Homeland Technologies, LLC
4 Bingham
Columbia, MO 65203
Single POC: Galen Suppes
Phone: 573 673 8164
Email: suppesg@mediacombb.net

Encountering Innovation
June 6-9, 2022
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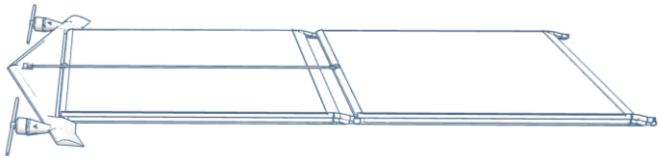
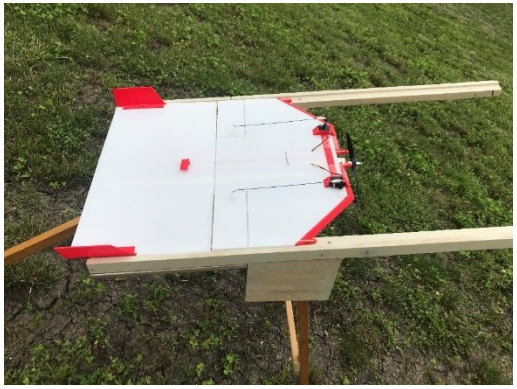
Kansas

HS-Drone Next Generation Drone Technology – eVTOL, Faster, Solar Powered





Presenter:
Galen Suppes
CEO
Homeland Technologies, LLC

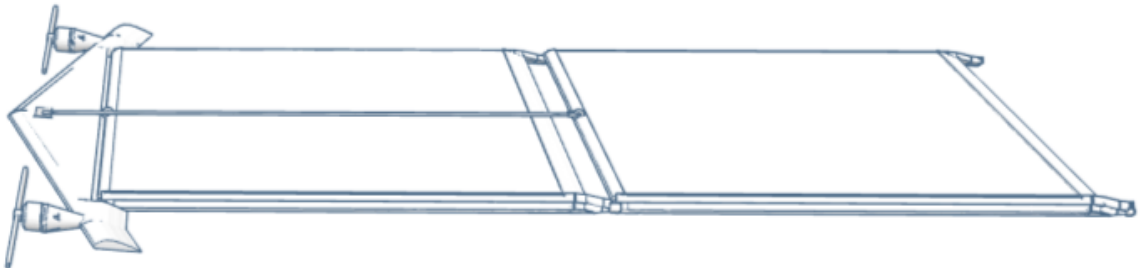
Technology: 24/7 Solar-Powered Flight

Benchmark (one of competitors) -

- Two decades old,
- Payloads up to a few kg,
- Fragile,
- Slow.

HS-Drone -

- Patented* (2020),
- Unlimited Payload,
- Robust,
- Fast.



!

What are the implications?

*** Patents:** US10589838, US11186367, PCT/US20/36936, PCT/US21/16392, PCT/US22/14***.

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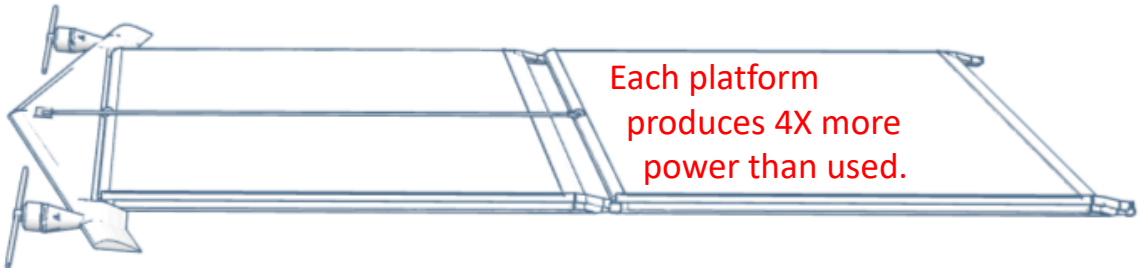
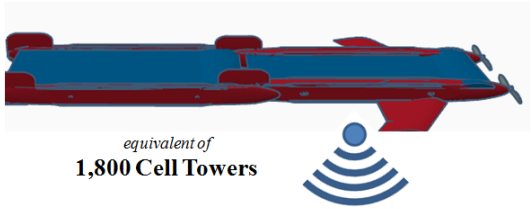


- Freight, Passenger, Unlimited Range, Unlimited Power, Small, Large,
- Photovoltaic Cells are 4X-8X more productive than on Earth's surface,
- Inexpensive!

What are the implications?

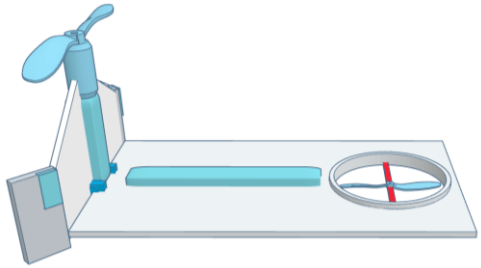
What are the implications?

Technology / Capability Overview



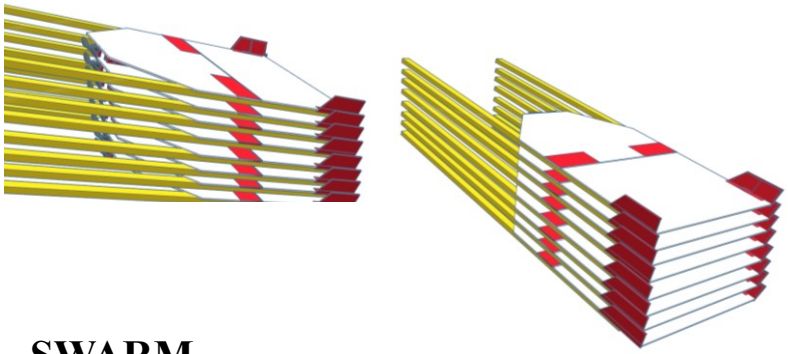
HAPS/HALE

(High-Altitude Pseudo-Satellite, 90,000 ft)
Low cost … small (e.g., 3 X 6 X 0.2 ft)
Deploy and re-deploy at will.



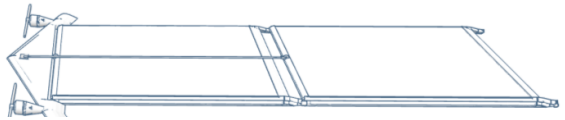
High-Speed eVTOL

Low Cost Materials - sheet construction
More Efficient → lower cost motor/battery
Lower Drag – high speed, long range
Unlimited Range – payload delivery



SWARM

Compact swarm delivery packages
Attack
Defense



24/7 Aerial Platforms

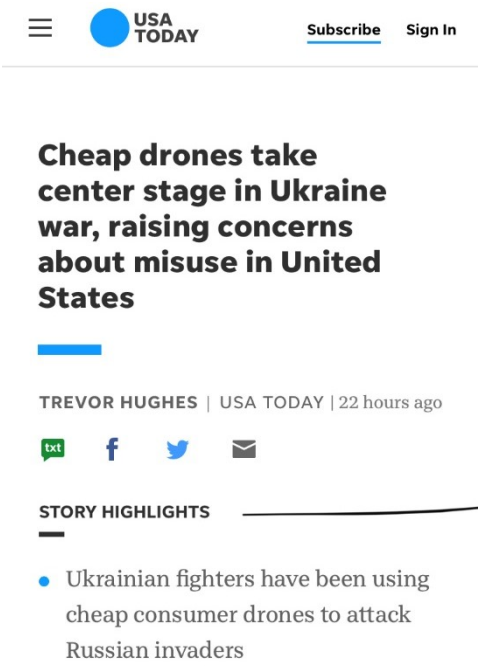
- Airborne Aircraft Carriers
- Airborne Industries (Hydrogen, Power)
- 80% Reduction in Solar Energy Cost
- 4X-8X solar productivity of Earth's surface

What are the implications?

Relevance to Combatant Command

- High Speed eVTOL that are lower cost and infinite range can dominate the battle theatre (replace legacy systems for army, air force, and navy) …. Including SWARM.

- HAPS/HALE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TREVOR HUGHES | USA TODAY | 22 hours ago

STORY HIGHLIGHTS

- Ukrainian fighters have been using cheap consumer drones to attack Russian invaders

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Technology / Capability Overview

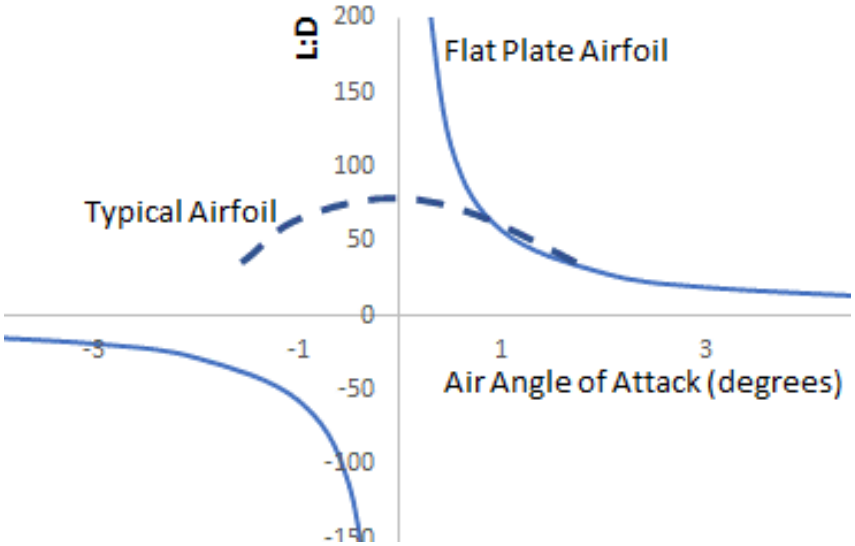
- Not “A” Product
  - A new path of evolution
  - Hundreds of products

- Aircraft
  - Transit
  - Warfare
  - Power Production
  - Chemical/Fuel Production
  - Space Launch Platforms
  - HAPS (communication)

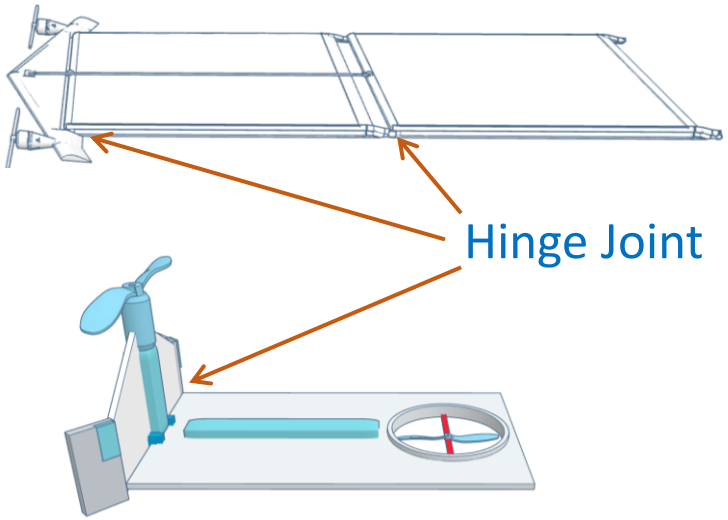
- It does not take a superpower to develop these!

Technology / Capability Overview

How is this possible?



The Wing/Airfoil is not the key to flight.
It is the easy way to attain stable flight.

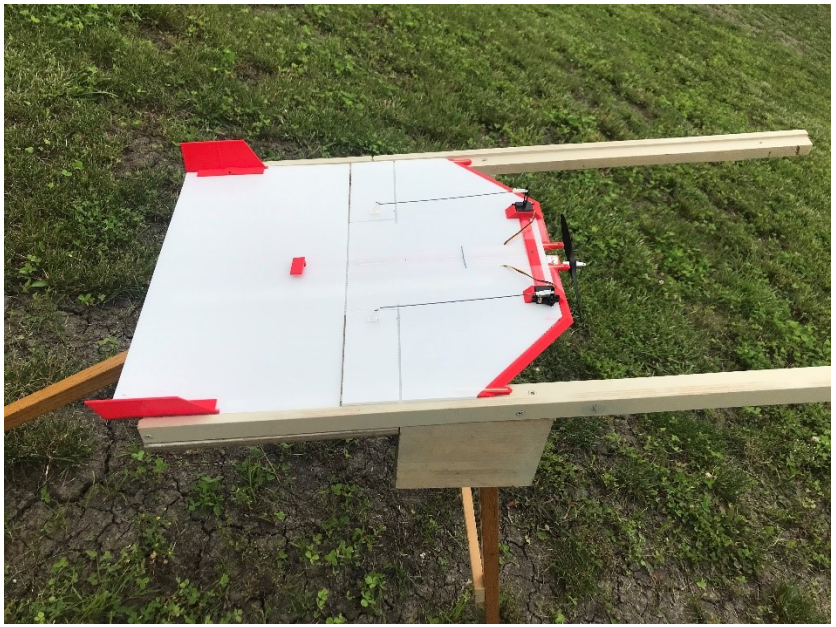


Patented – Pull platform through hinge.
"Towed" platform is stable
and more efficient than airfoil.

3X more efficient fixed wing.
10X more efficient VTOL.
Take something that "works" (HELIOS 24/7)
& transform to INCREDIBLE!
(more efficient, more surface, faster)

Past Performance of Technology and Company

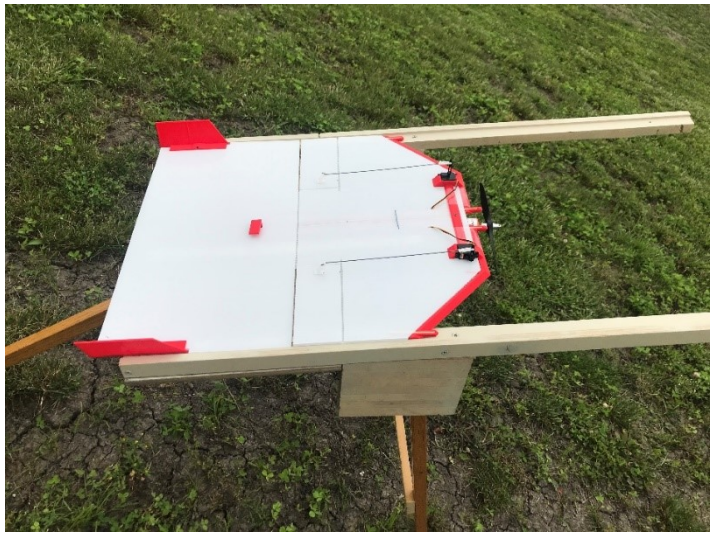
- 500 gram prototype of drone aircraft.
- 2 US Patents, + Other Applications.
- SEEKING worldwide patent and monopoly!



Maturity and Scalability

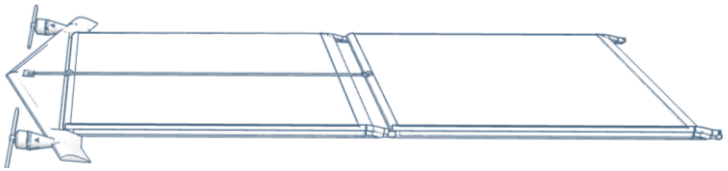
TRL = 4

Testing and evolving RC prototypes of aircraft with platform.



SCALING CONSIDERATIONS:

Proven containerized, self-operating system can be scaled for large municipal systems, or operated as multiple stand-alone units.



<u>Unlimited Excess Power</u>

… add more platforms (train).

Cost and Schedule

TIME TO MARKET WITH CURRENT FINANCIAL PLANS:
Without funding, small drone aircraft (e.g., first-responder and reconnoiter applications) can be on the market in 30 months.

TIME TO MARKET WITH FINANCIAL ASSISTANCE:
With funding of $500k, the 30 months becomes 12 months.

MAJOR COST:
Not getting international patent protection and monopoly of commercially-related products!

New/Real Threat – Commercially available products!

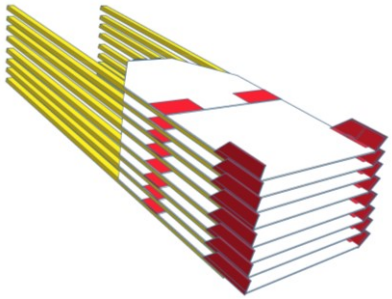
Summary

- Flawed aircraft design heuristics have created opportunity.

- Entire WARFARE THEATRE is impacted,

  … and much more!

- Not “a” product … hundreds of products … a path!

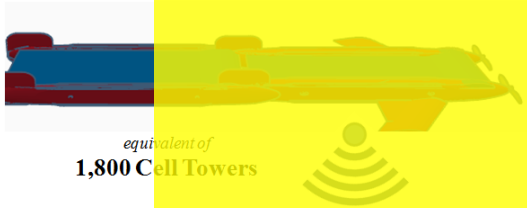


- First products: Swarm and Recon Drones.

  farther … faster … lower-cost … solar …

- It does not take a superpower to develop these, but international patent rights and international monopoly of commercial products can stay a step ahead (July 1 deadline)!

Starting with Benchmark that Works



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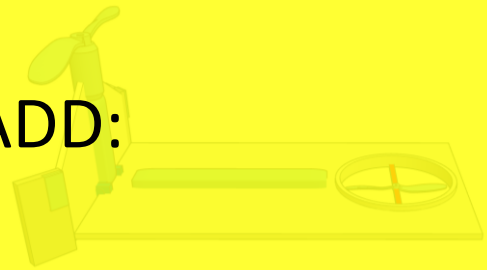

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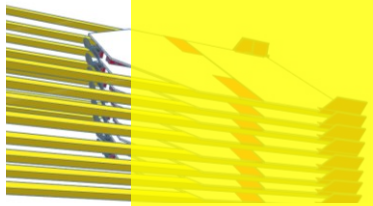
THEN ADD:

↑ Efficiency
↑ Surface Area
↑ Speed
Swarm
Patents



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Hundreds of Products!

& The Innovation Continues.

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