

Perspectives and Suggestions of UAV in Logistics



SF EXPRESS is a Leading CEP company in China

SF Express was established in 1993, now it is based in Shenzhen, China. In 2016 SF Express has been listed on the Chinese stock market with a stock code 002352.



\$10.7 billion revenue, \$713 million profit in 2017



3,052 billion parcels in 2017



213k couriers



30,000 self-owned and outsourced vehicles for main/secondary lines



13,000 self-owned business points



**International express service cover 53 countries
SF E-Parcel service cover 225 countries**



Business Scope: One Stop Logistics Solution Supplier

Logistics Services



Express Service



Cold Chain Service



Heavy Freight Service



International Service



Warehousing Service



SF Industrial Park

Financial Services



SF Financial

Commercial Services



SF Best

Aviation Network: SF AIRLINES

SF Airlines has opened a number of air freight routes connecting major cities in China, and its transportation network will be further expanded along with the continued business development of SF Express.

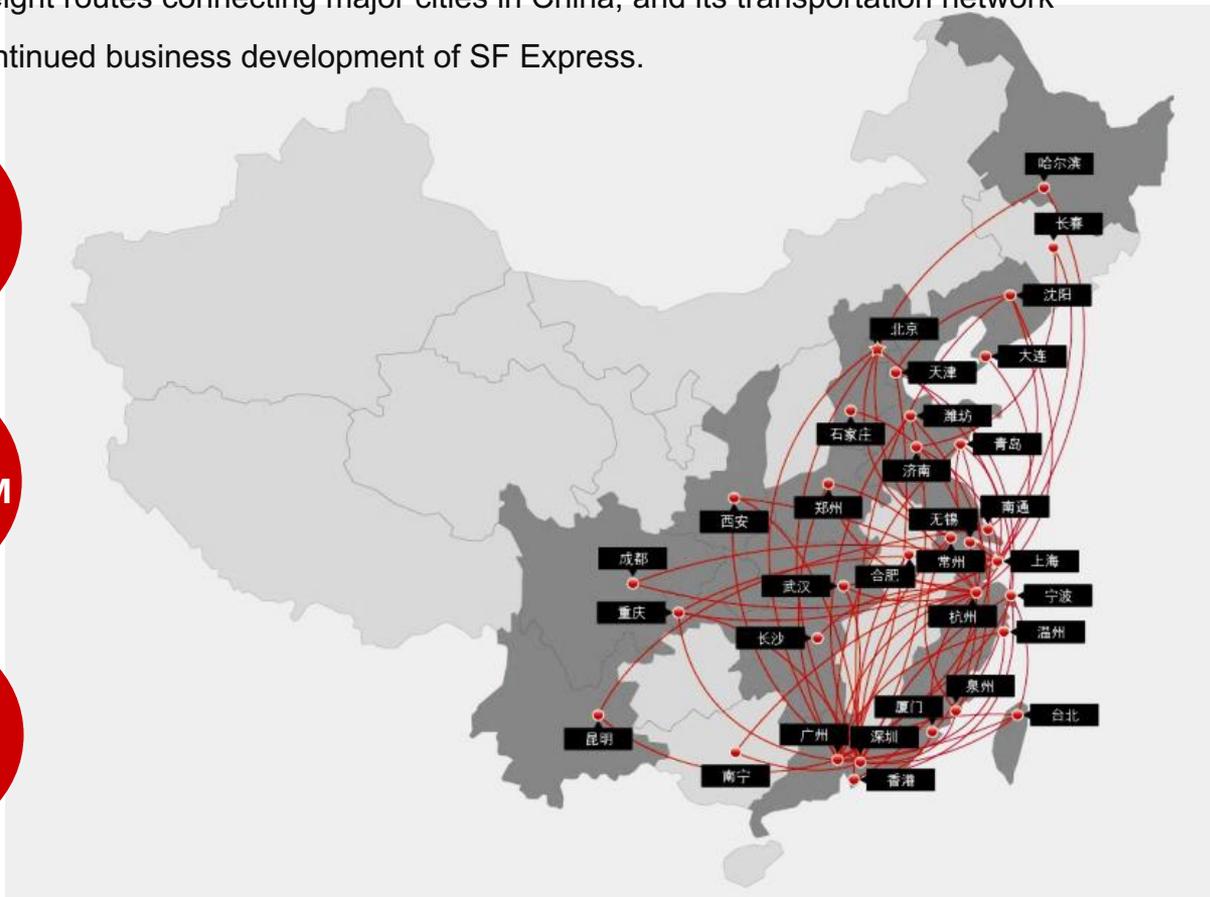
Fleet Size



SF Airlines shipments in 2017



Accounting for Chinese domestic air cargo volume

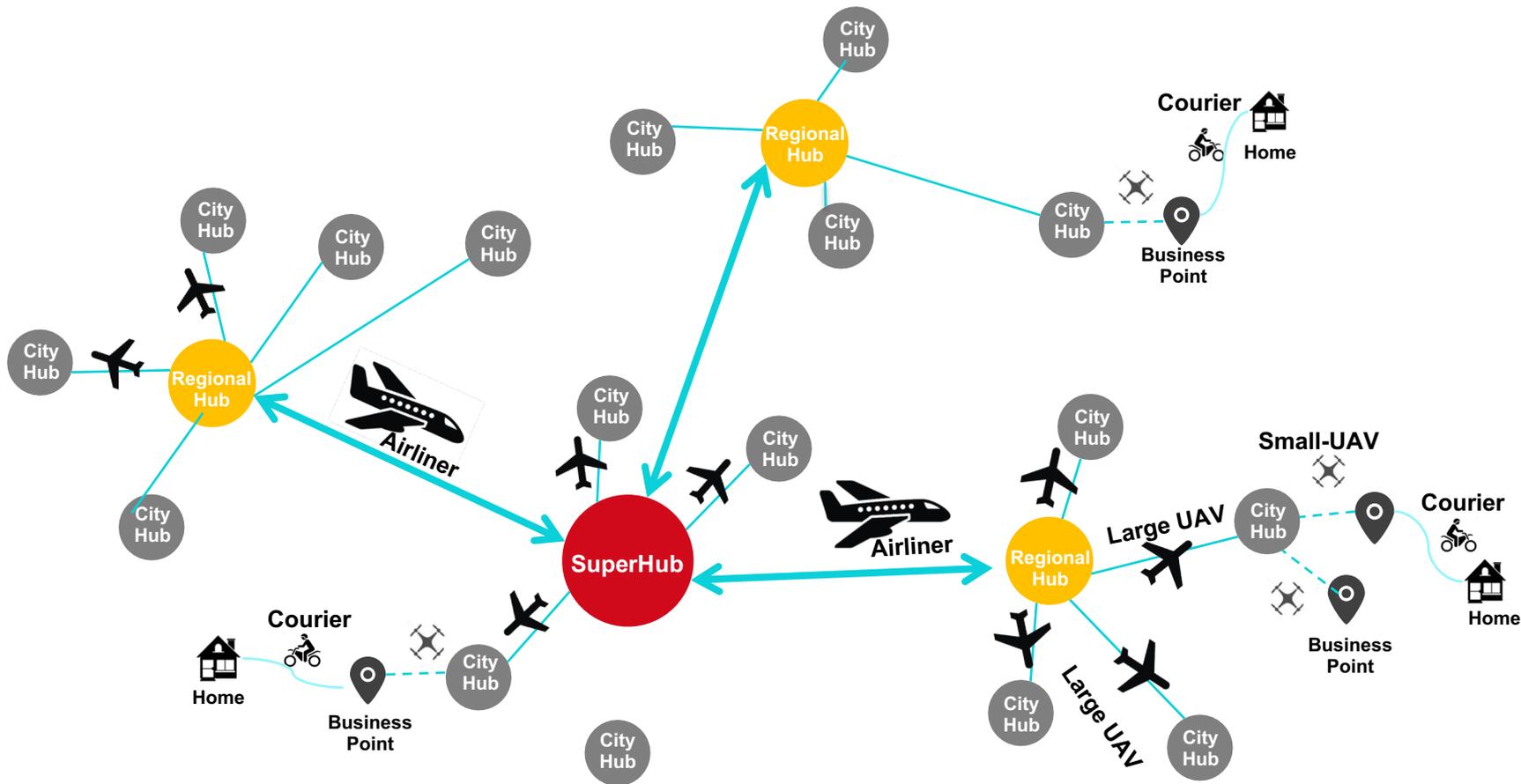


Aviation Network: Ezhou Super Hub

- SF Express cargo super hub (Ezhou Super Hub) EIS in 2021
- It will be Asia's largest and world's 4th largest air freight hub
- It covers **90%** of China's GDP within **2hr** flight
- We will enlarge our large freighter fleet (B767 or similar) to more than 100 by 2022



A 3-Tier Aviation Network to Achieve 36hr Nationwide Delivery in 2022



Why We Need UAV in Logistics?



Cheaper Aircraft

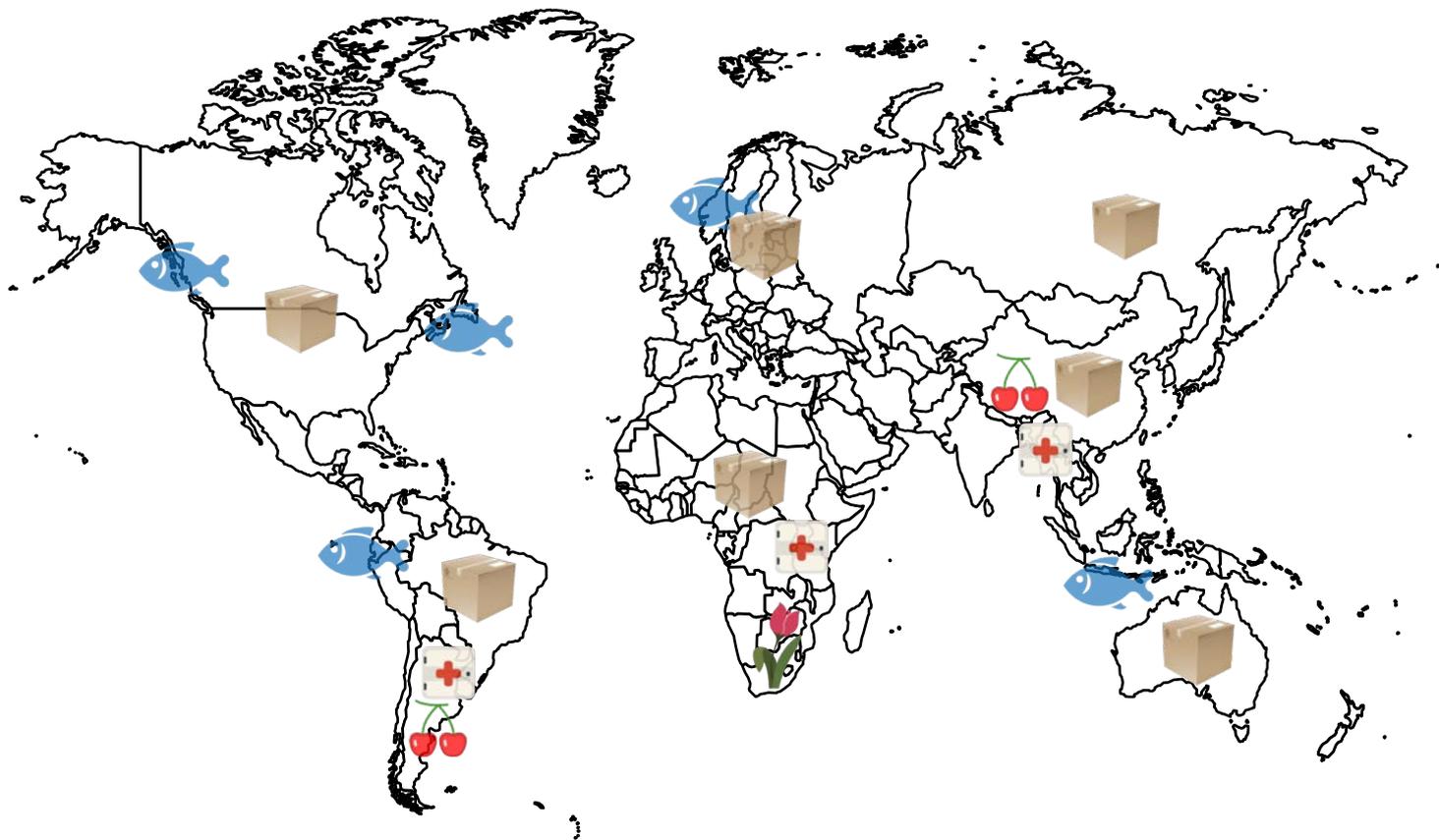
- No life support system, e.g. windows, AC, pressurized cabin, rest facilities, etc.
- Low requirements on structure and performance, e.g. speed, comfortability, etc.
- No human-machine interface, e.g. dashboard, cockpit, etc.
- Efficient emergency procedures and equipment (no one on board)



Cargo Friendly

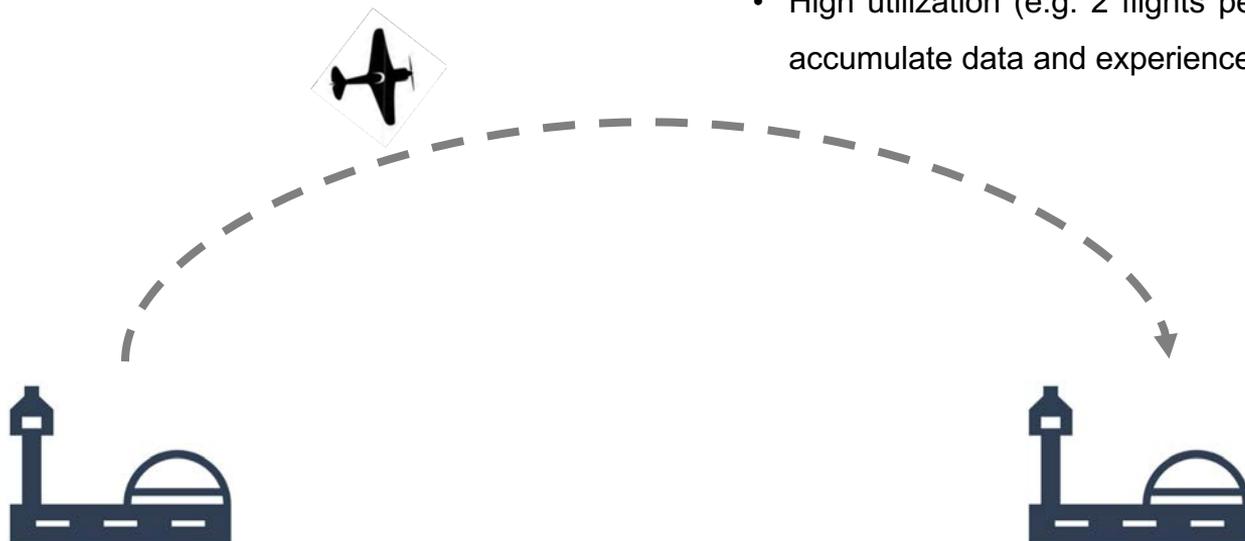
- Lower operating cost
- Larger space for cargo
- Flexible airframe design to match with containers (like a shoes box)
- Less restrictions on cargo type (liquid, flammable, explosive, odorous, etc.)

Opportunities Are All Over the World

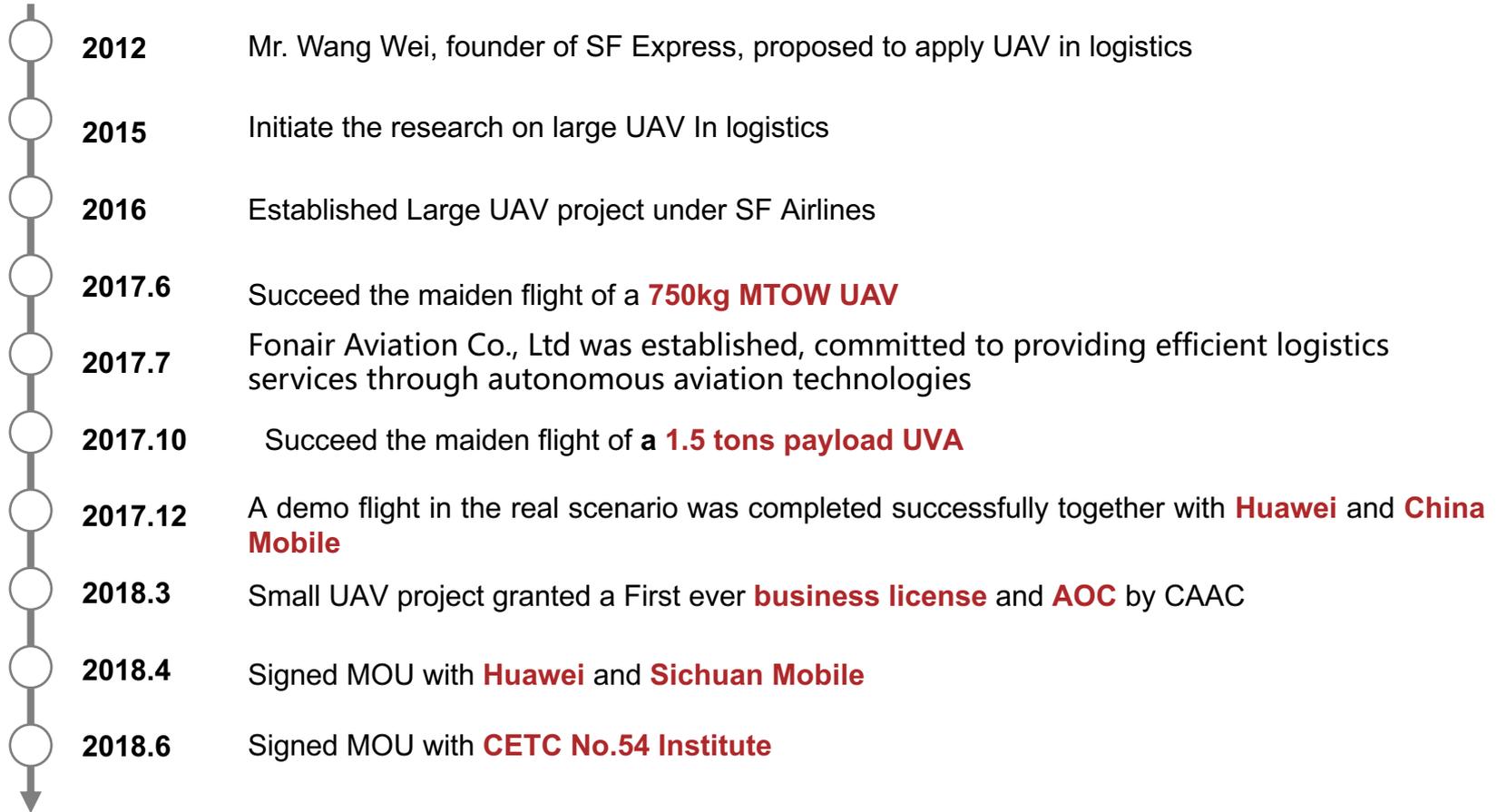


Logistics Will Be the Breakthrough of UAV Commercialization and Regulation

- Simple task with compromised requirements towards speed, endurance, maneuverability, design, etc.
- Point to point flight along fixed route in isolated airspace with preprogrammed emergency procedures, avoiding the crowd
- High utilization (e.g. 2 flights per day, 6 days per week) to accumulate data and experience for regulations

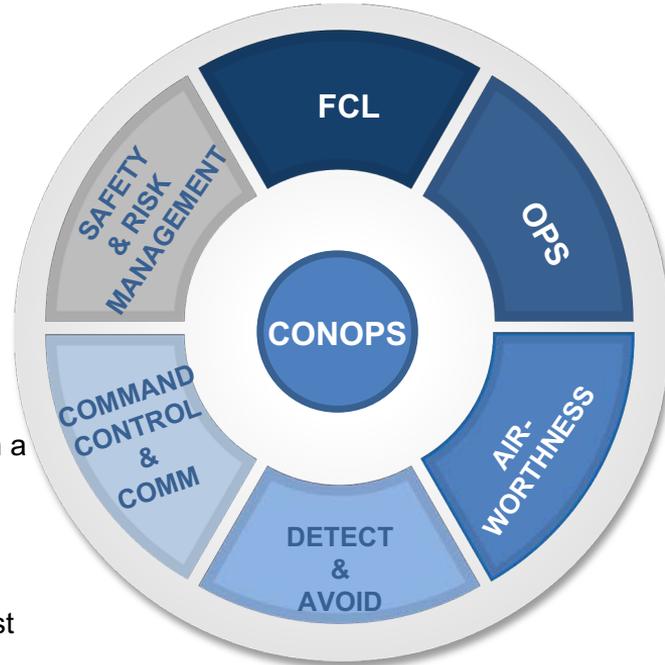


Our Practice



Suggestions For UAV Regulations

- Establish feasible standards for training and qualification systems for key practitioners (pilots, engineers, etc.)



- Designate isolated airspace (isolated space or isolated time slot) for trial flights and special permitted flights base on SORA
- Gradually open integrated airspace for UAV commercial flights

- Tailor and adapt existing AOC regulations for unmanned AOC
- Use SORA to initiate experiments and test operational requirements with actual experience and data

- Regulators should take the lead to establish a unified command and communication standard among UAV, AOC and ATM
- Introduce innovative technology, e.g. 5G cellular datalink to lower communication cost
- Research on cybersecurity protection measures, e.g. Information encryption and decryption, Identity identification and authentication, etc.

- Apply advanced industrial standard into cargo UAVs
- Tailor and adapt existing TC regulations for unmanned TC
- Use SORA to prove certification and airworthiness with actual experience and data

- Install ATC responder, ADS-B or other airborne equipment on all UAVs, so that they be detected and identified by ATM and other UAVs

We Are Devoted to Be A Pioneer of UAV

- We will always put security and safety first
- We will cooperate with authorities, regulators, partners and customers all over the world, to explore different scenarios and test innovative technologies
- We will develop our capabilities under realistic conditions to provide operation experience and data to promote the development of UAV ecosystem

Thank You

