

Statistical Bulletin of Civil Aviation Industry Development in 2022

In 2022, under the strong leadership of the CPC Central Committee with Comrade Xi Jinping at its core and following the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, the entire industry fully implemented the guiding principles of the 20th National Congress of the CPC and the Central Economic Work Conference, resolutely implemented the deployment of the Party Central Committee and the State Council, followed the underlying principle of pursuing progress while ensuring stability, and actively responded to such intertwined headwinds as safety pressure, COVID-19 prevention and control, and operating losses. Faced with unprecedented difficulties, CAAC withstood the test and stabilized the fundamentals of the whole industry, promoting the high-quality development of civil aviation with remarkable progress.

I. Transport Aviation

In 2022, the impact of COVID-19 pandemic on civil air transportation and operation was far more profound

and persistent than expected.

1. Transport Turnover

In 2022, the whole industry recorded a total transport turnover of 59.928 billion ton-km, down 30.1% year-on-year. Domestic routes registered a total transport turnover of 38.786 billion ton-km, down 39.5% year-on-year, including 239 million ton-km on Hong Kong, Macao and Taiwan routes, down 23.6% year-on-year. The international routes witnessed a transport turnover of 21.142 billion ton-km, down 1.9% year-on-year.

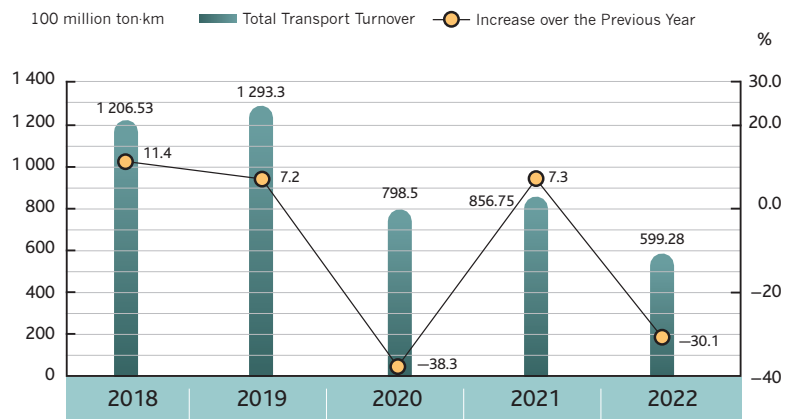


Figure 1 Total Transport Turnover of Civil Aviation Industry 2018–2022

A passenger turnover of 391.387 billion passenger-km was registered in the whole industry, down 40.1% year-on-year. The passenger turnover on domestic routes reached 380.501 billion passenger-km, down 40.9% year-on-year, of which 651 million passenger-km was achieved on Hong Kong, Macao and Taiwan routes, down 20.5% year-on-year. The passenger turnover on international routes hit 10.887 billion passenger-km, up 20.2%

year-on-year.

The whole industry registered a cargo and mail turnover of 25.410 billion ton-km, down 8.7% year-on-year. The domestic routes recorded 5.230 billion ton-km, down 25.9% year-on-year, including 173 million ton-km on Hong Kong, Macao and Taiwan routes, a 24.6% decline year-on-year. The international routes saw 20.179 billion ton-km, a 2.8% fall year-on-year.

2. Passenger Traffic

In 2022, the whole industry witnessed passenger traffic of 251.713 million, down 42.9% year-on-year. The passenger traffic of 249.853 million were achieved on domestic routes, down 43.1% year-on-year, including 469.2 thousand on Hong Kong, Macao and Taiwan routes, down 20.8% year-on-year. The international routes saw a passenger traffic of 1.861 million, up 26.0% year-on-year.

3. Cargo and Mail Traffic

In 2022, the whole industry transported 6.076 million tons of cargo and mail, down 17.0% year-on-year. 3.438 million tons of cargo and mail were transported on domestic routes, down 26.1% year-on-year, including 147.4 thousand tons on Hong Kong, Macao and Taiwan routes, down 22.4% year-on-year. The international routes saw a cargo and mail traffic of 2.638 million tons, down 1.1% year-on-year.

4. Flight Hours and Take-offs

In 2022, transport airlines in the

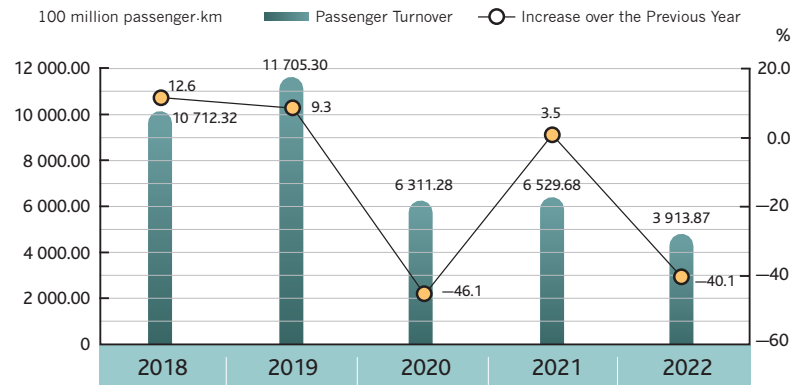


Figure 2 Passenger Turnover of Civil Aviation Industry 2018-2022

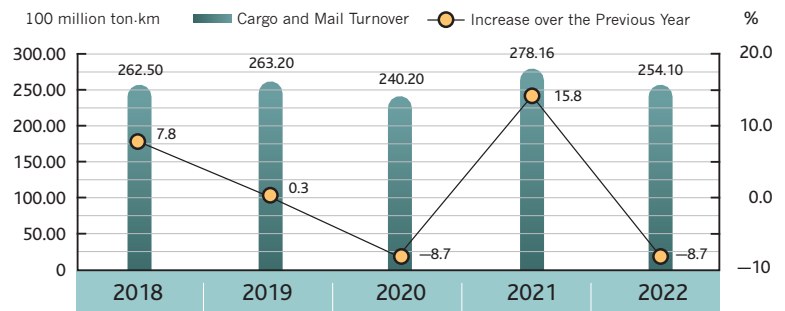


Figure 3 Cargo and Mail Turnover of Civil Aviation Industry 2018-2022

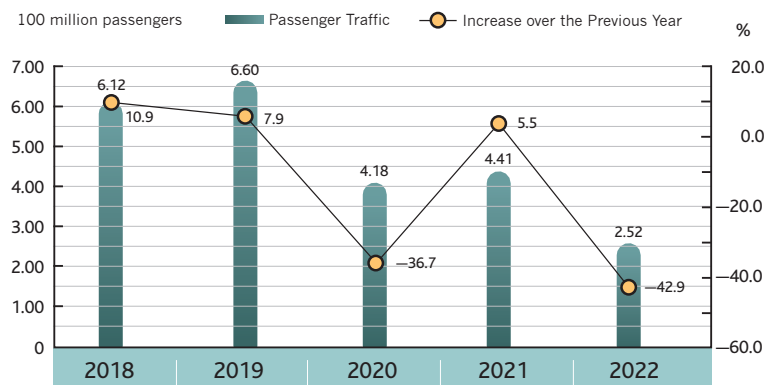


Figure 4 Passenger Traffic of Civil Aviation Industry 2018-2022

whole industry posted 6.276 million flight hours, down 32.7% year-on-year. 5.569 million flight hours were achieved on domestic routes, down 35.2% year-on-year, including 21.0

thousand flight hours on Hong Kong, Macao and Taiwan routes, down 20.5% year-on-year. The international routes saw 706.6 thousand flight hours, down 2.7% year-on-year.

In 2022, transport airlines in the whole industry performed a total of 2.566 million landings, down 35.1% year-on-year. 2.467 million landing were accomplished by domestic flights, down 36.0% year-on-year, including 10.1 thousand ones by flights to/from Hong Kong, Macao and Taiwan, down 18.7% year-on-year. International routes saw 98.2 thousand landings, up 1.6% year-on-year.

In 2022, transport airlines in the whole industry registered 59.4 thousand non-commercial flight hours, including 12.6 thousand flight hours for training, and performed 116.0 thousand non-commercial landing.

5. Number of Transport Airlines

By the end of 2022, there were a total of 66 transport airlines in China, a net increase of 1 from the end of 2021, including 39 state-controlled airlines and 27 privately operated or controlled airlines in terms of ownership. Among all the transport airlines, there were 13 all-cargo airlines, 9 joint venture airlines and 8 publicly listed airlines.

6. Transport Aircraft Fleet

By the end of 2022, the civil aviation industry had 4 165 registered transport aircraft, an increase of 111 over that of 2021.

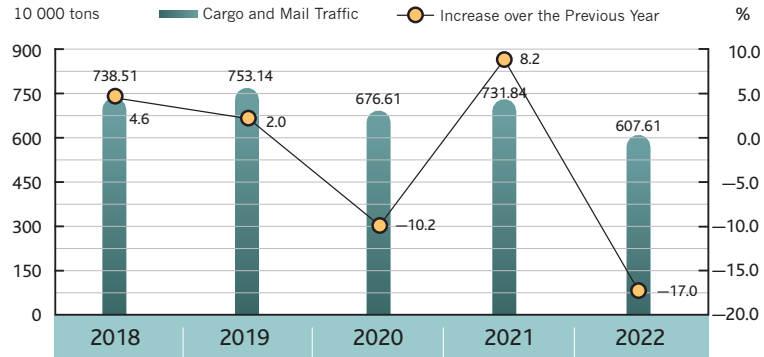


Figure 5 Cargo and Mail Transported by Civil Aviation Industry 2018-2022

Table 1 Number of Transport Aircraft in 2022

Aircraft Categories	Number of Aircraft	Increase from 2021	Percentage of Transport Fleet (%)
Total	4 165	111	100.0
Passenger Aircraft	3 942	86	94.6
Including:			
Wide-body Aircraft	472	7	11.3
Narrow-body Aircraft	3 225	47	77.4
Regional Aircraft	245	32	5.9
Freighters	223	25	5.4
Large Freighters	50	7	1.2
Small and Medium Freighters	173	18	4.2

7. Route Network

By the end of 2022, there were 4 670 scheduled routes in China, which included 4 334 domestic routes (including 27 routes connecting the mainland with Hong Kong, Macao and Taiwan) and 336 international routes. The total route distance (including the overlapped distance) was 10.328 million km, or 6.999 million km (excluding the overlapped distance).

By the end of 2022, 249 domestic cities were served by scheduled flights (excluding Hong Kong, Macao and Taiwan); Chinese airlines operated scheduled international flights to 77 cities in 50 countries; domestic airlines operated scheduled flights to Hong Kong from 20 mainland cities, to Macao from 5

mainland cities and to Taiwan from 7 mainland cities.

8. Operations of Transport Airlines (Groups)

In 2022, China National Aviation Holding Corporation Limited recorded 1.263 million flight hours, down 35.8% year-on-year. It registered a total transport turnover of 13.099 billion ton-km, down 32.4% year-on-year, completing passenger traffic of 47.346 million, a year-on-year decline of 45.6%, and 1.263 million tons of cargo and mail, a 28.4% fall year-on-year.

China Eastern Airlines Corporation Limited recorded 1.125 million flight hours, down 37.5% year-on-year. It registered a total transport turnover of 11.165 billion ton-km, down 31.1% year-on-year, completing passenger traffic of 42.511 million and 1.143 million tons of cargo and mail, a year-on-year decline of 46.3% and 21.4% respectively.

China Southern Air Holding Company recorded 1.556 million flight hours, down 26.2% year-on-year. It registered a total transport turnover of 16.383 billion ton-km, down 22.8% year-on-year, completing passenger traffic of 62.636 million and 1.327 million tons of cargo and mail, a respective year-on-year decline of 36.4% and 8.0%.

In 2022, all other airlines except for the above three groups recorded a total of 2.332 million flight hours, down 32.3% year-on-year. They

Table 2 Number of Scheduled Routes and Mileage in China in 2022

Indicator	Value
Number of Air Routes	4 670
Domestic Air Routes	4 334
Including: Hong Kong, Macao and Taiwan Air Routes	27
International Air Routes	336
Air Route Mileage Including Overlapped Distance (10 000 km)	1 032.79
Domestic Air Routes	865.11
Including: Hong Kong, Macao and Taiwan Air Routes	3.54
International Air Routes	167.68
Air Route Mileage Excluding Overlapped Distance (10 000 km)	699.89
Domestic Air Routes	546.15
Including: Hong Kong, Macao and Taiwan Air Routes	3.54
International Air Routes	153.74

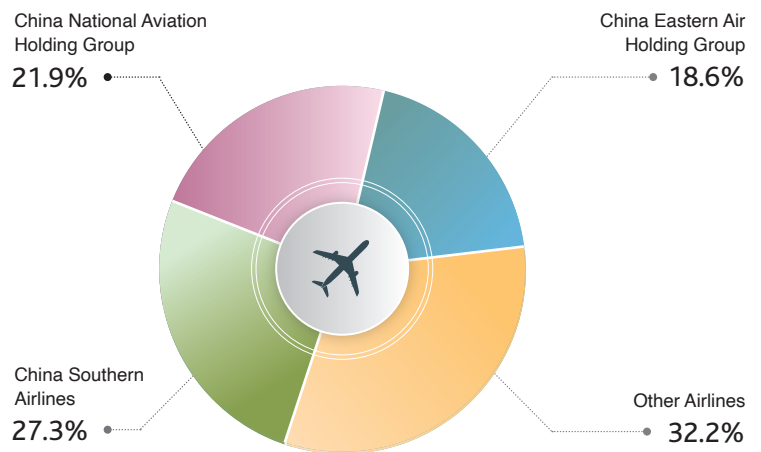


Figure 6 Share of Each Airlines (Groups)' Total Transport Turnover in 2022

registered a total transport turnover of 19.282 billion ton-km, down 33.2% year-on-year, completing passenger traffic of 99.221 million, down 43.6% year-on-year, and 2.343 million tons of cargo and mail, down 11.9% year-on-year.

9. Major Air Transportation Tasks

In 2022, in accordance with the unified deployment of the Joint Prevention and Control Mechanism of the State Council and other relevant entities and ministries, CAAC carried out such major transportation tasks as pandemic prevention and control, and organized 2 588 flights operated by 62 airlines, which transported 187 thousand persons, 120 thousand pieces of

baggage and 5 744 tons of materials.

10. Transport Airports

By the end of 2022, there were 254 certified transport airports in China (excluding Hong Kong, Macao and Taiwan), a net increase of 6 from 2021. Newly built airports in 2022 included Zhaosu Tianma Airport, Alaer Talimu Airport, Ezhou Huahu Airport, Tashikuergan Hongqilafu Airport, Shannan Longzi Airport, and Shigatse Dingri Airport. In 2022, Dazhou Heshi Airport and Zhanjiang Airport were relocated to new locations and changed their names as Dazhou Jinya Airport, and Zhanjiang Wuchuan Airport respectively.

Classified by the airfield area class, 15 of the certified airports were 4F, 39 were 4E, 37 were 4D, 158 were 4C, 4 were 3C and 1 was below 3C.

In 2022, 7 runways, 182 parking stands and 110 thousand square meters of terminal floorage were newly added. By the end of 2022, transport airports in China had 283 runways, 7 315 parking stands and 17.989 million square meters of terminal floorage.

11. Traffic Handled by Airports

In 2022, the civil transport airports across China handled totally passenger traffic of 520 million, down 42.7% year-on-year.

Specifically, 248 million passengers traffic were handled by airports in the east region, 62 million in the central

Table 3 Number of Certified Transport Airports by Region in 2022

Region	Number of Certified Transport Airports	Percentage of the Total (%)
Nationwide	254	100.0
Including: Northeast Region	56	22.1
East Region	41	16.1
West Region	130	51.2
Central Region	27	10.6

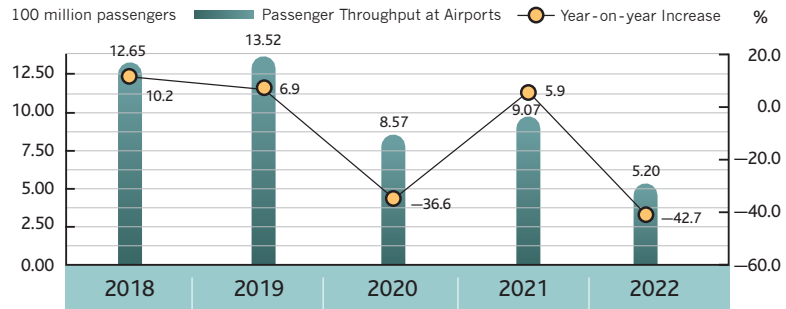


Figure 7 Passenger Throughput at Civil Transport Airports 2018-2022

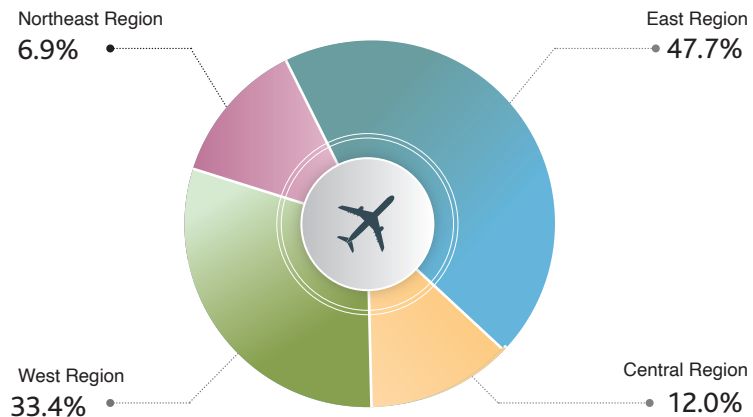


Figure 8 Passenger Throughput of Civil Transport Airports by Region in 2022

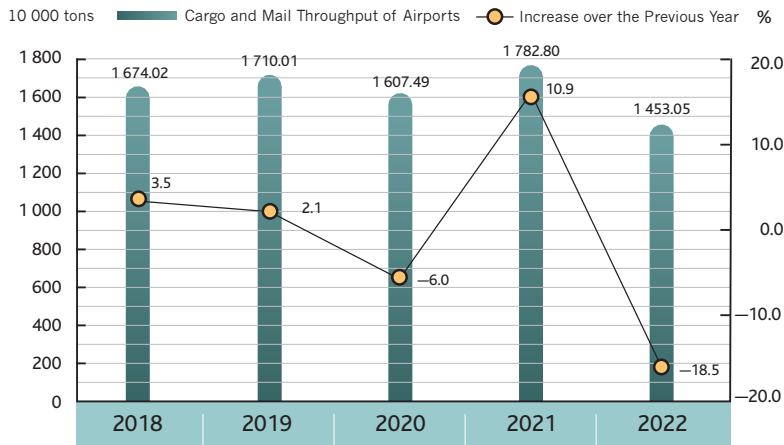


Figure 9 Cargo and Mail Throughput of Civil Transport Airports 2018-2022

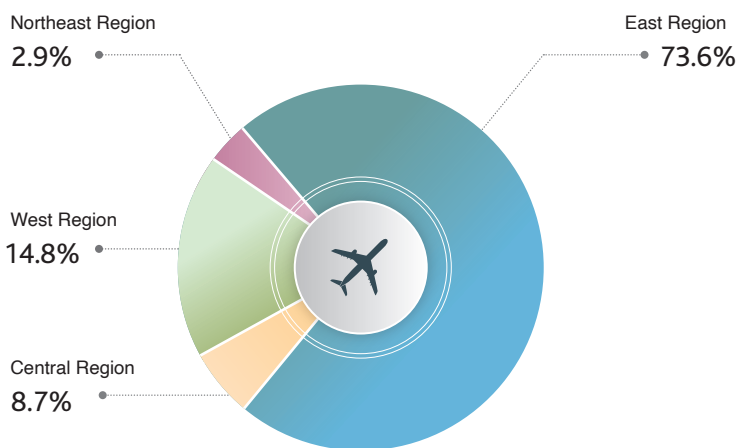


Figure 10 Cargo and Mail Throughput of Civil Transport Airports by Region in 2022

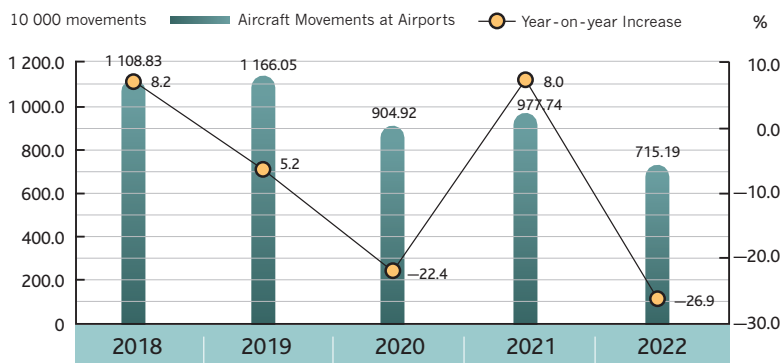


Figure 11 Aircraft Movements at Civil Transport Airports 2018-2022

region, 174 million in the west region, and 36 million in the northeast region, representing year-on-year declines of 43.9%, 44.8%, 41.6% and 34.6% respectively.

In 2022, civil transport airports across China handled a total of 14.531 million tons of cargo and mail, down 18.5% year-on-year.

Specifically, 10.697 million tons of cargo and mail were handled by airports in the east region, down 17.6%; 1.260 million tons in the central region, down 20.7%; 2.151 million tons in the west region, down 21.1%; and 422.4 thousand tons in the northeast region, down 19.3%.

In 2022, civil transport airports across China saw a total of 7.152 million movements, down 26.9% year-on-year, including 5.192 million movements for commercial flights, a year-on-year fall of 35.0%.

In 2022, China had 18 transport airports with respective annual passenger throughput of over 10 million. The airports of Beijing, Shanghai and Guangzhou contributed 15.0% to the total traffic, a decrease of 3.0 percentage points from 2021.

In 2022, China had 51 transport airports with respective annual cargo and mail throughput of over 10 thousand tons. The cargo and mail traffic handled by the airports of Beijing, Shanghai and Guangzhou accounted for 43.4% of the total, a decrease of 1.5 percentage points from 2021.

Table 4 Number of Airports with Passenger Throughput Exceeding 1 Million in 2022

Annual Passenger Traffic	Number of Airports	Increase from 2021	Percentage of Total (%)
More Than 10 Million	18	-11	52.8
2-10 Million	30	-2	33.3
Under 2 Million	206	19	13.8

Table 5 Number of Airports with Cargo and Mail Throughput Exceeding 10 000 tons in 2022

Annual Cargo and Mail Traffic	Number of Airports	Increase from 2021	Percentage of Total (%)
100 000 Tons or Above	23	-8	88.4
10 000-100 000 Tons	28	-2	10.1
Under 10 000 Tons	203	16	1.5

II. General Aviation

1. General Aviation Enterprises

By the end of 2022, there were 661 certified traditional general aviation enterprises, a net increase of 62 from that by the end of 2021, including 130 in north China, 48 in northeast China, 179 in east China, 150 in central southern China, 93 in southwest China, 37 in northwest China, and 24 in Xinjiang.

2. Number of Aircraft Fleet

By the end of 2022, there were a total of 3 186 registered general aviation aircraft, including 1 157 aircraft for training.

3. General Aviation Airports

In 2022, 29 general aviation airports were newly certified, adding the number of certified ones to 399.

4. Flight Hours

In 2022, the whole general aviation industry posted 1.219 million flight hours, up 3.5% from a year earlier, including 18 thousand hours of passenger transport operations, down 10.0% from 2021; 108 thousand hours of person transport operations, a year-on-year increase of 0.8%; 643 thousand hours of other GA operations, up 8.8% year-on-year; and 451 thousand hours of

non-profit operations, a year-on-year fall of 2.1%.

5. Unmanned Aircraft

By the end of 2022, 15 130 UAV entities were certified as general aviation enterprises, a net increase of 2 467 from that by the end of 2021, including 2 179 in north China, 1 200 in northeast China, 5 350 in east China, 2 934 in central southern China, 1 788 in southwest China, 1 123 in northwest China, and 556 in Xinjiang.

By the end of 2022, there were 700 thousand registered unmanned aircraft users, including 639 thousand individual users and 61 thousand enterprises, public institutions and government entities, with the number of registered unmanned aircraft totaling 958 thousand.

By the end of 2022, there were 152 800 valid UAV pilot licenses in China.

In 2022, a total of 20.67 million flight hours operated by UAV, up 6.17% year-on-year.

III. Transport Efficiency and Financial Performance

1. Transport Efficiency

In 2022, the industry-wide average daily use rate of registered transport aircraft stood at 4.35 hours, down by 2.27 hours from 2021. Specifically, the rate of medium and large sized aircraft was 4.47 hours, down by 2.30 hours from a year earlier, whereas that

of small sized aircraft was 2.16 hours, down by 1.62 hours.

In 2022, the passenger load factor for scheduled flights averaged 66.6%, down by 5.8 percentage points from 2021.

In 2022, the cargo load factor for scheduled flights averaged 65.0%, a 1.9 percentage points fall year-on-year.

Table 6 Passenger Load Factor and Weight Load Factor for Scheduled Flights in 2022

Indicator	Value (%)	Increase from 2021 (Percentage Points)
Passenger Load Factor of Scheduled Flights	66.6	-5.8
Domestic Air Routes	66.8	-6.1
Including: Hong Kong, Macao and Taiwan Air Routes	46.3	3.1
International Air Routes	57.6	9.3
Freight Load Factor of Scheduled Flights	65.0	-1.9
Domestic Air Routes	62.4	-2.9
Including: Hong Kong, Macao and Taiwan Air Routes	54.8	-2.4
International Air Routes	74.1	-1.0

2. Financial Performance

According to preliminary statistics, in 2022, the whole civil aviation industry made 632.89 billion yuan in business revenue, down by 15.8% from 2021 and -217.44 billion yuan in profit, down by 137.46 billion yuan from a year earlier. Specifically, airlines made 336.48 billion yuan in business revenue, down by 20.5% from a year earlier, and -177.12 billion yuan in profit, up by 114.34 billion yuan from 2021; airports made 77.01 billion yuan in business revenue, down by 18.5% from 2021, and -47.62 billion yuan in profit, up by 22.80 billion yuan from 2021; and supporting enterprises made 219.40 billion yuan in business revenue, down by 6.2%, and 7.30 billion yuan in profit, down by 320 million yuan from a year earlier.

According to preliminary statistics, in 2022, across the whole industry, the revenue was 4.98 yuan per ton-km, up by 0.56 yuan from the previous year. Passenger revenue per ton-km was 6.22 yuan, up by 1.01 yuan from 2021; and cargo and mail revenue was 3.31 yuan per ton-km, up by 0.52 yuan from 2021.

According to preliminary statistics, in 2022, the tax payment by the whole civil aviation industry stood at 30.03 billion yuan, down by 2.35 billion yuan from 2021.

IV. Aviation Safety and Service Quality

1. Aviation Safety

In 2022, the operation safety of civil aviation industry remained stable and controllable, with the 10-year rolling value of the major transport accident rate per million movements standing at 0.011, and the value of general aviation accidents per 10 000 movements standing at 0.036 7.

2022 saw 291 transport aviation incidents, including 3 severe incidents and 3 incidents attributable to human factors. The rate of incidents attributable to human factors per 10 000 flight hours was 0.005, down 70.3% year-on-year. All safety indicators fell within the target ranges set for the year.

In 2022, a total of 56 transport airlines were free of human factors induced incidents.



2. Aviation Security

By the end of 2022, there were 73 137 security screeners and guardians in the whole civil aviation industry, down by 1 201 from 2021.

In 2022, the security entities carried out 248 million security checks for passengers, screened 122 million items of checked baggage, 491 million items of air cargo (excluding mail and express deliveries), and 279 million items of mail and express deliveries, handled 82 cases of false information threatening aviation security and operation order, and addressed 7 638 instances of security incidents, effectively ensuring sustained aviation security. By the end of 2022, 247 consecutive months of aviation security had been ensured.

3. Flight Regularity

In 2022, passenger airlines in China operated 2.393 8 million flights in total, among which 2.273 5 million flights were punctual, resulting in an average flight regularity rate of 94.98%.

In 2022, major airlines operated 1.902 million flights in total, among which 1.808 2 million flights were punctual, resulting in an average flight regularity rate of 95.07%.

In 2022, the average delay of passenger flights in China was 4 minutes, 6 minutes shorter than the previous year.

4. Service Quality

By the end of 2022, 251 airports had

Table 7 Causes for Flight Irregularities in 2022

Item	% of the Total	Increase from 2021 (%)
Causes of Flight Irregularity for All Airlines	100.00	0.00
Including: Weather	67.14	7.58
Airlines	11.05	-4.23
ATC	0.06	-0.57
Others	21.75	-2.78
Causes of Flight Irregularity for Major Airlines	100.00	0.00
Including: Weather	67.21	6.96
Airlines	11.05	-3.90
ATC	0.05	-0.71
Others	21.69	-2.35

implemented paperless travel process. The Through Flight Service Management Platform had incorporated 27 airlines, 127 airports, 169 service supporting entities and 5 sales network platforms, and included a total of 765 through flights and newly added 349 city pairs. 116 airports had joined the Civil Aviation Transfer Passenger Service Platform, with 108 thousand registered passengers on its mini-program.

In 2022, 41 airports with an annual passenger traffic of over 10 million adopted E-screening, with 1.082 million registered passengers on E-screening. In 2022, 403 thousand passengers were checked by E-screening, and the average of security check time was 2.64 minutes, saving 38.7% of screening time compared with traditional one. The rate of domestic luggage tracking during the whole process was 18.1%. The civil aviation service quality supervision platform was improved, and the response rate to the complaints against domestic airlines reached 100%.

In 2022, the utilization of boarding bridges at contact aircraft

stands at the airport with an annual passenger traffic of over 10 million was 79.04%, up by 2.09 percentage points from 2021.

V. Education and Technological Innovation

1. Education

In 2022, the universities and colleges affiliated to CAAC enrolled a total of 23 389 students, including 1 719 postgraduates, 21 466 undergraduates and junior college students, and 204 adult education students. 2 322 were flight students.

In 2022, there were 81 604 registered students at universities and colleges directly under the administration of CAAC, including 4 567 postgraduates, 75 069 undergraduates and junior college students, and 1 968 adult education students.

In 2022, a total of 22 015 students graduating from universities and colleges directly under the administration of CAAC, including 1 115 postgraduates, 19 703 undergraduates and junior college students, and 1 197 adult education students.

2. Scientific and Technological Innovation

In 2022, 7 major projects supported by National Key R&D Program and 18 key programs financed by the Civil Aviation Joint Research Fund under the National Natural Science Foundation of China (NSFC) were

approved.

In 2022, a total of 90 scientific and technological achievements in civil aviation sector went through evaluation, and 39 projects were awarded the CATA Technological Innovation Award.

3. New Navigation Technologies

By the end of 2022, 36 airlines in the industry were capable of HUD operation, 1 391 transport aircraft were equipped with HUD, and most airports supported HUD operation, of which 111 airports backed HUD Special Category I, 21 ones HUD Special Category II, and 18 ones HUD RVR 150.

247 transport airports were capable of operating PBN flight procedures, of which 31 airports with complex terrain were capable of operating RNP AR procedures. In addition, 3 931 transport aircraft were equipped with ADS-B (OUT) system, and 55 airlines were utilizing EFB.

VI. Professionals

1. Number of Pilots

By the end of 2022, there were 57 854 pilots employed by China's transport airlines, 2 277 more than that of 2021, and 85 001 flight attendants, 3 125 less than those of the previous year.

Table 8 Statistics of Civil Aviation Pilot Licenses of China in 2021

Type of License	Number	Year-on-year Increase
Sport Pilot License (SPL)	1 934	419
Private Pilot License (PPL)	5 211	389
Commercial Pilot License (CPL)	45 895	3 450
Multi-crew Pilot License (MPL)	176	-11
Airline Transport Pilot License (ATPL)	28 214	947
Total	81 430	5 194

By the end of 2022, there were a total of 81 430 valid pilot licenses in China's civil aviation industry, a net increase of 5 194 from that by the end of 2021, including 1 934 Sports Pilot Licenses (SPLs), 5 211 Private Pilot Licenses (PPLs), 45 895 Commercial Pilot Licenses (CPLs), 176 Multi-crew Pilot Licenses (MPLs) and 28 214 Airline Transport Pilot Licenses (ATPLs). There were 69 valid flight engineer licenses in China's civil aviation industry

2. Other Professionals

By the end of 2022, there were 68 992 licensed aircraft maintenance staff in the industry, 5 512 more than those of 2021; and 11 256 licensed flight dispatchers, 434 more than those of the previous year.

By the end of 2022, there were a total of 36 765 ATM professionals in 4 categories, 1 502 more than those of 2021, including 17 019 air traffic controllers, an increase of 783 over the previous year.

VII. Foreign Relations

In 2022, China had bilateral air service talks or written consultations with 6 countries or regions. By the end of 2022, China had already signed 129 bilateral air service agreements with its counterpart countries or regions, up by 1 (Air Service Agreement between the Government of the People's Republic of China and the Government of the

Republic of Guyana) from 2021, including 44 in Asia (including ASEAN), 27 in Africa, 38 in Europe (including European Union), 13 in Americas and 7 in Oceania.

In 2022, CAAC signed with EU Aviation Safety Agency technical arrangements or work arrangements on airworthiness certification. By the end of 2022, 40 countries or regions had established bilateral airworthiness relations with China, with a total of 191 bilateral airworthiness documents currently in force.

VIII. Airworthiness Certification

In 2022, the entire industry saw 485 new aircraft complete the nationality registration, including 166 newly registered commercial aircraft and 319 general aircraft.

In 2022, airworthiness certification departments in civil aviation issued a total of 136 design approvals, 21 production approvals and 207 approvals for aviation fuel and chemical products.

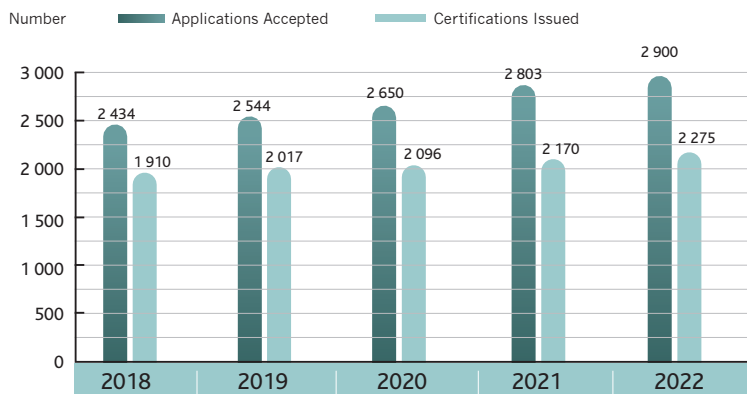


Figure 12 Number of Type Certification and Validation of Type Certification 2018–2022

IX. Investment in Fixed Assets

In 2022, the total investment in fixed assets of China's civil aviation was 190.609 billion yuan, including 123.138 billion yuan

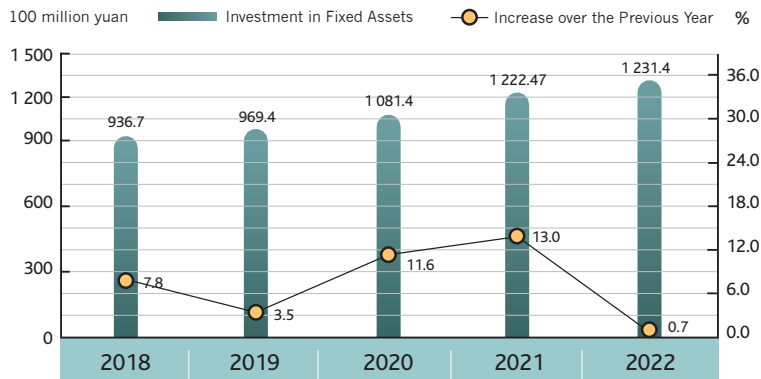


Figure 13 Investment in Civil Aviation Infrastructure Development and Technological Upgrading 2018-2022

of civil aviation infrastructure development and technological upgrading, up 0.7% year-on-year.

X. Energy Conservation and Emissions Reduction

In 2022, 0.302 kg of fuel was consumed per ton-km in China's civil aviation industry, down by 11.4% from 2005 (the baseline year for energy conservation and emissions reduction in the industry); the energy consumption and the carbon dioxide emission per passenger at airports saw an approximate increase of 26.1% and a fall of 21.6% respectively compared with the baseline (average of three years from 2013 to 2015).

In 2022, 501 thousand flights used temporary routes, cutting the flight distance by 16.353 million km, saving 88 thousand tons of fuel and reducing carbon dioxide emissions by 278 thousand tons.

By the end of 2022, at civil airports, there were 12 000 electric vehicles, accounting for 24% of the total vehicles, and 5 200 recharging facilities. All the airports with an annual passenger throughput of more than 5 million had installed and put into use of APUs as an alternative.

Since the inception of the Blue Sky Protection Campaign in 2018

to the end of 2022, the industry completed 162 projects with a total investment of 3.83 billion yuan, saving approximately 883 000 tons of aviation fuel, equivalent to a reduction of 2.782 million tons of CO₂ emissions. Various kinds of air pollutants were cut by around 11 000 tons.

2022 saw a higher level in the use of clean energy at airports, with electricity, natural gas and thermal power accounting for 82.8%, and clean energy such as solar energy and geothermal energy accounting for 1.0% of the total energy consumption.

XI. Legal and Credit System Development

In 2022, 22 regulations were drafted, revised, or abolished.

In 2022, there were a total of 280 cases involving administrative punishments; According to the Civil Aviation Industry Credit Management Measures, 5 entities and 11 natural persons were included in the CAAC Credit Information Record.

XII. The Trade Union

In 2022, 3 entities were awarded the national May 1st Labour Certificate, 7 individuals the national May 1st Labour Medal and 11 groups the honorary title of the Vanguard of National Workers. ■