

A blue-tinted image of a helicopter flying over a city skyline. The helicopter is in the foreground, and the city buildings are in the background. The entire image has a blue overlay.

# SKYBOUND

## THE FUTURE OF ADVANCED AIR MOBILITY

PREPARED BY:

**SMG CONSULTING**  
SERGIO CECUTTA

COVER SLIDE BY:

CHATGPT AND DALL-E

PREPARED FOR:

UAS SAFETY AND INTEGRATION TASK FORCE

MAY 30, 2023

# CRYSTAL BALLING MARKET SIZING



**\$61**

PWC

(billion, 2030)



**\$115**

Deloitte

(billion, 2035)



**\$1,000**

Morgan Stanley

(billion, 2040)



## How big will the AAM market be?

Is the actual figure even important?

It is BIG

It is not the second coming of the VLJ market

Is it worth for an aerospace company to miss out on this market?

# THE ZOMBIE APOCALYPSE MARKET EVOLUTION



**800**

Concepts



**28**

ARI OEMs



**>70**

OEMs tracked



## Too many OEMs to survive...

Top 15 OEMs still need \$2.5 to \$4 billion to EIS

The case for consolidation or failures followed by IP and talent grab?

The case for the minimum viable product

- ARCHER
- VOLOCOPTER

The case for national champions



# SHOW ME THE MONEY URBAN AIR MOBILITY (UAM)



**60%**  
ARI OEMs



**36%**  
AAM market share  
(2025)



**65%**  
AAM market share  
(2040)



## The biggest market...at some point

Coming in 2024 at an Olympics near you

Events acting like catalysts (i.e. World Expo)

Push demand/Customer adoption

Slowest growing AAM segment in the 2020s

Infrastructure needed to grow



# THERE IS NO PACKAGE ACCEPTANCE CARGO/LOGISTICS



**25%**  
ARI OEMs



**10%**  
Total orders



**64%**  
AAM market share  
(2030)



## The biggest short-term opportunity

CAAC Cargo UAV cert at the end of 2023

Replace old, polluting, (cheap!) feeder planes

Pull demand/No customer adoption issues

Fastest growing AAM segment in the 2020s

The challenge of autonomous trucking



# BACK TO 1999 REGIONAL AIR MOBILITY (RAM)



**19**

Pax smallest regional aircraft (1999)



**70**

Pax smallest regional aircraft (2023)



**76%**

Frequencies decline small markets in the last 2 years



## Bring air service back to communities

Pull demand/No customer adoption issues

Plenty of airports to operate from

eVTOL is a plus

Connection between secondary markets and hub feeders from secondary markets

Fleet diversification and constrained flexibility



# TO RUNWAY OR NOT TO RUNWAY eCTOL



**10%**  
ARI OEMs



## Batteries love wings and RUNWAYS

Best configuration for electrification

Longer range (BETA TECHNOLOGIES +54%)

Best configuration for RAM

Less capital raised

Did not capture investors interest like eVTOL



**109**  
Max range regional  
eVTOL (mi)



**386**  
Max range regional  
eCTOL (mi)



# THERE WAS A PRIUS BEFORE TESLA HYBRID-ELECTRIC



**25%**  
ARI OEMs



**250**  
Average energy  
density battery (kWh)



**850**  
Average energy  
density hybrid (kWh)



**Jet A - 12x energy density of a battery**

Benefits cargo and regional use cases

Trade range for payload (and vice versa)

Fleet flexibility

SAF improves the carbon footprint

Not a complete ESG solution





# I, ROBOT AUTONOMY



**18%**  
ARI OEMs



**26%**  
Pilot as a % of  
DOC/Flight Hour



**5%**  
Supervisor as a % of  
DOC/Flight Hour



## Small aircraft = expensive pilots

CAAC only regulator certifying autonomy

FAA and EASA - 2030s

Cargo first

Needed to bring pricing down to ride hailing

LVL 5 car: not a LVL 4 without steering wheel

The case for out-of-the-box autonomy



The logo for SMG CONSULTING. The letters 'SMG' are in a large, bold, blue font. The letter 'G' has a blue arrow pointing to the right. Below 'SMG' is the word 'CONSULTING' in a smaller, blue, sans-serif font.

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# LEGISLATIVE UPDATE

**NICHOLAS ALLEN**

**NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS**

**North Texas UAS Safety and Integration Task Force  
Meeting**

**May 30, 2023**



# FEDERAL UPDATE- COMMENTS REQUESTED SUMMARY

- As the FAA reviews the recommendations of the UAS Beyond Visual Line-of-Sight (BVLOS) Operations Aviation Rulemaking Committee (ARC), the FAA is considering the expansion of BVLOS operations in certain operating environments with the appropriate safety mitigations to ensure no adverse safety impact. The FAA is seeking comment to gather additional technical input on key concepts and potential approaches that the FAA is contemplating for use in future exemptions.
- Comments due on or before June 14.
- <https://www.govinfo.gov/content/pkg/FR-2023-05-25/pdf/2023-11024.pdf>



# TEXAS BILLS OF INTEREST- PASSED

## Unmanned Aircraft

- **HB 3075 (Kacal)**- Relating to the operation of an unmanned aircraft over a correctional facility or detention facility. **Sent to Governor.**
- **SB 423 (Paxton)**- Relating to the use of unmanned aircraft by the Texas military forces. **Signed by Governor.**
- **SB 1308(Hancock)**- Relating to inspections and examinations by the Railroad Commission of Texas of certain sites and facilities conducted using unmanned aircraft. **Sent to Governor.**
- **SB 2144 (Parker)**- Relating to advanced air mobility technology. **Sent to Governor.**





# CONTACT US



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NCTCOG Legislative Updates: [www.nctcog.org/legislative](http://www.nctcog.org/legislative)

Texas Legislature Online: <https://capitol.texas.gov/>



# Update from NCTCOG

Presented by Ernest Huffman



# NCTCOG UAS Awareness Pilot Program RFP

## Platforms selected

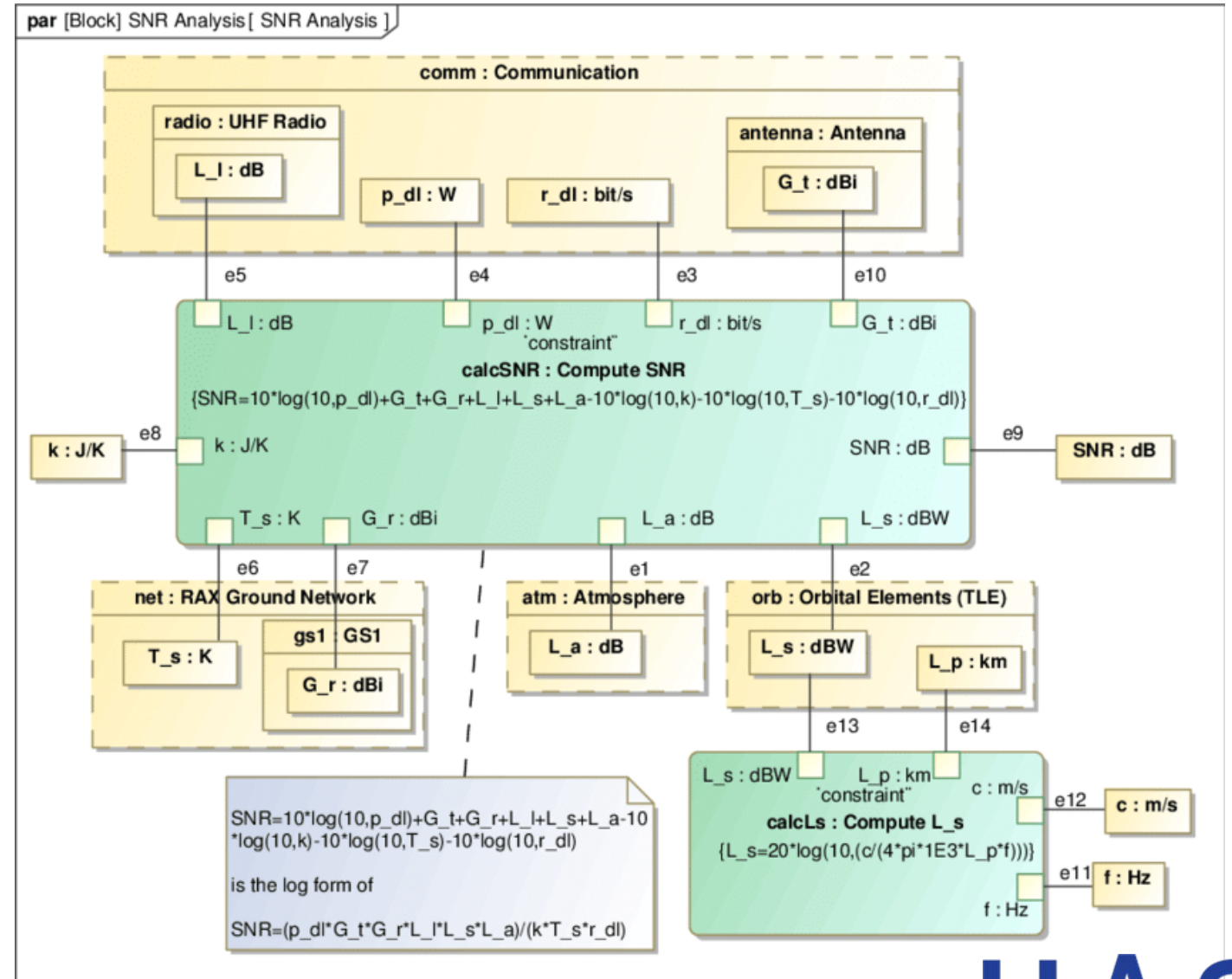
- ATA - <https://www.ata-llc.com/>
- Aloft.ai - <https://www.aloft.ai/>
- Airspace Link - <https://airspacelink.com/>

Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>NCTCOG Recruit City Participants</b>	x	x										
<b>NCTCOG Receive License from Applicants</b>	x											
<b>NCTCOG Receive Training from Applicants</b>		x										
<b>City Participants Receive Training</b>			x									
<b>Applicants will work with NCTCOG, cities and other stakeholders to develop standardized metrics for input</b>				x								
<b>NCTCOG Use platforms to input data for region</b>			x	x	x	x	x	x	x	x	x	x
<b>Cities input their own data (advisories, operations, etc...)</b>				x	x	x	x	x	x	x	x	x
<b>Public Workshop</b>					x							
<b>Live Action Maps embedded on www.northtexasuas.com</b>						x	x	x	x	x	x	x
<b>NCTCOG will search for funding mechanism for Phase 2</b>	x	x	x	x	x	x	x	x	x	x	x	x
<b>Pilot team and other stakeholders will provide a final report from Phase 1 with recommendations for Phase 2</b>												x

# NASA/NCTCOG AAM Community Planning and Integration Annex

## Next Step

- Training with Model Based Systems Engineering –MBSE, to model out proposed AAM corridors in DFW
- Will include NCTCOG Transportation Variables
- Will also include stakeholder feedback





# Multimodal/Drone Delivery Demonstration to Disadvantaged Communities and Mobility Challenged Populations

The main objective of the proposed project is to demonstrate, test, and evaluate the delivery of critical goods to mobility-impaired, historically disadvantaged, or individuals without reliable means of transportation using fully electric, low, or zero, emission autonomous multimodal delivery transportation modes.

## Team Members Organizations:

- City of Arlington (Arlington)
- North Central Texas Council of Governments (NCTCOG) which serves as host agency for the Dallas-Fort Worth Clean Cities Coalition (DFWCC)
- The University of Texas at Arlington (UTA), College of Engineering
- The University of Texas at Arlington (UTA), Institute of Urban Studies (IUS)
- Tarrant Area Food Bank (TAFB)
- Airspace Link Inc. (ASL)
- Volatus Aerospace (Volatus)
- Clevon

# Other Updates

- **FAA BVLOS Waiver Comments** - The FAA is seeking public input on four requests to conduct beyond visual line-of-sight (BVLOS) drone operations at or below 400 feet. - [See Here](#)
- **Unmanned Aircraft Systems (UAS) Detection and Mitigation Systems ARC** - [ARC Charter](#)
- **AUVSI's Blueprint for Autonomy** - [Full Document](#)
- **7th Annual Energy Drone & Robotics Summit**
  - a. June 12 - 14, 2023, Woodlands Waterway Marriott, Houston, TX
  - b. Register - [Here](#)
  - c. For Task Force Members Dawn Zoldi has FREE VIP delegate passes - they cover the Workshop + Expo Hall passes as well as a few networking events.