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
- Heavy Freight Service
- Warehousing Service
- Cold Chain Service
- International Service
- SF Industrial Park

Financial Services
- SF Financial

Commercial Services
- SF Best
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
60 Freighters

SF Airlines shipments in 2017
1.1 M Tons

Accounting for Chinese domestic air cargo volume
23%
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

2012  Mr. Wang Wei, founder of SF Express, proposed to apply UAV in logistics

2015  Initiate the research on large UAV in logistics

2016  Established Large UAV project under SF Airlines

2017.6  Succeed the maiden flight of a **750kg MTOW UAV**

2017.7  Fonair Aviation Co., Ltd was established, committed to providing efficient logistics services through autonomous aviation technologies

2017.10  Succeed the maiden flight of a **1.5 tons payload UVA**

2017.12  A demo flight in the real scenario was completed successfully together with **Huawei** and **China Mobile**

2018.3  Small UAV project granted a First ever **business license** and **AOC** by CAAC

2018.4  Signed MOU with **Huawei** and **Sichuan Mobile**

2018.6  Signed MOU with **CETC No.54 Institute**
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

• 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.

• Install ATC responder, ADS-B or other airborne equipment on all UAVs, so that they be detected and identified by ATM and other UAVs
• Tailor and adapt existing AOC regulations for unmanned AOC
• Use SORA to initiate experiments and test operational requirements with actual experience and data

• 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
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