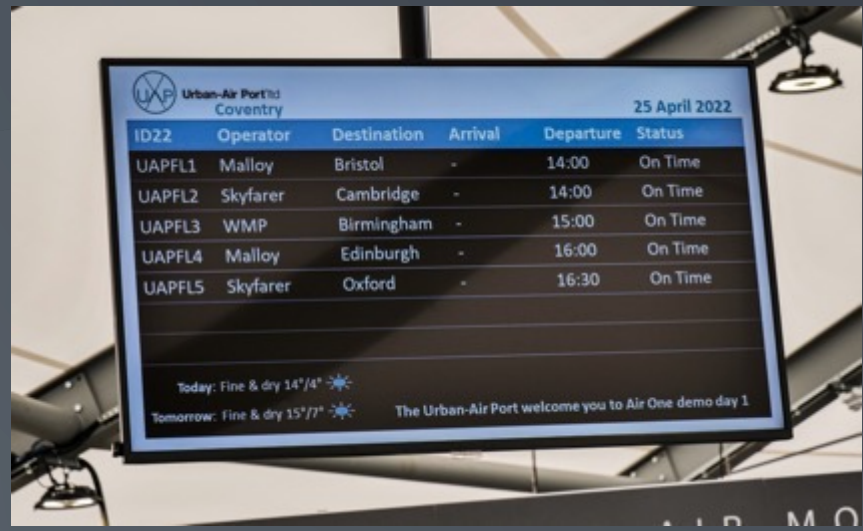
Urban-Air Port® - Coventry Launch

» Passenger taxi processing, Command & Control, DEMS, Logistics, Charging infrastructure



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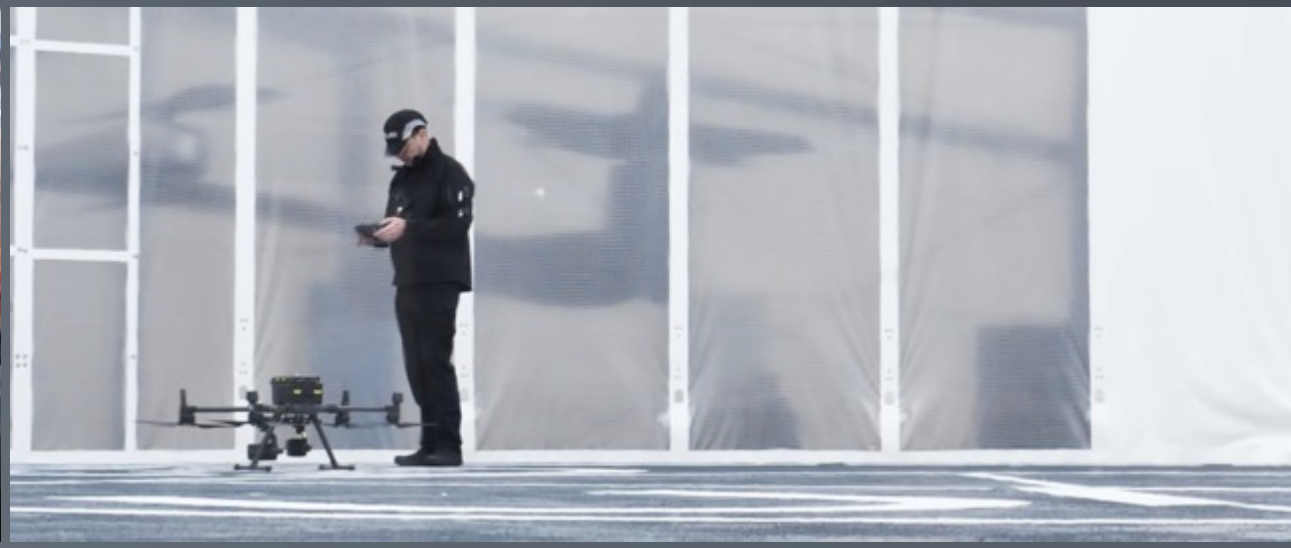
AIR ONE® | Highlights

10,000 Visitors


100+ flights



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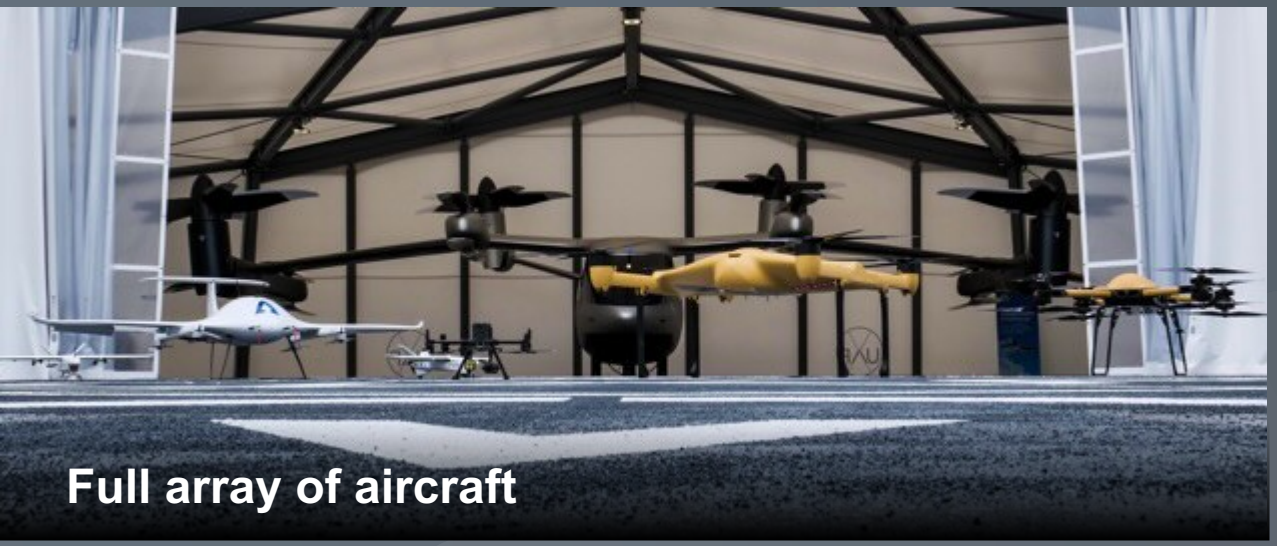
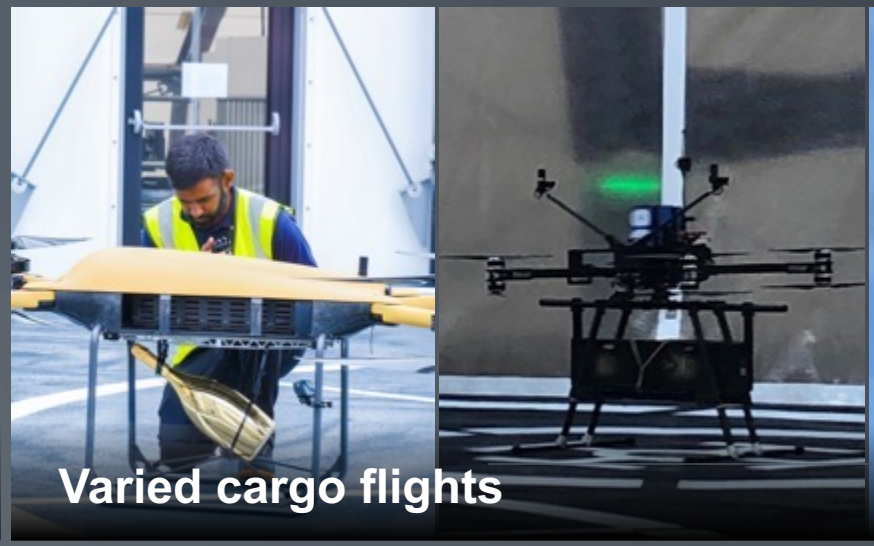
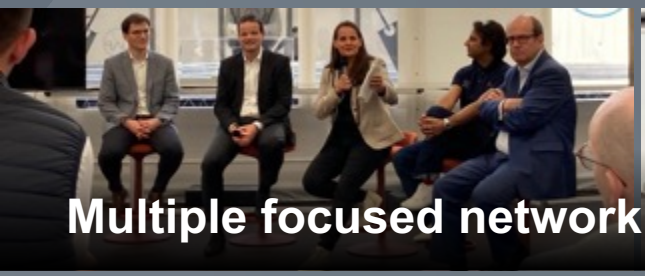
AIR ONE® | Further highlights



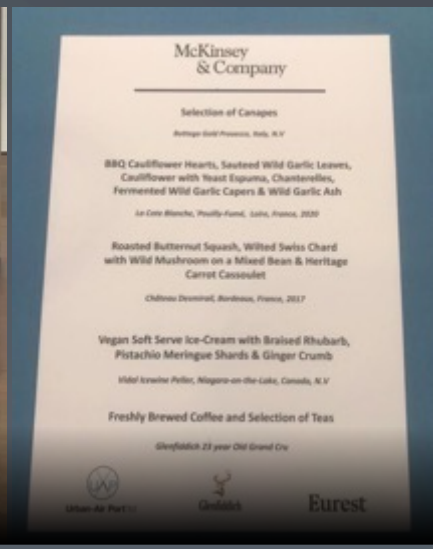
Full array of aircraft



Varied cargo flights



Multiple focused networking events



Premium dining experience

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Urban-Air Port® - Why Coventry?

Coventry, West Midlands, UK – City of Culture 2021

Centre of UKs advanced manufacturing and mobility industry

Huge logistics presence as within 4hr reach of 90% of UK's population

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Local Government Partnership

- Forward thinking council in key part of UK's Advanced Manufacturing and Logistics Industries
- Crucial partner in UAP's Future Flight Challenge project
- Pioneering mobility hubs and future transport across Coventry and the West Midlands
- Planning to be central to UAP's development plans in the future.

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Different approach to the Non-Aeronautical

- Digital approach
- Selected partners
- No onerous contracts & MAGs
- CAPEX & OPEX efficient
- Sustainability on the agenda

- Collaboration is key!
- Proactive engagement
- No exclusives
- Relevant Loyalty program
- Data usage

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Urban-Air Choice® – Retail

Collection of world-class brands and products, curated through strong collaborations and partnerships and accessed online.

- Interactive and experiential brand showcase
- Unique retail offers, exclusivities and promotions
- Fully integrated smart vending solutions combined with Urban-Air Port's App
- Low operating costs, no stock-holding.
- Direct marketing opportunity.
- Scalability of offer – hundreds of sites, global reach

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Urban-Air Choice® – Café Bar

- Modular and flexible café/bar design.
- Flexible operating models.
- Branded Café Retail opportunities.
- Sustainable and low carbon focus.
- Fully integrated App-friendly smart vending solutions.
- Click & Collect via Urban-Air Port® App.
- Potential for beneficial global procurement agreements.

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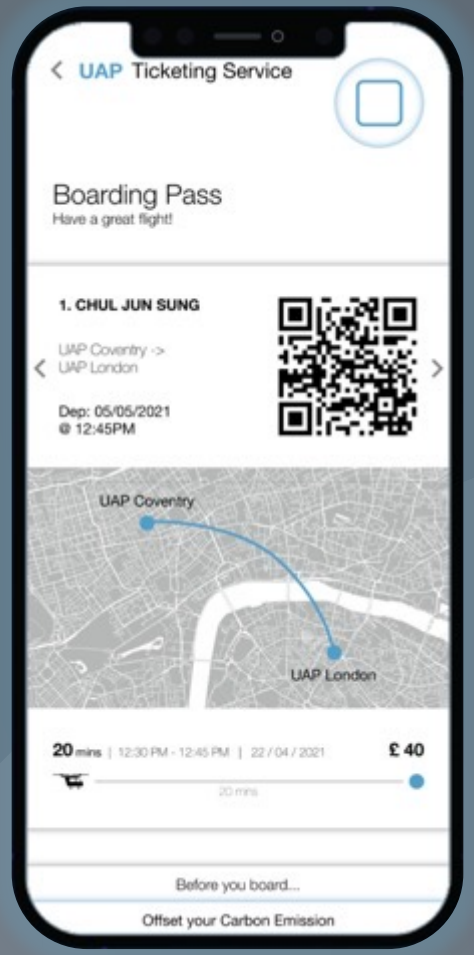
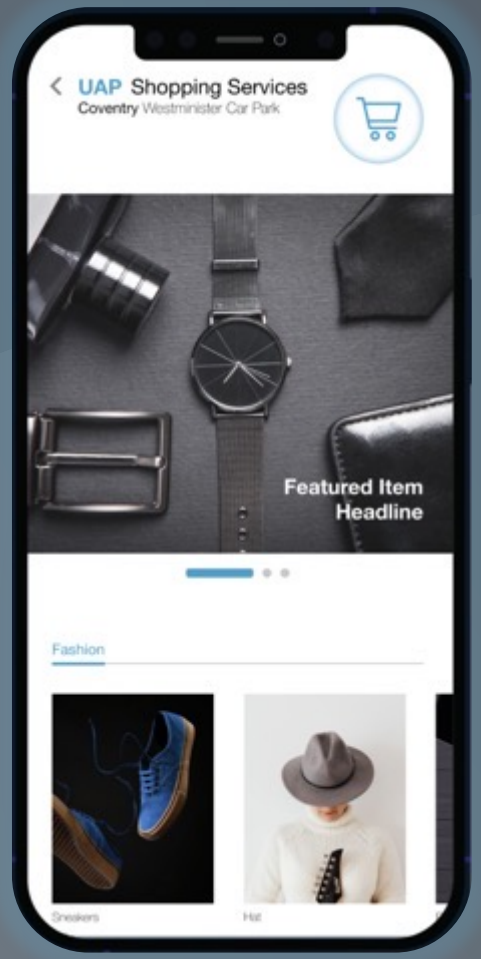
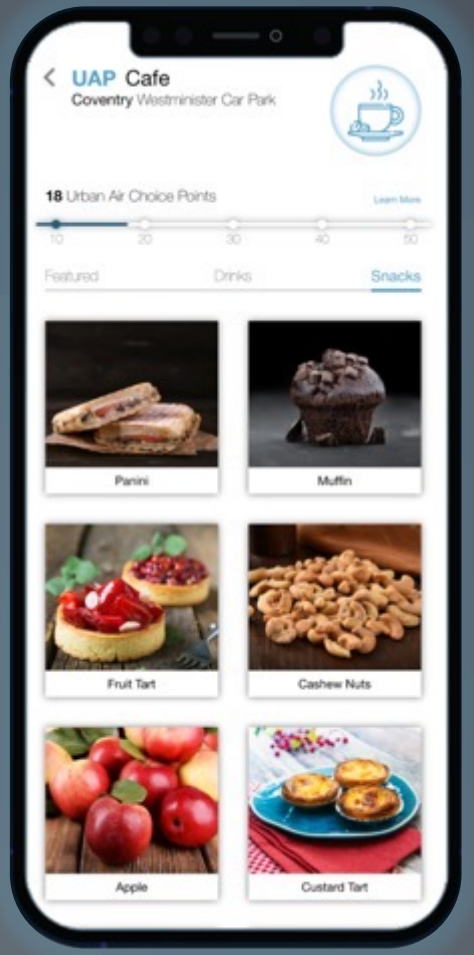
Urban-Air Port® – App







- Journey planning, tickets, check-in & boarding.
- E-commerce platform: Urban-Air Choice®
- Browse and buy retail brand showcase,
- Click & Collect ordering from the Urban-Air Café Bar.
- Loyalty program with benefits and rewards.
- Online payment options.
- Advertising platform for partners and services.

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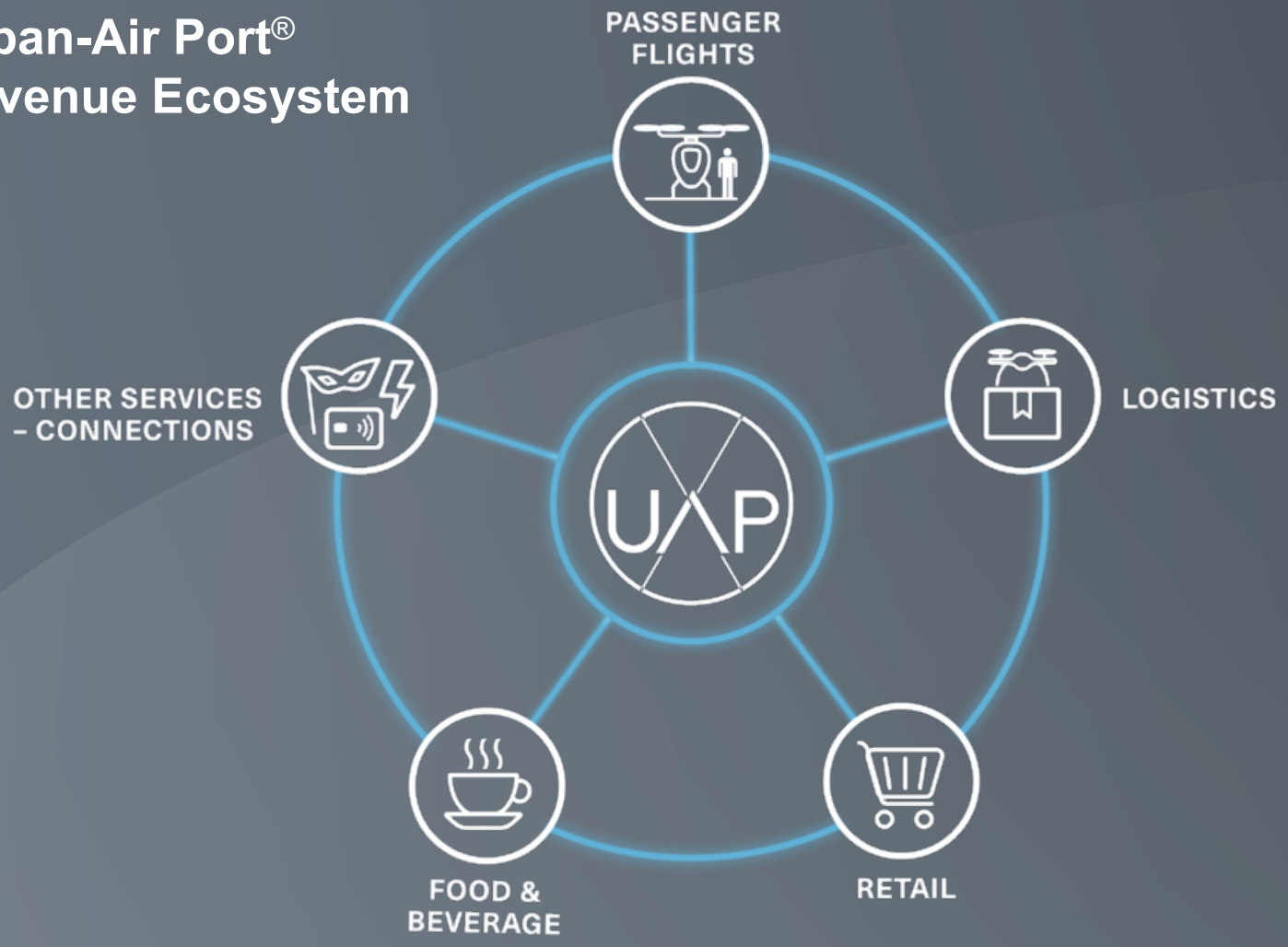
Viability of Urban-Air Port® and the future urban air mobility sector

Urban-Air Port® Revenue Ecosystem



AIR ONE® | Actual Non-Aero data

- Approaching 1000 transactions during unsponsored sessions
- Drove significantly higher (50%) web-traffic to retail partners
- Average spend higher than expected!
- Digital feedback recorded and lessons learnt

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Urban-Air Port® Product Family

Air One®

City Box®

Docks Box®

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Urban-Air Port® Innovative Cargo Automation

- Working with world-leading logistics automation partners
- Integrated sorting, packing, loading systems
- Low Opex through minimal staffing
- Fastest possible turnarounds

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New Markets

Rapidly deployable drone operations and logistics hub

Off-Grid, Renewable power solutions

Shielded Communications

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Urban-Air Port® | Standing on the Shoulders of Giants

Multi-sector expertise:

KITTYHAWK · ARUP · Foster + Partners

Uber · QINETIQ · britishaviationgroup

AIRBUS · citibank · GRIMSHAW

QATAR AIRWAYS القطرية · Department for Business, Energy & Industrial Strategy · Knight Frank

AP · Rogers Stirk Harbour + Partners · WilkinsonEyre

Coventry University · Gensler · ROYAL NAVY

JPMORGAN CHASE & CO. · MEGGITT · CBRE

World strongest Advanced Air Mobility Ecosystem

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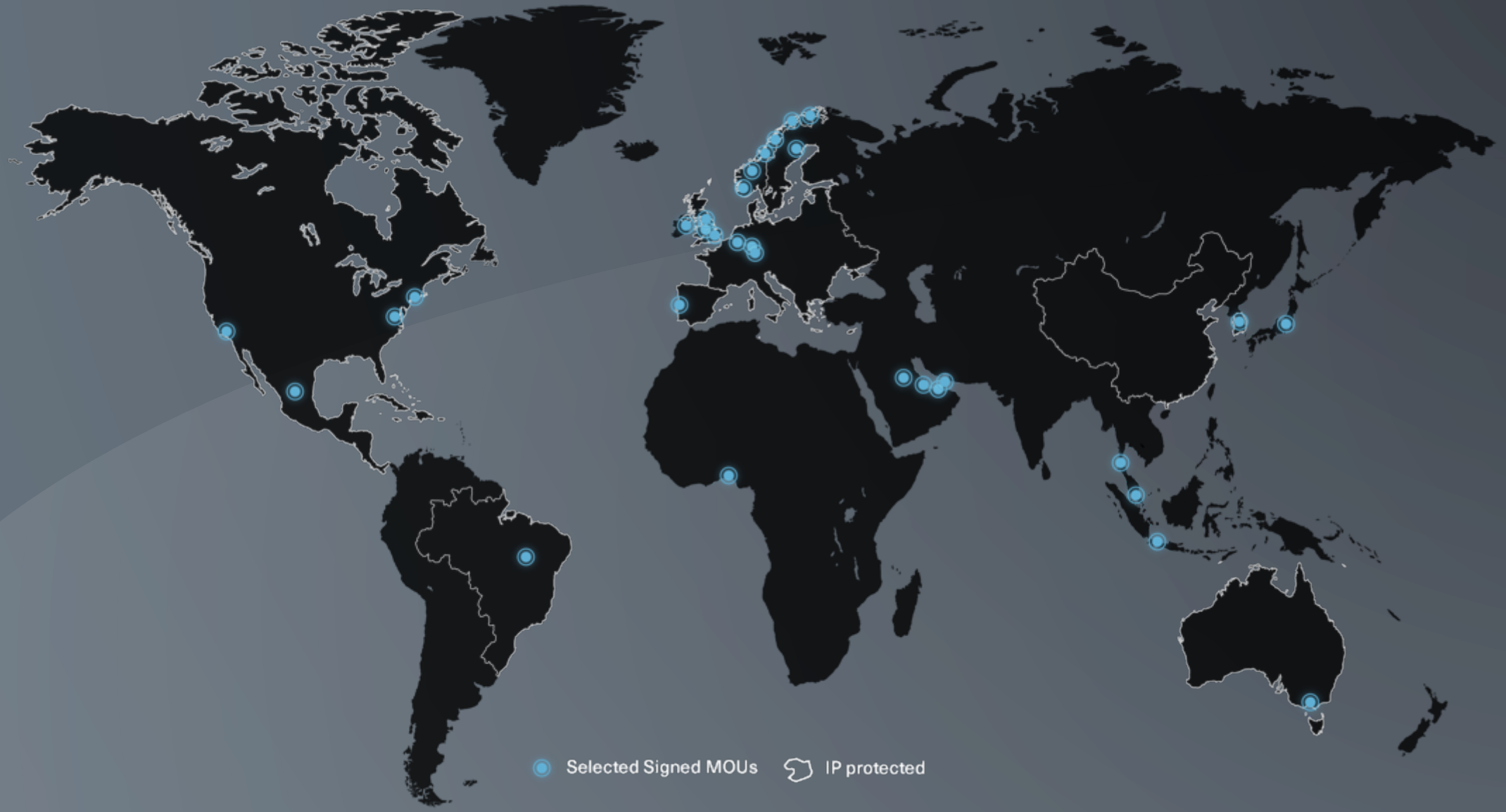
Urban-Air Port® Global Pipeline



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Key Announcements from Air One

- Investment from the Inventors of Urban Logistics and recently acquired by Oxford Properties – M7 Logistics
- Investment, a Board Seat and orders for 2 Air One model vertiports from Dymond Group of Canada
- Partnership with Dassault Systemes
- Partnership with Atalian Servest
- Partnership with Compass
- Tritium – leaders in DC Fast Charging – join Charging hardware partner platform
- Osprey – UK's fastest growing Charge Point Operator – joins UAPs Charging operator partner platform
- Electric Zoo – Innovative new E.V. subscription firm – joins UAPs ground

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Urban-Air Port® - Media Coverage

- 1000 pieces of media coverage – BBC, CNN, Bloomberg, FT, WSJ, Forbes
- Online reach of nearly 10 Billion

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Thank you

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Unmanned Aircraft Systems (UAS)

Supply Chain Research: Exploring supply chain risks, challenges and opportunities

Center for Integrated Intelligent Mobility Systems (CIIMS)

Jim McNatt Institute for Logistics Research

University of North Texas Research Team (Logistics and Supply Chain)

Faculty: Dr. Terrance Pohlen, Dr. Clinton Purtell, Dr. Suman Niranjan, Dr. Ted Farris, Dr. David Gligor, Dr. Timothy Hawkins, and Dr. Ila Manuj.

Ph.D. Students: Vipul Garg and Jamie Porchia

Introduction

- This research supports **NASA's Minority University Research and Education Project (MUREP)** program by focusing on key UAS supply chain ecosystem risks, challenges and opportunities.

- UASs are a critical technology, and numerous companies are already testing drones for a variety of use cases, including package delivery and rescue operations. However, there are challenges, particularly concerning the **manufacturing of drones and how to meet anticipated demand**.

- Collectively, upstream and downstream operations within the UAS supply chain will be analyzed to develop a holistic understanding of the UAS industry. This research also **includes mapping the supply chain of critical UAS components**, investigating opportunities for improved **supply chain resilience**, and analyzing the impact of consumer perceptions/willingness to support UAS technology.

- The University of North Texas (UNT) and the Choctaw Nation of Oklahoma (CNO) are collaborating to develop an **Advanced Regional Mobility Corridor (ARMC)** that will offer future economic opportunity and growth.

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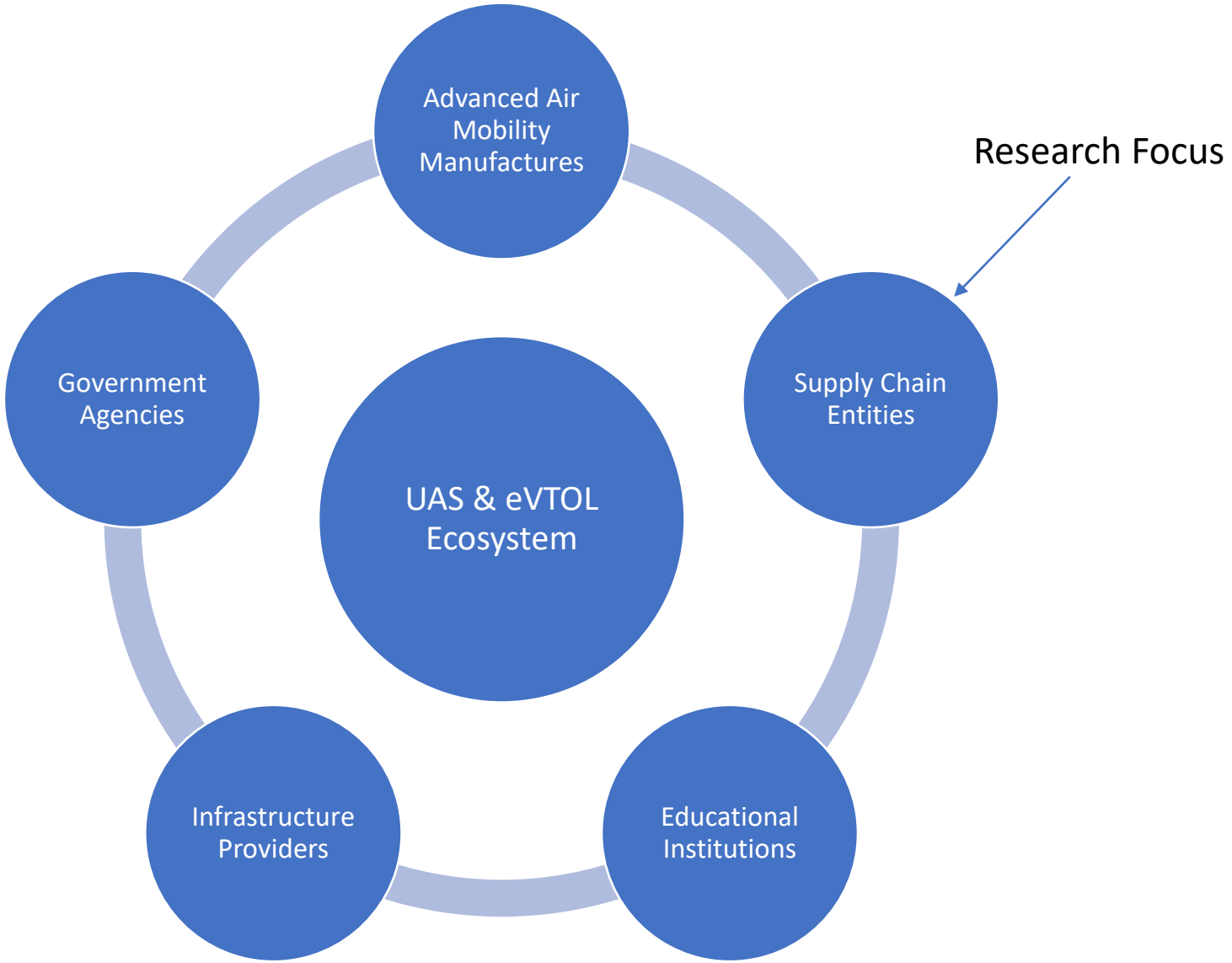
Proposed Conceptual Model



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Overall Research Objectives

1) Map the supply chain of **critical UAS components**

2) Explore the **manufacturing issues and challenges** confronting UAS manufacturers and component supplier

3) Identify and analyze the greatest **supply chain related risks and challenges** impacting the UAS industry

4) Explore **impedances to and opportunities** for increased UAS supply chain visibility

5) Investigate and understand the **opportunities for improved resilience** in the UAS supply chain

6) Analyze and understand the impacts of **consumers perceptions and willingness** to support UAS technology

7) Examine the **feasibility and industry challenges** associated with moving from **low volume to high volume** production of UASs

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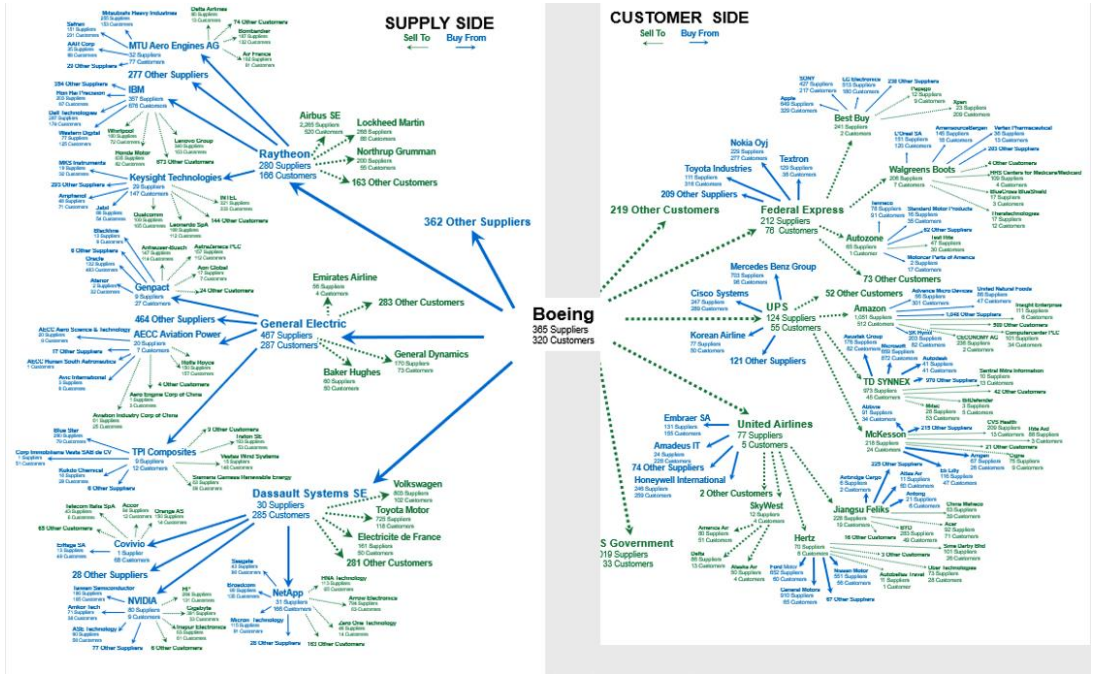
Data Collection

- We are looking to **interview** with interested **UAS practitioners** for this research.
- The findings of the research will **help further the understand the current state** of UAS and help improve processes.
- Subsequent **surveys, case studies, experiments** or other research methodologies may be used to delve deeper into the research goals.

Example Outcome



Graphic courtesy of Dr. Theodore Farris

Current Partners

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Collins Aerospace

NASA

brinc
DRONES

BELL

HILLWOOD
COMMUNITIES
A PEROT COMPANY

Peterbilt

TUSKEGEE
UNIVERSITY

hylio

Skydio

MARTINUAV

North Central Texas
Council of Governments

COMSovereign

Central Land Consulting, LLC

McKINNEY
CHAMBER
OF COMMERCE

FRISCO

NORTH CENTRAL
TEXAS COLLEGE

UNIVERSITY OF
South Carolina

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Contact Information

To participate in this research or learn more about it, reference the contact information below:

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Questions?