



BELL – LIFT AS A SERVICE



J. SCOTT DRENNAN
VP – INNOVATION
06 MARCH 2019

AIR TAXIS



GLOBAL RIDE-HAILING

\$36B in 2016
GROWING TO
\$285B by 2030

(Goldman Sachs)

URBAN AIR MOBILITY

750 million
passenger trips
ANNUALLY IN
15 major US cities
BY 2030

(NASA)

AIR TAXI AIRCRAFT

900 – 1,500
required by 2025

GLOBALLY
(Uber)

9,000 – 12,000
required by 2035

GLOBALLY
(Uber)





Configuration

Single Engine

Hybrid DEP System

Emergency Battery Power

6 - Ducted Tilting Fans

Redundant Electric Motors

Manned & Unmanned

Target MTOGW – 2725kg

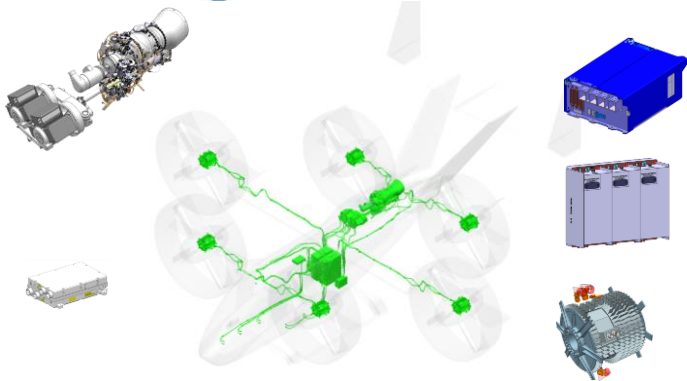
Target Range - 240km

Target Speed - 130kts cruise



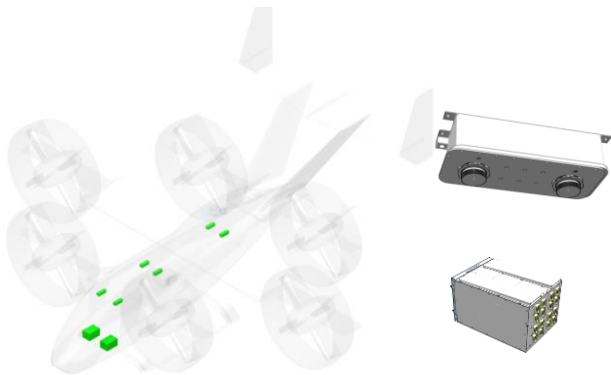
Major Systems Overview – Team Nexus

SAFRAN



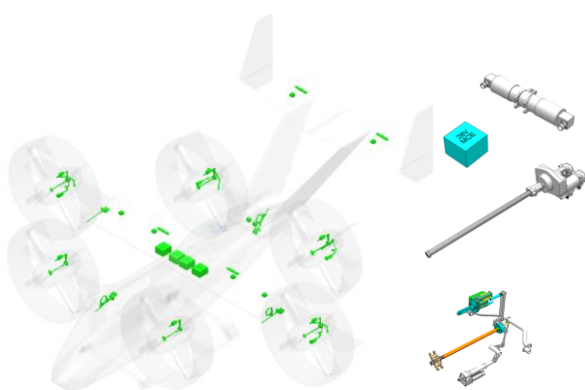
HYBRID PROPULSION / TURBOGEN

THALES



FLIGHT CONTROL COMPUTER

MOOG



ACTUATION

GARMIN



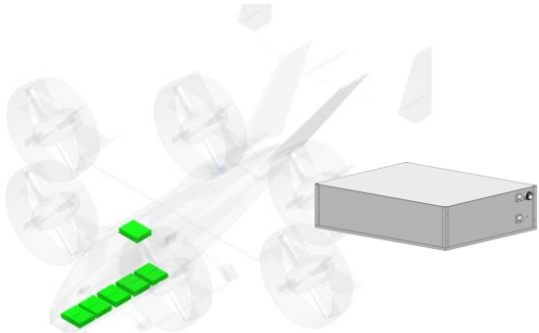
AVIONICS / VMC

TEXTRON Systems



GROUND CONTROL

ep
SYSTEMS



ENERGY STORAGE / BATTERY

Testing and Risk Reduction Examples

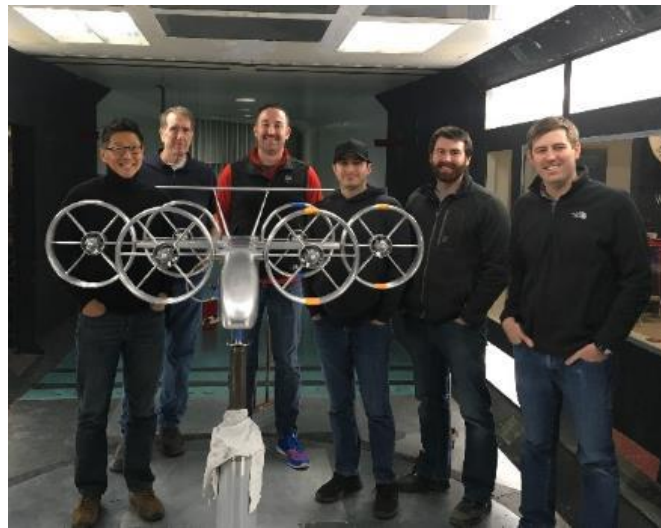
Performance Testing



Full Scale Static Duct (FRC)



Full Scale Powered (NRC)



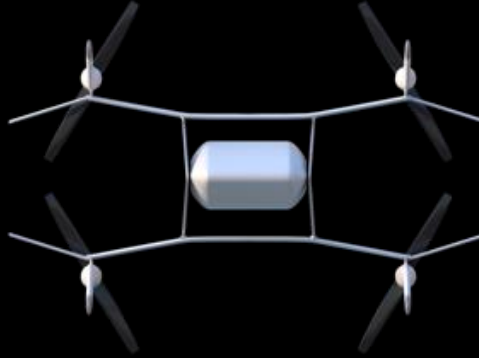
Subscale Powered

Mfg/Process Verification



Duct Z-Spar Build & Analysis

LOGISTICS & INFORMATION



GLOBAL 3PL

\$802B in 2016

GROWING TO

\$1 trillion by 2020

(Armstrong & Associates)

UAS PACKAGE DELIVERIES

500 million

ANNUALLY IN

15 major US cities

BY 2030

(NASA)

DELIVERY DRONES

250,000

IN THE US

required by 2025

(McKinsey)

650K – 1.5M

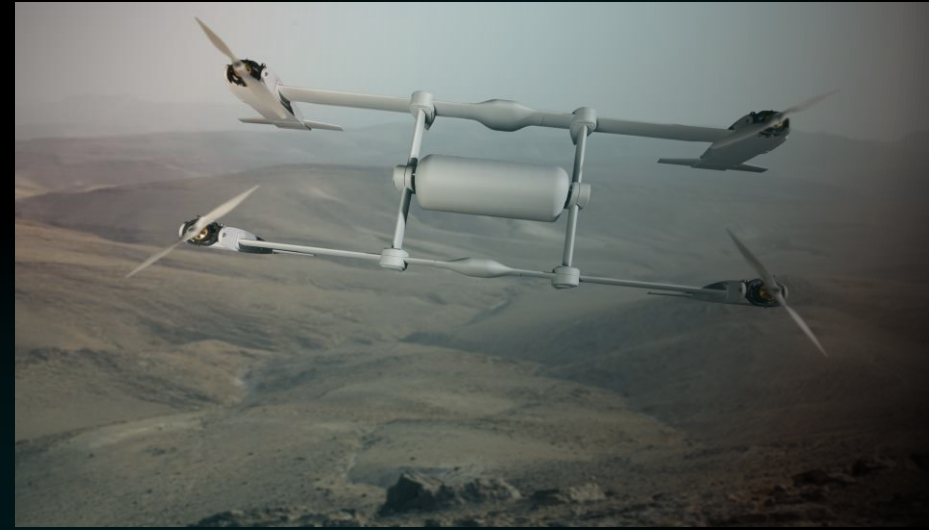
10% –20% YoY GROWTH

required by 2035

LOGISTICS

Package Logistics Opportunities **Beyond the Last Mile**



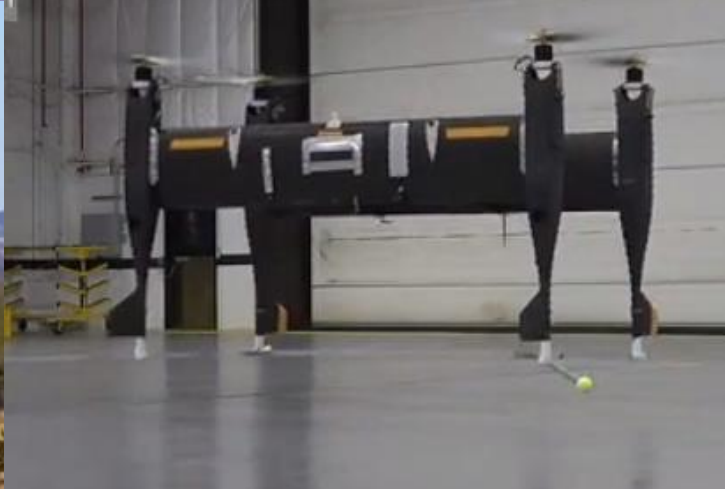


SCALABLE

ADAPTABLE

VERSATILE

2018 Highlights



UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION-FEDERAL AVIATION ADMINISTRATION SPECIAL AIRWORTHINESS CERTIFICATE			
CATEGORY/DESIGNATION		Experimental	
PURPOSE		Research and Development	
MANUFACTURER	NAME	N/A	
	ADDRESS	N/A	
FLIGHT	FROM	N/A	
	TO	N/A	
N 314PC	MODEL	APT70	SERIAL NO.001
BUILDER Bell			DATE OF ISSUANCE 04 Feb 2019
Unless sooner surrendered, suspended, revoked, or the termination date of 04 Aug 2019 , this airworthiness certificate is effective under the conditions prescribed in 14 CFR, Part 21, Section 21.181 or 21.217.			
SIGNATURE OF FAA REPRESENTATIVE  Scott W. Moore			DESIGNATION OR OFFICE NO. AIR-882
This airworthiness certificate is issued under the authority of Title 49 United States Code 44704 and Title 14 Code of Federal Regulations. Any alteration, misuse or reproduction for a fraudulent purpose of this certificate may be punishable by certificate revocation, fine, and / or imprisonment. THIS PORTION OF THE CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT PER THE APPLICABLE REGULATIONS.			

NASA System Integration & Operationalization (SIO)



An aerial, top-down view of a dense urban landscape, likely a city center. The image is heavily stylized with a teal or cyan color cast, giving it a futuristic or digital feel. Numerous high-rise buildings of varying heights and architectural styles are visible, packed closely together. The perspective is from directly above, showing the tops of the buildings and the intricate patterns of the city's layout. The lighting is somewhat dim, with the teal color dominating the entire scene.

Thank You