

Technologies on the Future of Air Cargo Transportation

——SF Express Practice



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



3.05 billion parcels in 2017



400k employees



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



SF Express Confidential

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



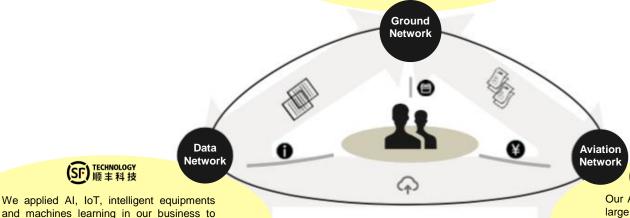
SF Best



Future Integrated Cargo Transportation Network



SF Express has already established a nationwide ground network based on a large number of business points, distribution centers, ground vehicles, couriers, etc., and we actively extend to other countries.



SF UAS

Our Aviation Network consists of Airliners, large UAVs, and small UAVs. SF Airlines is the largest cargo airlines in China. We are working with the Hubei Province Government to build Ezhou SuperHub to enhance our aviation network.

TECHNOLOGY 顺丰科技

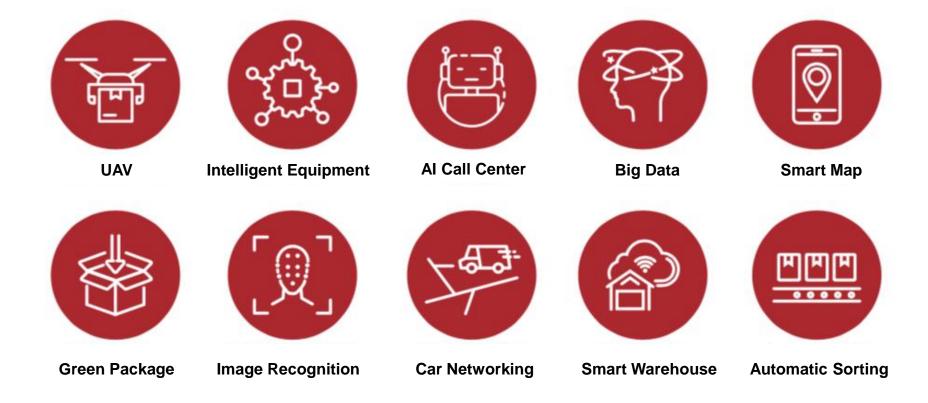
free hands and assisting in decision making.

Technologies are leading the logistics industry into a digital, visualized lean and

intelligent era.







Data Network: How We Apply Big Data in Our Business

10_{PB+}
Total Data Stored

500 billion
Total database Index

30_{K+} Log Monitoring Rules **30**_{TB+} Daily Data Creation

6billion+
Daily Log Volume

Demand Forecast

We've built a dynamic demand forecast model based on large history data, real-time data from the e-commerce platform, customer insight, etc.

Network Design

Our logistics network design, including our coverage plan, air routes plan, resource deployment, etc., is based on our demand forecasting data.

Routes Plan

Our self-developed route plan system supports both dynamic and static air-ground connection routes planning and optimizing.

Resource Plan

Our system dynamically matches our resources with real-time demand forecasting data to optimize resource allocation and scheduling in advance.



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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

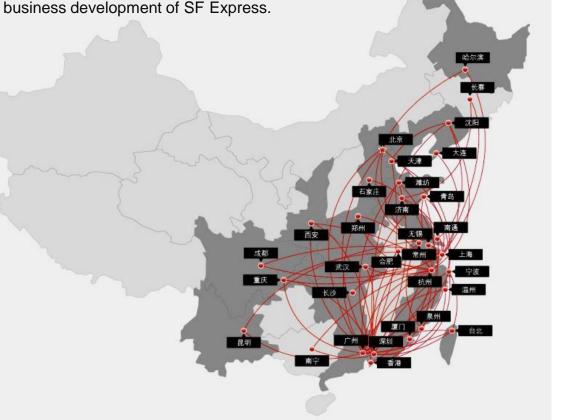


SF Airlines shipments in 2017



Accounting for Chinese domestic air cargo volume







Aviation Network: Ezhou SuperHub

- SF Express cargo SuperHub (Ezhou SuperHub) EIS in 2021
- It will be Asia's first and world's 4th 4E 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



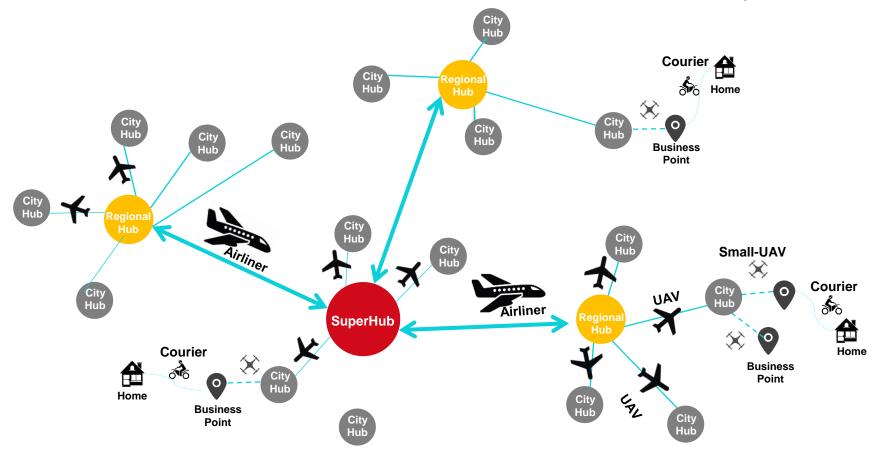








A 3-Tier Aviation Network to Achieve 36hr Nationwide Delivery in 2022



8

Why We Need UAV in Logistics?



- 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)



- 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.)



Technologies Are Ready—Just Accommodate to Logistics

Manned A/C is Highly Intelligent

- Autopilots are already widely in use by military and civil aircraft
- Advanced passenger aircraft are already equipped with fully autonomous flight control, flight task management, failure monitoring and isolation, detect and sense capability, etc. Very little human intervention is needed

Military UAVs are Widely Used

- Many Military UAVs, e.g. Global Hawk(US), Predator(US), Cai Hong(CN), Yi Long (CN) are used in large-scale
- Some UAVs have granted permission to fly in shared airspace

Core Flight Systems Are Well-developed

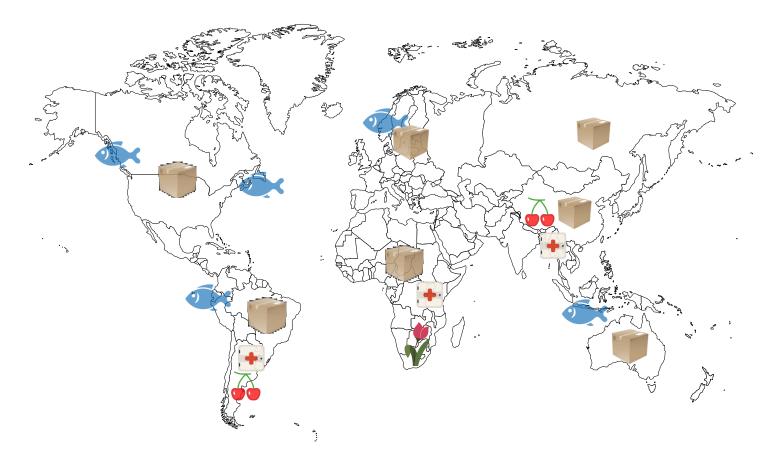
- Flight Control Systems: fly-by-wire flight control system with multiple redundancies, 4D navigation, flight task management, failure monitoring and isolation
- Communication System: Broadband data link/satellites high-speed real-time communication and remote telemetry
- Navigation Systems: DGPS with high precision navigation capability
- •Surveillance Systems: ADS-B、TCAS etc.
- ATC Systems: Digitalized ATC systems and flight service station, remote control tower

Technologies In Other Areas Can Be Applied

- Al: can be applied in aviation to a high level of autonomy
- Big Data: can be applied in aviation to improve airplane performance, optimize operation network, data mining of airplane full life cycles

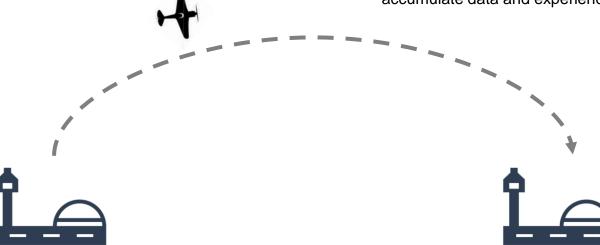


Opportunities Are All Over the World



Logistics Will Be the Breakthrough of UAV Commercialization and Regulations

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



Thank You

