



**ORBITAL**<sup>®</sup>  
UAV

# Investor Update Presentation

17 October 2022

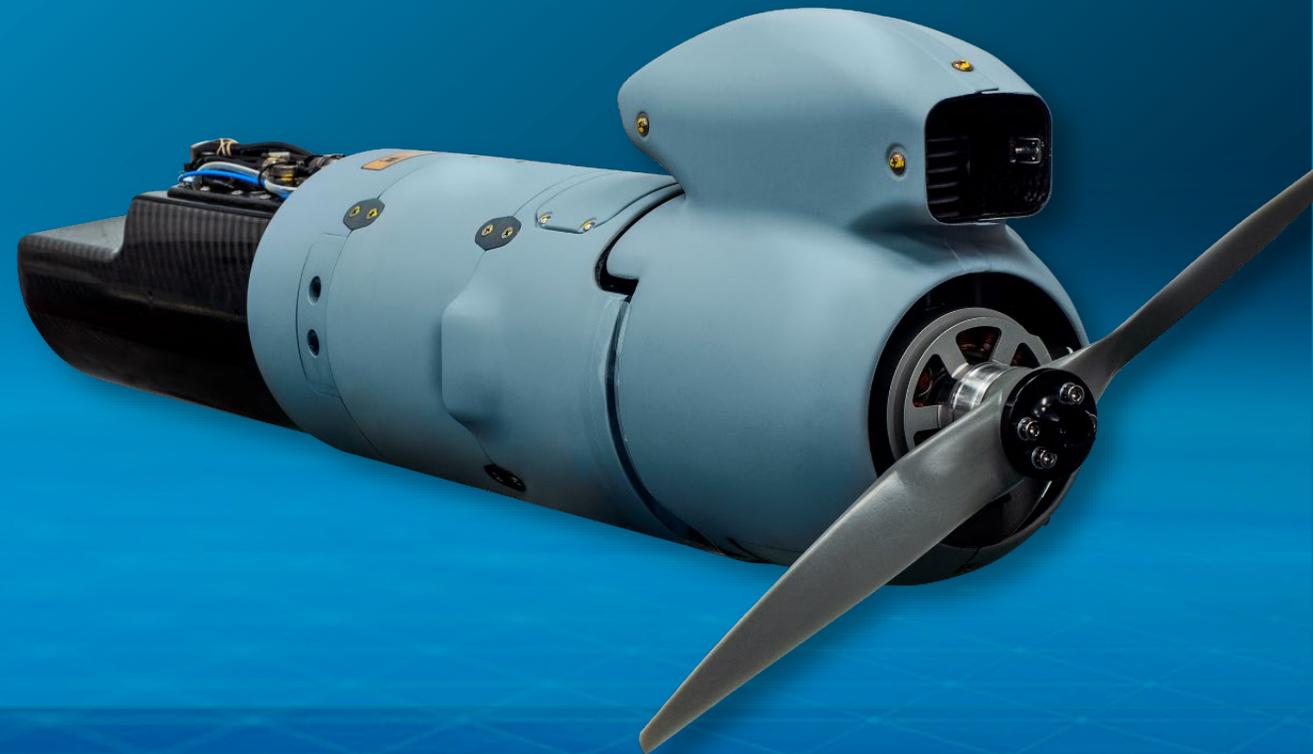
# Cautionary statement



This presentation includes statements looking-forward that involve risks and uncertainties. These statements are based upon management's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of the Company, that could cause actual results to differ materially from such statements. Actual results and events may differ significantly from those projected in the forward-looking statements as a result of a number of factors including, but not limited to, those detailed from time to time in the Company's Annual Reports. Orbital UAV makes no undertaking to subsequently update or revise the forward-looking statements made in this presentation to reflect events or circumstances after the date of this release.

All figures in AUD @ \$0.65

**World leader in the design  
and manufacture of  
integrated engine systems  
for military drones\***



(\* Tactical Unmanned Aerial Vehicles 'UAVs')

# At a glance

Orbital UAV (ASX : OEC)



Targeting a \$3 billion annual global tactical UAV defence market

Heavy fuel (jet fuel) engine capability is an objective requirement within the tactical UAV market

Orbital UAV's patented technology solves the heavy fuel engine challenge for tactical UAVs

Orbital UAV has established engine production lines & development programs for global defence Primes

# What is a tactical UAV?

Intelligence, Surveillance, Reconnaissance



Tactical UAVs are used by global defence forces for intelligence, surveillance and reconnaissance (ISR) missions

- Field operated by military units
- \$2 - \$6 million per system<sup>1</sup>
- State-of-the-art electronic payloads (e.g. day/night cameras)
- Wingspan up to 5 m
- Flies at up to 20,000 ft
- Endurance up to 24 hours



Naval vessel-based



Launch & capture



Runway dependent



Vertical take-off & landing

# Orbital UAV's target market

Tactical UAV's dominated by defence Primes



**\$3B**  
Global tactical UAV forecast  
production in 2022<sup>1</sup>



# Why heavy fuel?

An objective requirement for allied forces



**JP-8 & JP-5**  
(kerosene-based,  
heavy fuels)  
**have been the  
preferred fuel of  
allied forces  
since ~1990**

## THE BENEFITS

**Safety** – higher flashpoint temperature

**Logistics** – transportation, avoids cross contamination

## IMMEDIATE MARKET DEMAND

Heavy fuel is an objective requirement of the US Army's Future Tactical Unmanned Aircraft System (FTUAS) Program – valued at ~\$1.5 billion<sup>2</sup>

## ORBITAL UAV'S OPPORTUNITY

Patented engine technology enables Orbital UAV's propulsion solutions to deliver industry leading performance on heavy fuel

NATO Single Fuel Concept<sup>1</sup>

# Our unique product offering

Industry leading performance



## Orbital UAV's heavy fuel propulsion systems provide the world's best performing UAV engines

	Orbital UAV	Others
Time between overhaul	500 hrs	~50 hrs
Cold start to launch	2 min	>20 min
x3 U.S. FAR33.49 endurance test	Yes	No

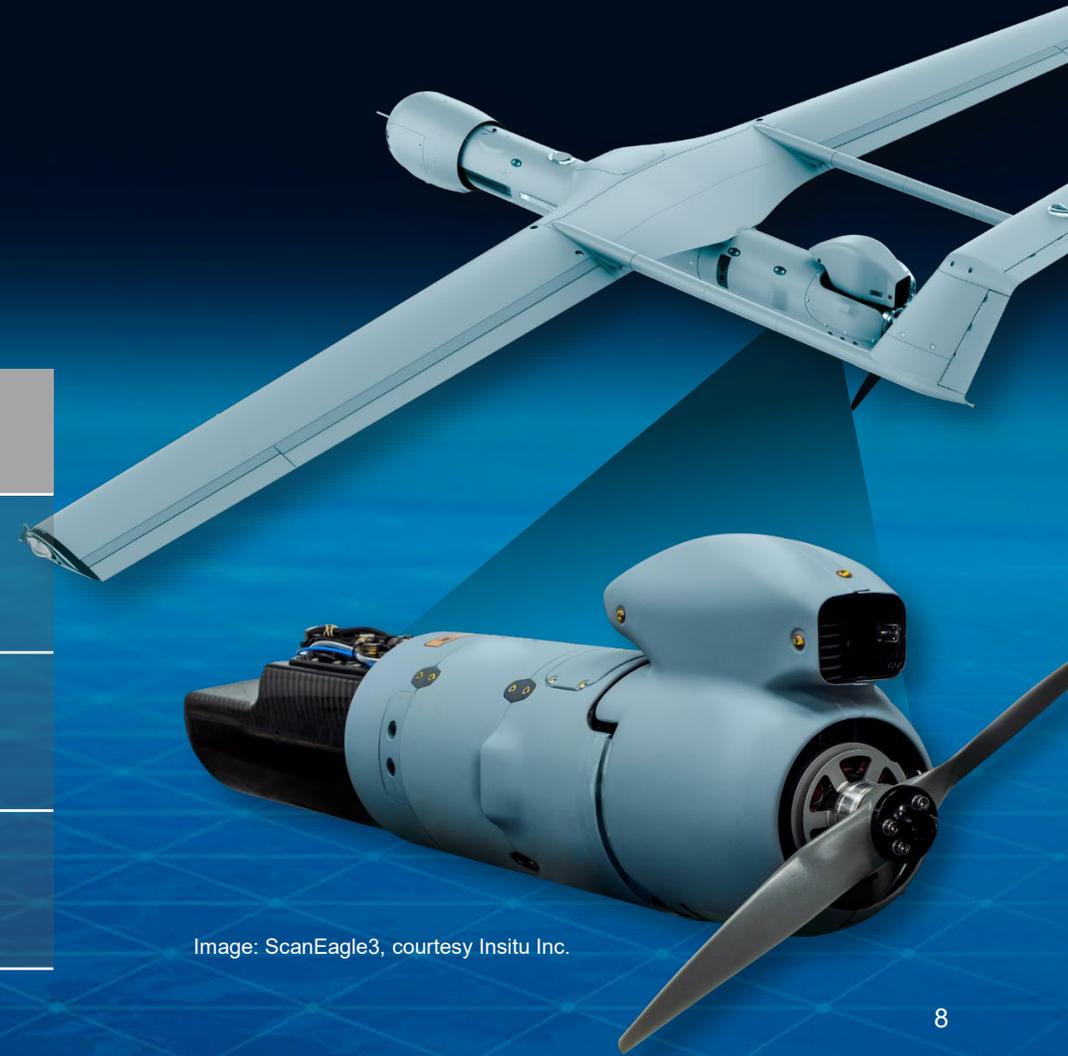
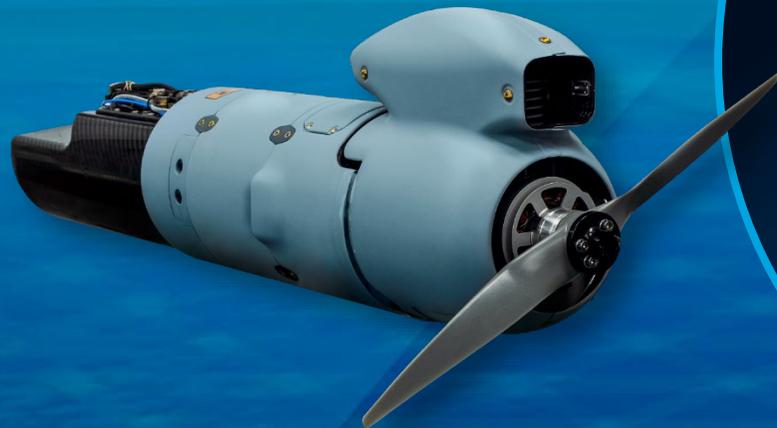


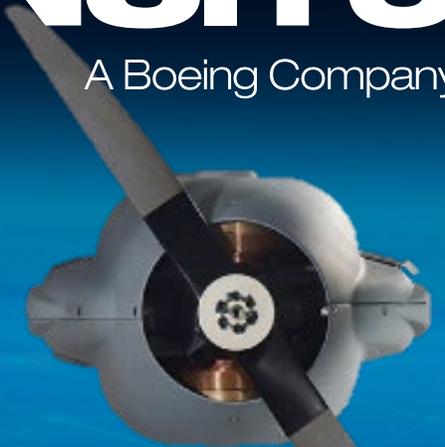
Image: ScanEagle3, courtesy Insitu Inc.

# Engine production contracts

Existing engine production contracts



Production  
Engines x 2



# Production customer

Boeing Insitu – a market leader



2021  
Defence  
Revenue  
~\$54 billion<sup>1</sup>

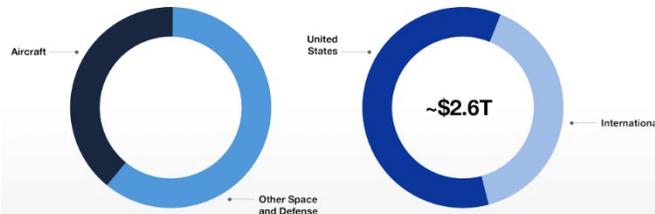


One of the largest, most diversified aerospace & defence companies in the world



- Unmanned autonomous systems supporting a variety of defence, civil, and commercial applications
- 25 years experience
- 1,300,000 flight hours
- Systems used by 30 countries, across 6 continents<sup>3</sup>

## Boeing Defence & Space Market Outlook<sup>2</sup>



- 10-year defence industry forecast for the markets that Boeing addresses through its defence and space offerings.
- Data indicates a total US\$2.6 trillion global market.
- The US represents nearly 60% of the total market, with the rest coming from nations worldwide.
- These large, stable markets have enduring demand driven by geopolitical and security challenges.



- New contract to supply Australian Army with Integrator UAS (Mar 2022)
- Royal Australian Navy awarded 3-year extension for ScanEagle (Dec 2021)<sup>4</sup>



# Engine development programs

Existing engine development to production contracts



**TEXTRON Systems**



**TEXTRON Systems**



**Development Programs**  
**X5**



**SKYWAYS**

**ANDURIL**

# Engine development customers

Established Primes & market disruptors



## TEXTRON Systems

- Subsidiary of Textron Inc. (NYSE: TXT), a \$19 billion multi-industry company<sup>1</sup>
- World leader in unmanned aircraft systems and one of the largest suppliers of tactical UAVs to the US armed forces<sup>2</sup>
- Supplier of the Shadow UAS to US Army



- Founded in 2017, transforming US & allied military capabilities with advanced technology
- Privately funding R&D to supply finished products off the shelf
- Awarded \$1.5 billion contract with Special Operations Command (SOCOM) – Jan 2022
- Opened Australia office – Mar 2022<sup>3</sup>



- Singapore defence market stands at budget of \$18.9 billion in 2022
- The market is expected to achieve a CAGR of more than 5% during 2023-27<sup>4</sup>
- Customer is one of Singapore's largest defence companies
- Developing a domestic use UAV



- Pioneer and emerging leader in UAV cargo transport
- Selected by US Navy's Naval Air Warfare Center Aircraft Division (NAWCAD) to provide a UAS prototype to demonstrate long-range naval ship-to-ship and ship-to shore cargo transport
- Currently testing platform as part of NAWCAD's Blue Water Maritime Logistics UAS program<sup>5</sup>

# Engine development opportunities

Near term engine development opportunities



## SHIELD AI



# Opportunity Pipeline



## L3HARRIS™



# Development opportunity customers

Globally recognised defence Primes



- Global leader in UAS and services
- Acquired Arcturus UAV in 2021 for ~\$690M
- Tactical UAS include the JUMP® 20 and Puma™ platforms
- Tactical missile systems (including the Switchblade® 600)
- Awarded Increment 1 of US Army FTUAS program<sup>2</sup>



- Recognised as one of the fastest growing private companies in the US in 2020<sup>3</sup>
- Listed in Forbes' annual AI 50 list in 2021<sup>4</sup>
- V-BAT UAV in operation globally



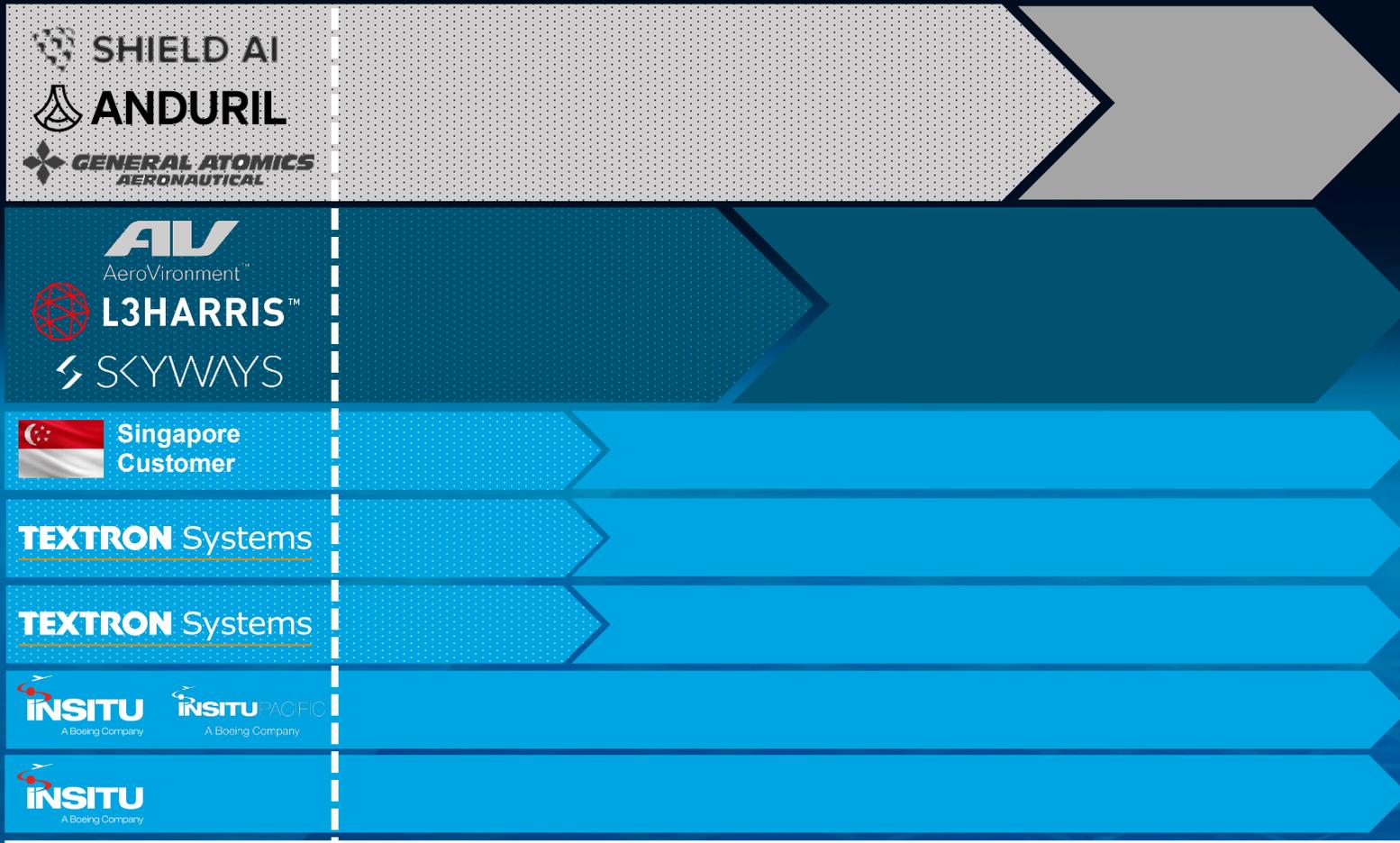
- A world leader in uncrewed aerial systems<sup>5</sup>
- Manufacturer of the Predator UAV series, including the SkyGuardian, SeaGuardian and MQ9A Reaper
- Predator series has surpassed 7 million flight hours



- Merger of L3 Technologies and Harris Corporation in 2019, to create the sixth largest defence contractor in the world<sup>6</sup>
- Defence revenue in 2021 of \$22.9 billion<sup>7</sup>

# Production / Development / Opportunity

Building out our engine opportunity



- **Production, maintenance & overhauls** continue on two Boeing Insitu engine production lines
- Contracts with Textron Systems & Singapore customer have **confirmed production pathways**
- AeroVironment, Skyways & L3 Harris represent potential engine **integration programs** with existing Orbital UAV products
- Shield AI, Anduril & General Atomics represent potential '**clean sheet**' engine design programs, requiring a longer development timeline

**Within four years, capturing 20% of the engine market – representing ~\$60M revenue in FY27**

FY23

Customer engine development and vehicle integration period

Engine production, maintenance and overhauls

FY27

# Production expansion

Engine development adding to Orbital UAV's production profile



## AUSTRALIA

Existing facility footprint: 3,238m<sup>2</sup>



Development & Testing

Engineering

Production

Corporate

Existing production capacity in Australia for:



TEXTRON Systems



Expansion identified for additional development programs & production lines

Adjoining facility in Australia: 2,125m<sup>2</sup>  
(Currently sublet by Orbital UAV)

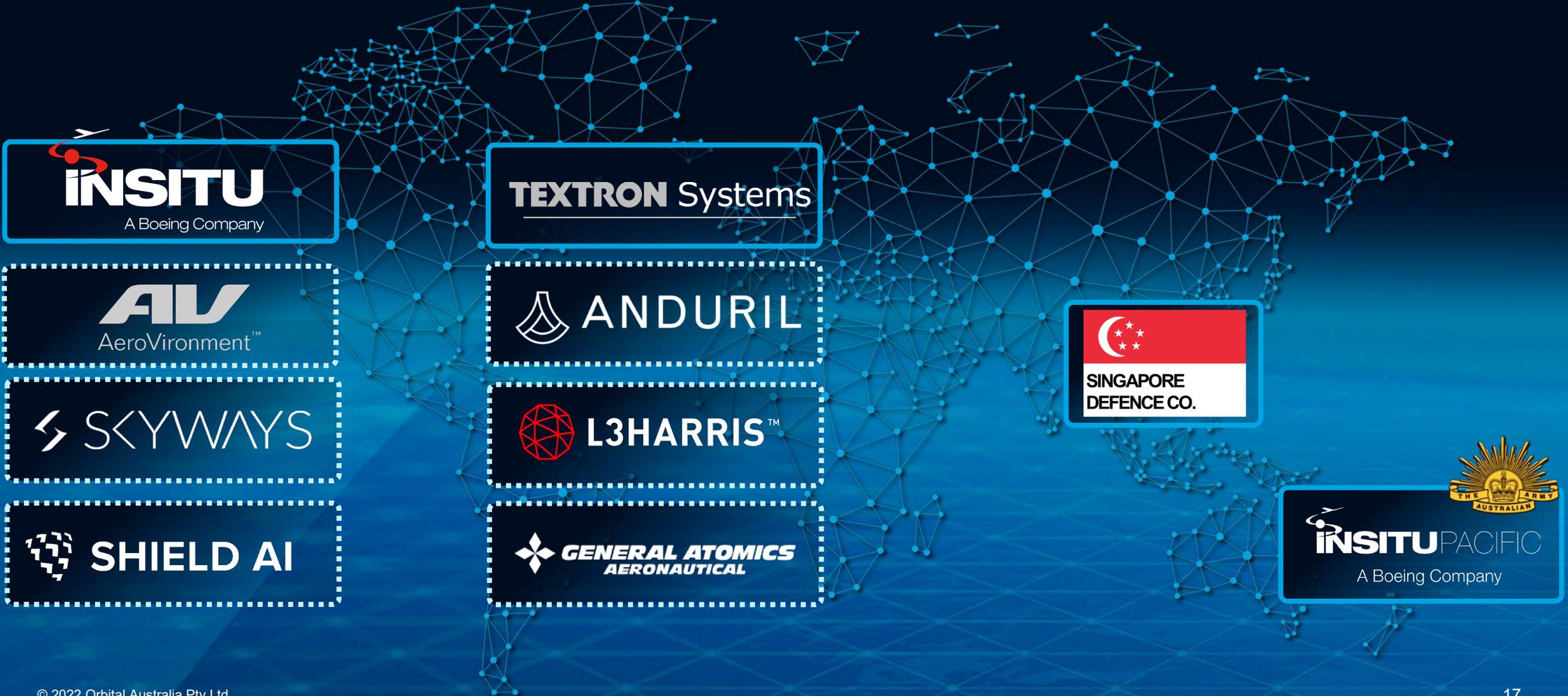


USA

Facility footprint: 1,210m<sup>2</sup>

# Diversified customer strategy

Delivering a diversified defence customer portfolio



# The continued rise of UAVs

A critical defence capability



Annual global tactical UAV market

**\$3B**

## CHANGING FACE OF WARFARE

- Rising border intrusions
- Information / data is key (ISR)
- New in theatre e-warfare and precision strike capabilities
- Armed forces acquiring UAVs for the first time



Australian Government Defence Ministers

Australian Army invests \$650 million in uncrewed aerial systems



## US SPENDING REMAINS DOMINANT

The US Army Future Tactical Unmanned Aircraft System (FTUAS) Program is one of the largest global UAV programs currently underway

FTUAS Program Forecast Procurement Spending<sup>1</sup>



# Tactical UAV market segments

Engines – a critical sub-system

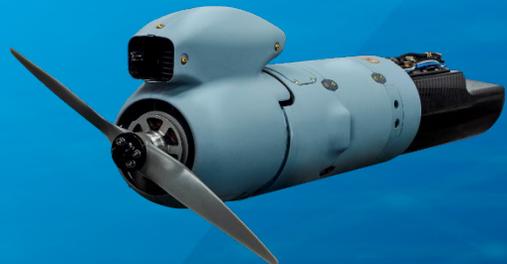


Integration /  
Build Labour: 10%



UAV Bill of  
Materials: 10%

Engines: 10%



\$3B

annual global  
tactical UAV market

Mission  
Management  
Systems: 30%



Training: 10%



Payloads: 20%



Ground Support  
Equipment: 10%



# Expanding into the \$3B market

Executing an increased content strategy



**Integration /  
Build Labour: 10%**



**UAV Bill of  
Materials: 10%**

- Including:**
- Power Management System
  - Flight Controller
  - Electronic Speed Controller
  - Harnessing
  - Composites

**Engines:  
10%**



**\$3B**

annual global  
tactical UAV market



**Mission  
Management  
Systems: 30%**



**Training: 10%**



**Payloads: 20%**

**Ground Support  
Equipment: 10%**

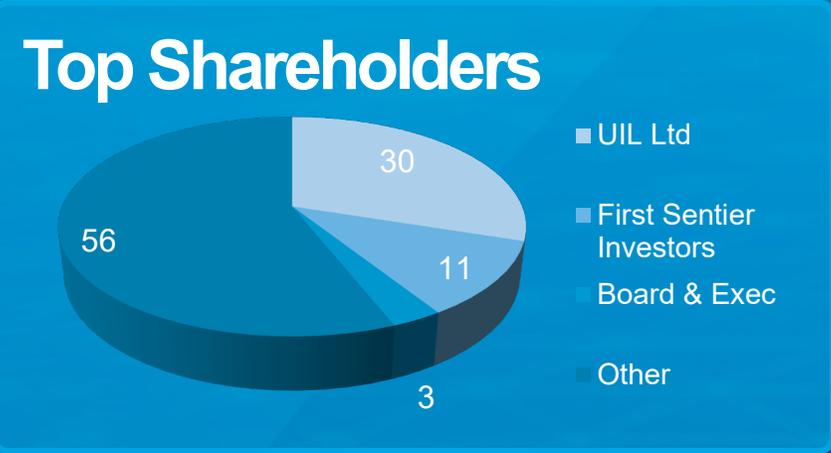


# Corporate overview



## Share Capital As at 14 October 2022

Fully Paid Ordinary Shares	91.9M
Closing share price	\$0.20
Market Capitalisation	\$18.4M



**John Welbom**  
Chairman  
Non-Executive Director

- Appointed Chairman March 2015
- MD & CEO of Equatorial Resources Ltd

**Todd Alder**  
Managing Director  
& CEO

- Appointed CEO & MD in 2017
- Focusing on: financial discipline; strategy alignment; and operational efficiency

**Steve Gallagher**  
Non-Executive  
Director

- Board member since 2017
- 30 years experience as a CEO and director of global businesses

**Kyle Abbott**  
Non-Executive  
Director

- Experienced aerospace and defence industry executive
- MD of WA Specialty Alloys 1996-2015

# Delivering superior solutions to the global UAV defence market

- Patented engine technology delivers significant competitive advantages
  - Existing suite of global defence customers
  - Targeting expansion within the \$3B UAV market segment
    - Strong Federal and State Government support





**ORBITAL**<sup>®</sup>  
UAV

*Ready to fly...*<sup>TM</sup>

[www.orbitaluav.com](http://www.orbitaluav.com)



# References



## Slide 5

<sup>1</sup> [World Military UAS Profile & Forecast 2020-21, Teal Group Corporation: Represents cost of the aircraft plus a portion of the system cost, e.g. ground control station, remote video terminal, launch system and recovery system.](#)

## Slide 6

<sup>1</sup> [World Military UAS Profile & Forecast 2020-21, Teal Group Corporation: Includes STUAS, TUAS & Navy VTOL](#)

## Slide 7

<sup>1</sup> <https://www.nato.int/docu/logi-en/1997/lo-1511.htm>

<sup>2</sup> <https://insideunmannedsystems.com/htbeyond-the-shadow-ftuas-competitions-next-phase/>

## Slide 10

<sup>1</sup> <https://www.boeing.com/defense/market/index.page>

<sup>2</sup> <https://people.defensenews.com/top-100/>

<sup>3</sup> <https://www.insitu.com/>

<sup>4</sup> <https://insitupacific.com.au/corporate/news/>

## Slide 12

<sup>1</sup> <https://www.textron.com/>

<sup>2</sup> <https://www.textronsystems.com/>

<sup>3</sup> <https://www.anduril.com/newsroom/>

<sup>4</sup> [https://www.globaldata.com/store/report/singapore-defense-market-analysis/?\\_gl=1\\*1nf4u22\\*\\_ga\\*MTlwNzgzNjQxMC4xNjY0ODcwNzcx\\*\\_ga\\_FY0QX202ZG\\*MTY2NTcwODQ4Ni4zLjAuMTY2NTcwODQ4Ni42MC4wLjA](https://www.globaldata.com/store/report/singapore-defense-market-analysis/?_gl=1*1nf4u22*_ga*MTlwNzgzNjQxMC4xNjY0ODcwNzcx*_ga_FY0QX202ZG*MTY2NTcwODQ4Ni4zLjAuMTY2NTcwODQ4Ni42MC4wLjA).

<sup>5</sup> <https://www.janes.com/defence-news/news-detail/update-us-navy-acquires-skyways-aircraft-prototype-for-blue-water-maritime-logistics-uas>

## Slide 14

<sup>1</sup> <https://www.avinc.com/>

<sup>2</sup> [https://www.army.mil/article/259481/u\\_s\\_army\\_awards\\_ftuas\\_increment\\_1\\_ota\\_to\\_aerovironment\\_inc](https://www.army.mil/article/259481/u_s_army_awards_ftuas_increment_1_ota_to_aerovironment_inc)

<sup>3</sup> <https://shield.ai/newsroom/>

<sup>4</sup> <https://www.forbes.com/sites/alanohnsman/2021/04/26/ai-50-americas-most-promising-artificial-intelligence-companies/?sh=48091f4777cf>

<sup>5</sup> <https://www.ga-asi.com/>

<sup>6</sup> <https://www.l3harris.com/newsroom/press-release/2019/07/l3harris-technologies-merger-successfully-completed-board-directors>

<sup>7</sup> <https://people.defensenews.com/top-100/>

## Slide 18

<sup>1</sup> [AUVSI FY23 Defense Budget For Uncrewed Systems and Robotics](#)