



Ultimate Flying Machine!



Company : Spin-off

- Korean government spent **\$130M for 14 years**
- Technology transfer from KARI, NASA in Korea
-  was founded in 2018



[Tilt-rotor Technology, KARI]



[Osprey : Manned Tilt-rotor]

Problem: Current Drone Limitations

- Multi-copter Drones

 Range



[Hovering]

- Fixed-wing UAVs

 Landing



[Parachute]

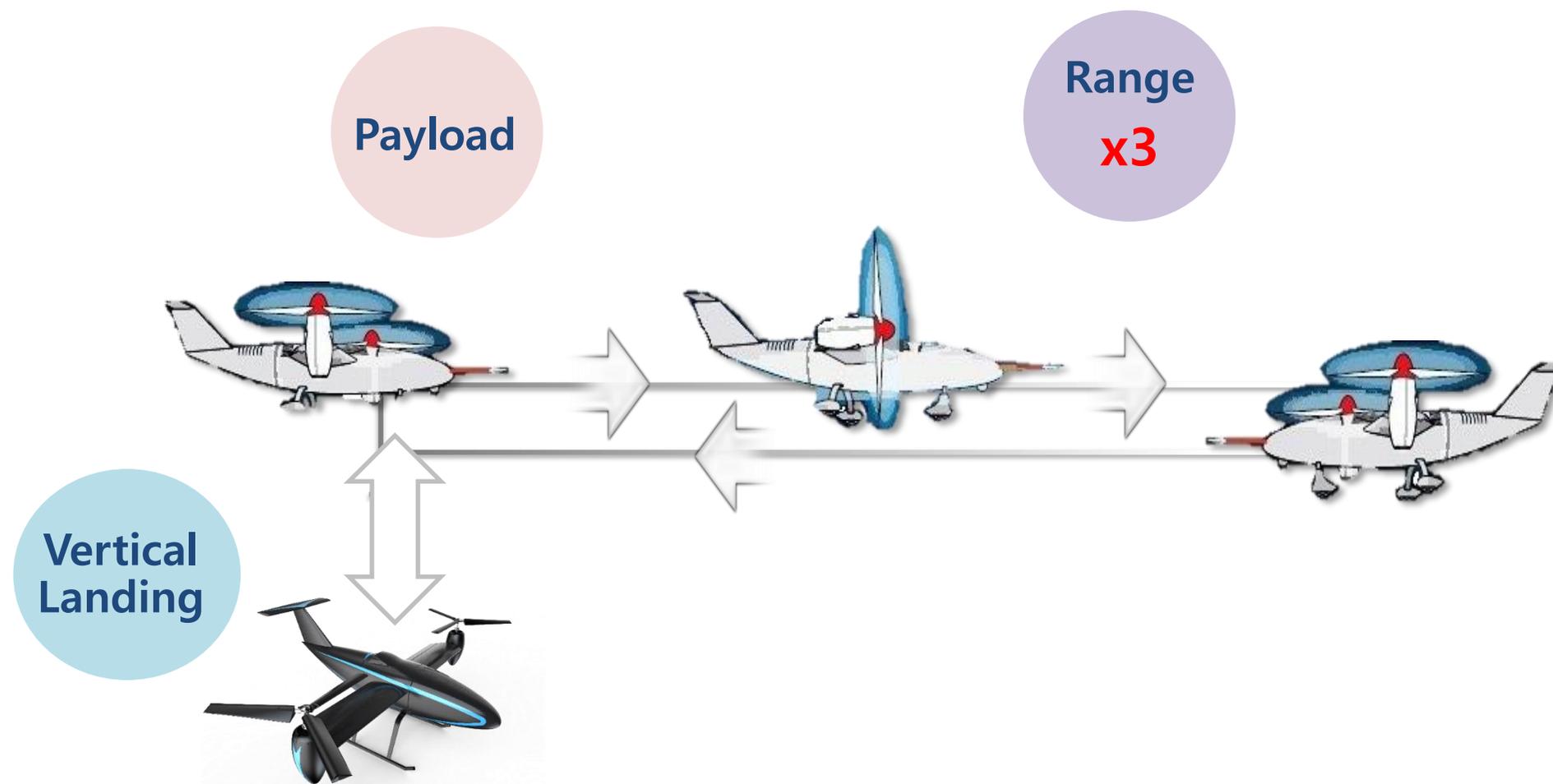


[Runway]

❖ Zipline raised total funding amount of **\$233M**
and is now valued at **\$1.2B**.

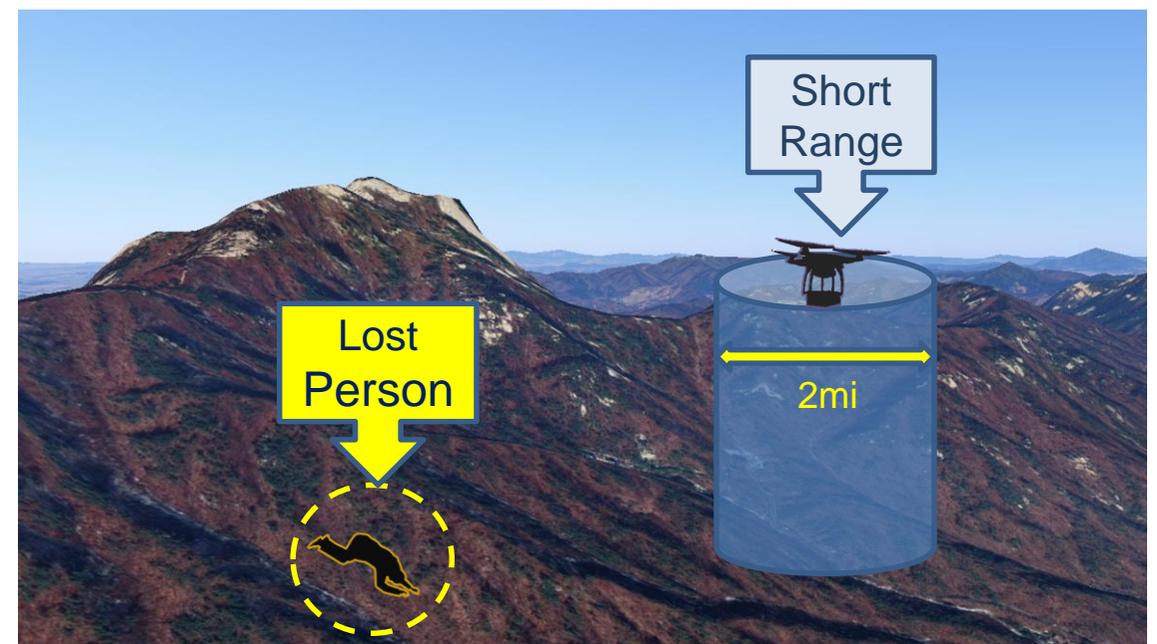
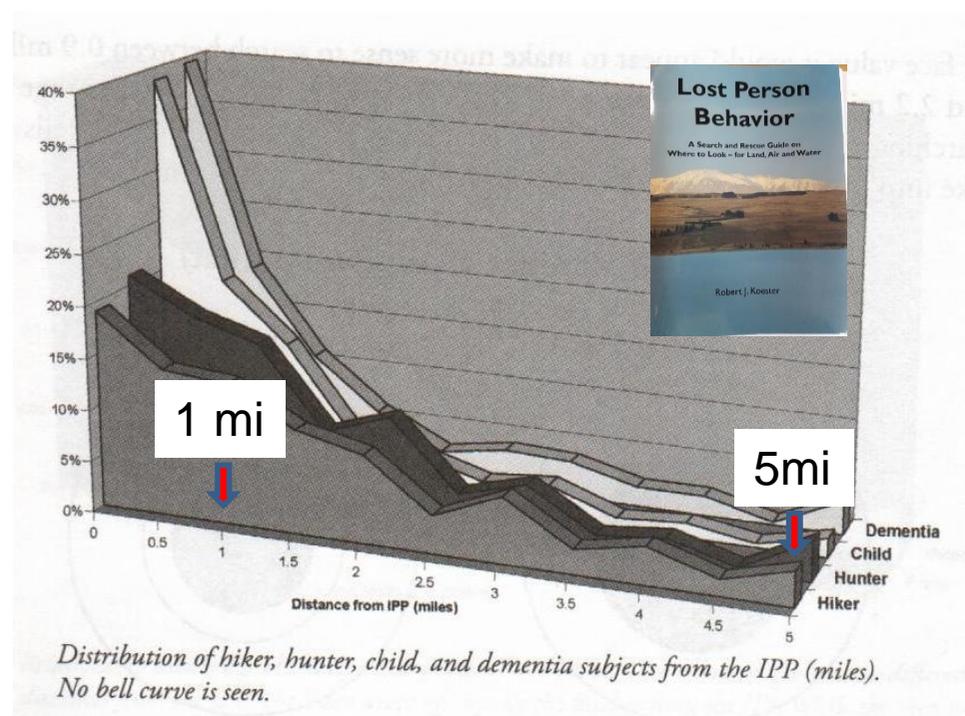
Solution : Tilt-rotor

- **Aerodynamic lift** makes it fly three times farther.
- **Best for delivery**



Beachhead Market : to Verify Technology

- *60,000 annual lost cases in mountain areas of the US
- 20% Drone Usage
- Search and Delivery

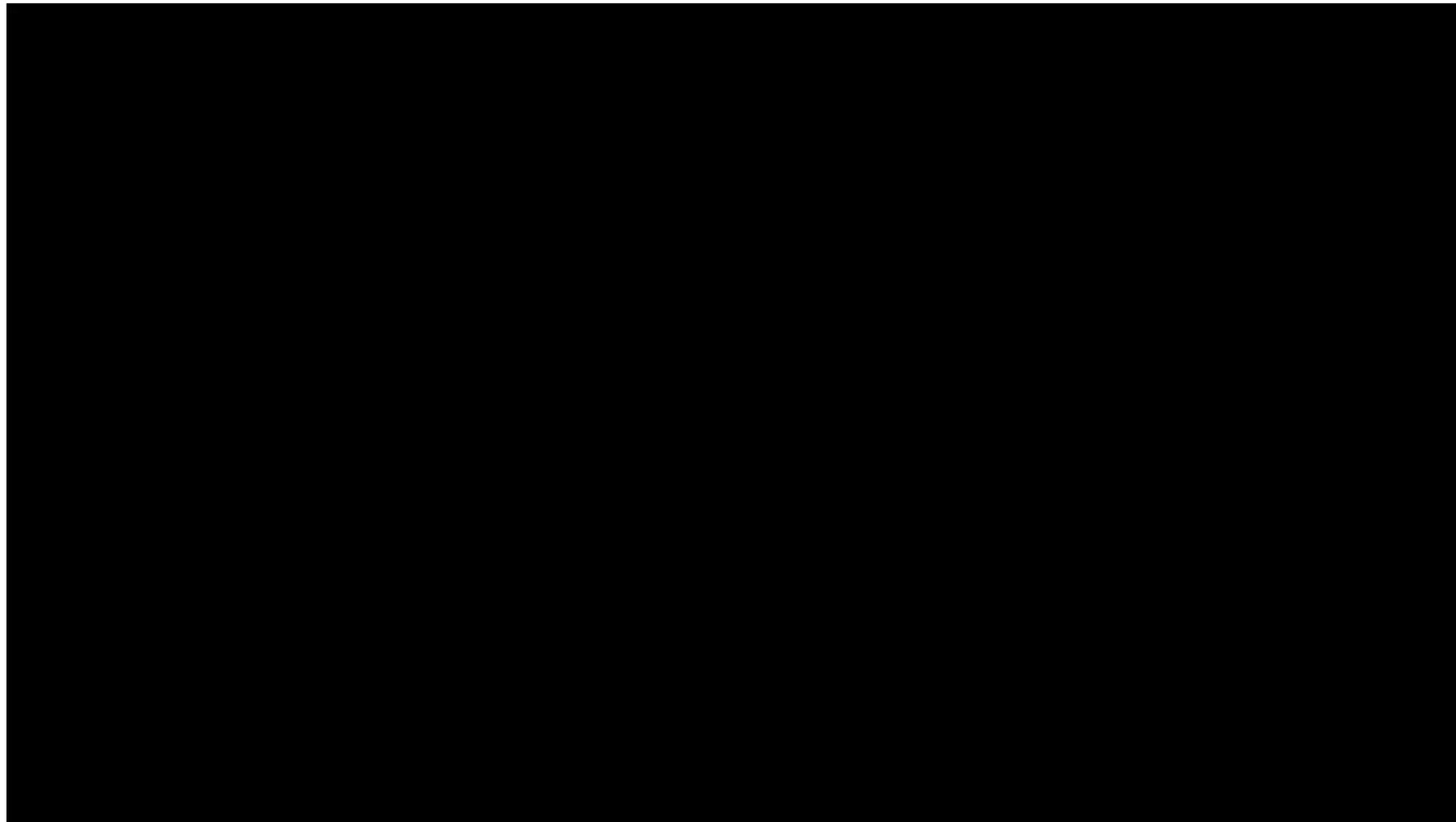


[Range Limitation]

* Robert J. Koester, Lost Person Behavior, 2008

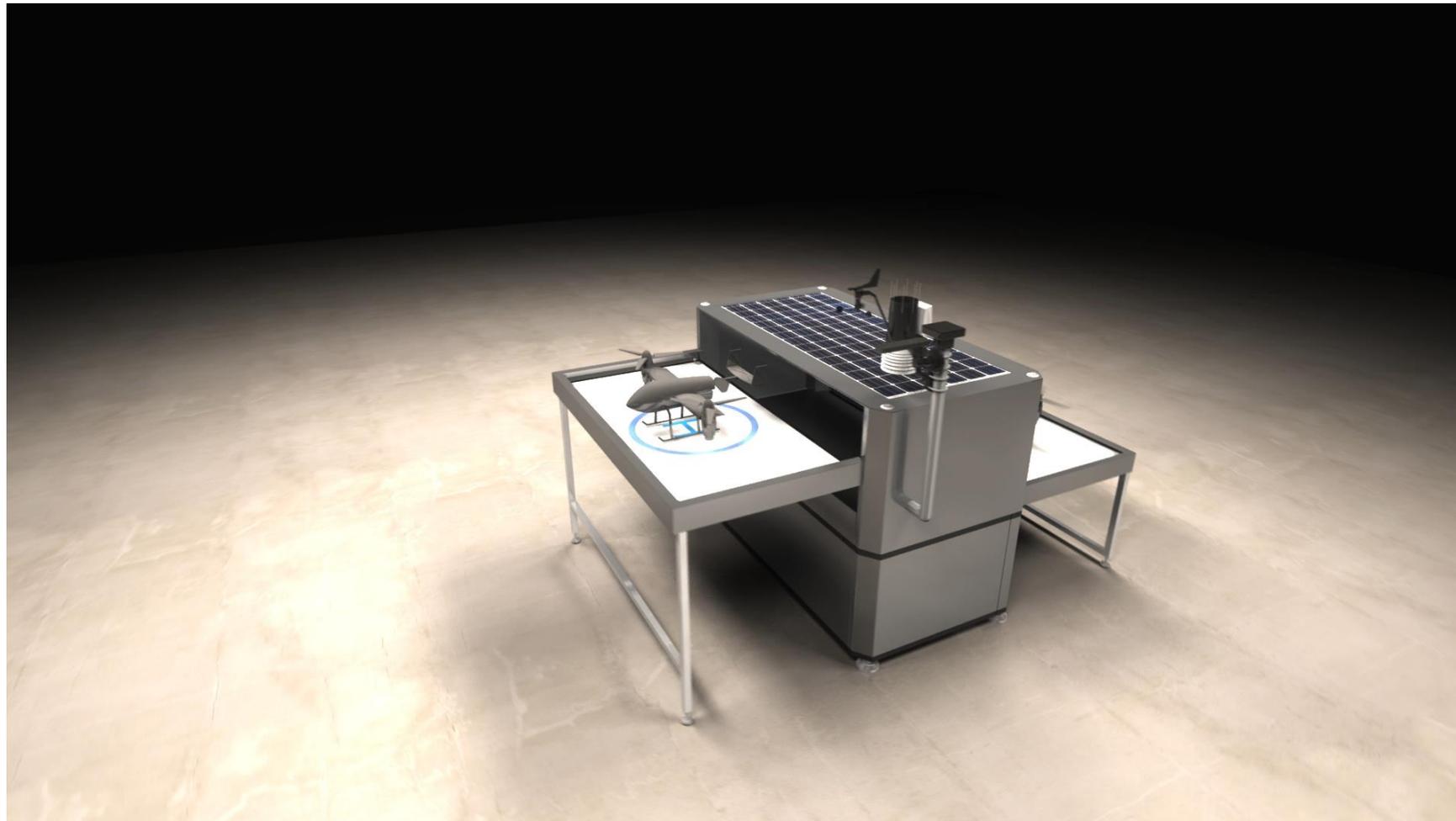
Product (~2019) : AF-100

- **Pilot Operation (Semi-Autonomous)**
- Flight Distance : 10 km
- Size : 1m (span)

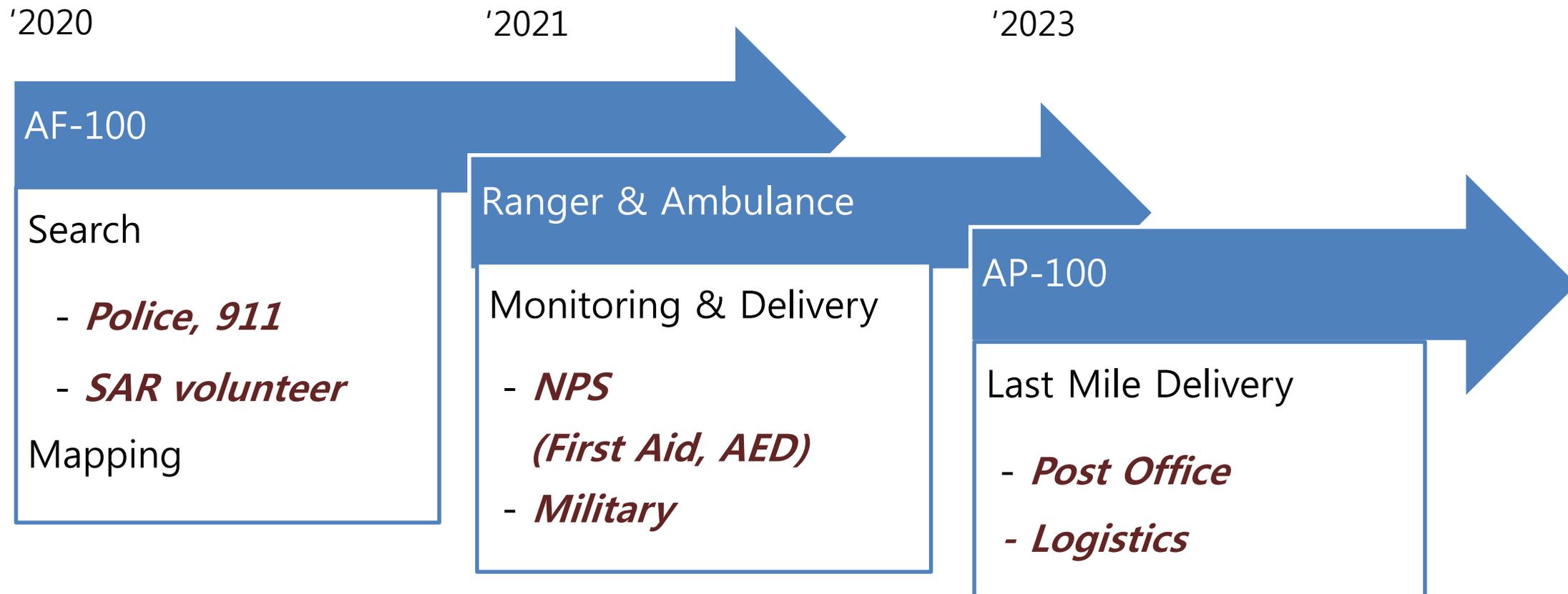


Product (~2020) : Ranger & Ambulance

- **Charging Station (Fully Autonomous)**
- Flight Distance : 20 km
- Payload : 5 kg (Camera or Medication)

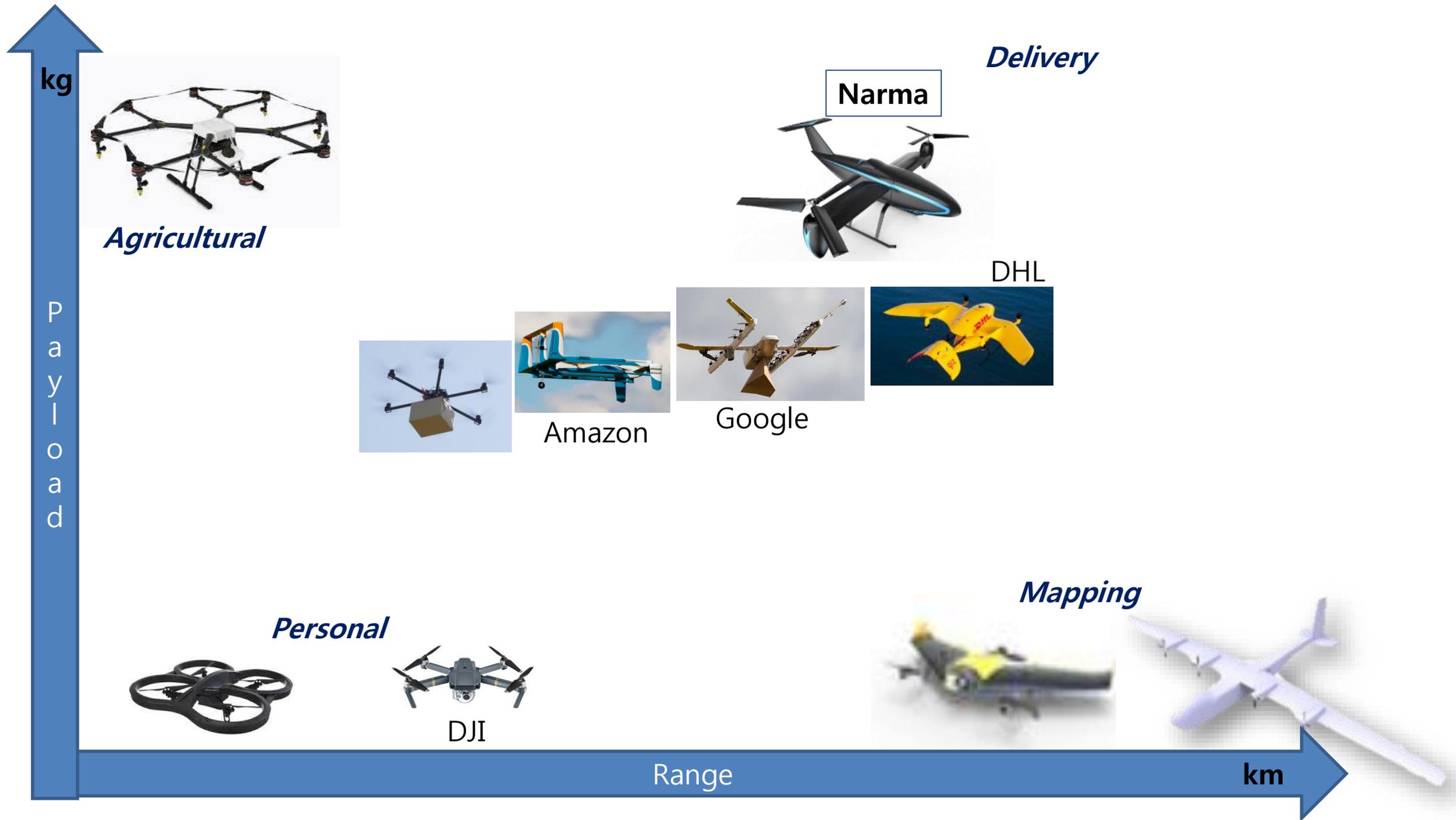


BM & Roadmap



- Direct Sales to Customers : \$30K~\$100K /unit
- MRO Services : 30% of unit price for 2 years

Drone Types



Competitors

- Which one is the best for delivery?



Short Range

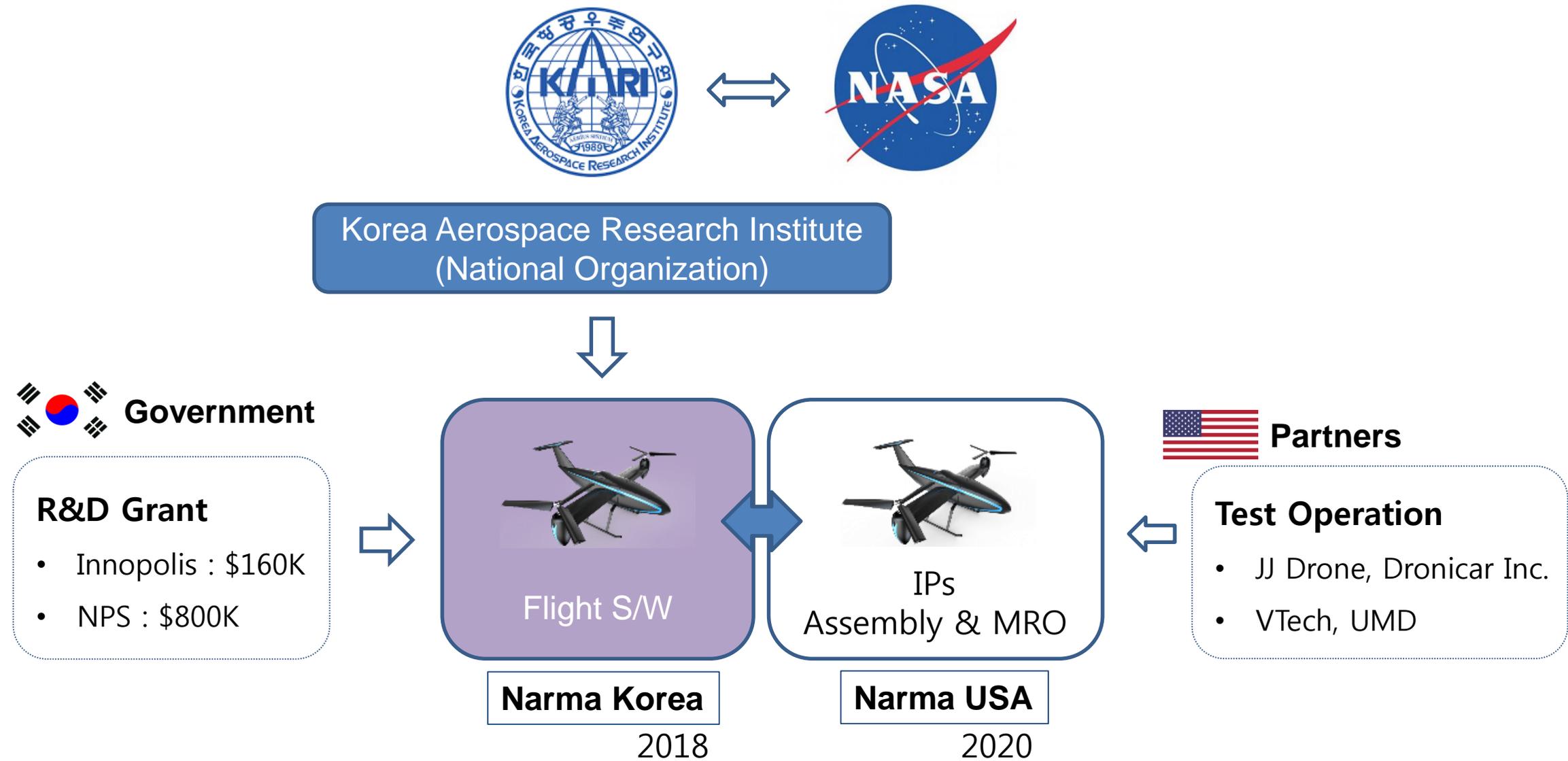
Mid Range

Robust

Expensive

Inexpensive
Long range
Carrying more
Low MRO Cost

Traction & Strategy



Team : Narma & KARI

- **K. Kwon** : CEO/Ph.D. 25 yr. at KARI (B.S./M.S. POSTECH, Ph.D. KAIST)
- **H. Choi** : 2 yr. Satellite Ctrl. (Queensland Univ.)
- **B. Na** : 4 yr. 3D Modeling (Korea Aviation Univ.)
- **J. Hwang** : 1 yr. Imbedded S/W (Chungnam Natl. Univ.)
- **W. Oh** : 6 yr. Drone Development (Chungnam Natl. Univ.)



▪ 12 KARI Researchers' Technical Support



Cheol-ho Lim, President



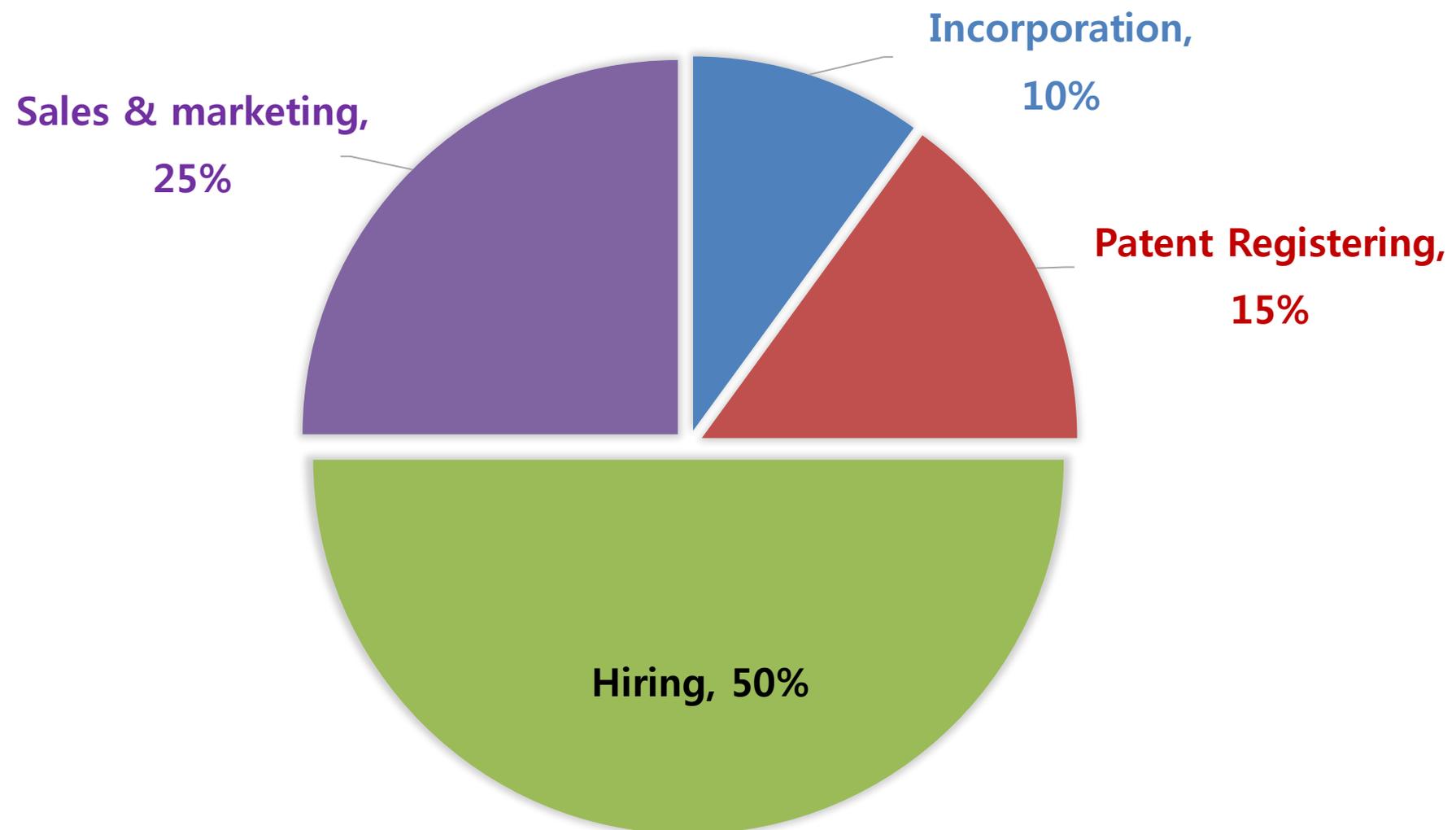
JM Kim, Director



SW Choi, Director

The Ask

- Narma USA requires \$2M for the next 2.5 years



No more waiting when you are urgent

In cooperation with **Korea Aerospace Research Institute**