

Centralized Flight Plan Progress in China

XIAO AO

East China Regional Air Traffic Management Bureau of CAAC

22/11/2018



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Content



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空中交通管理局
Air Traffic Management Bureau, CAAC

BACKGROUND

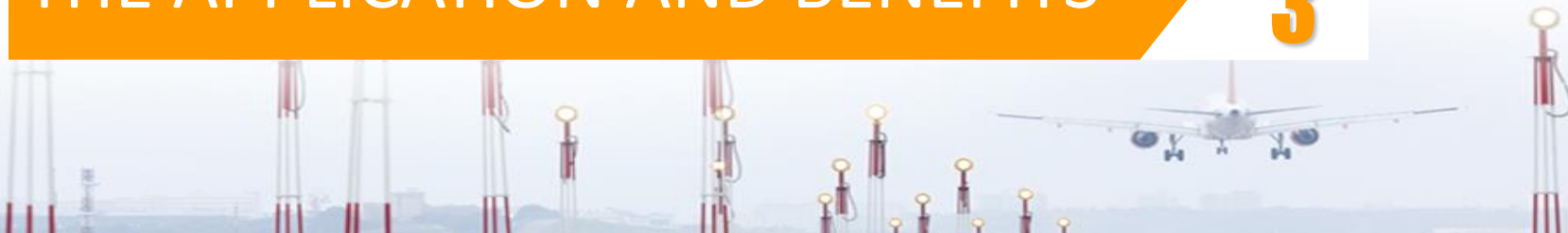
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MAIN FUNCTION OF THE SYSTEM

2

THE APPLICATION AND BENEFITS

3





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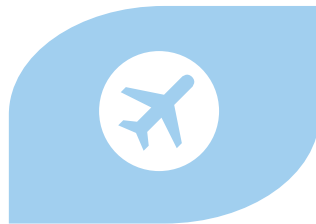
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Economic development **promotes** the industry of aviation transportation



The construction step of the airport has **quickened** continuously.

People set an even **higher demand** on Air Traffic Control Services



Time	Flight	Airline	Destination	Gate	Status
15:00	TG 629	W	Bangkok	222	Board Soon
15:30	TG 628	W	Tokyo/MNL	222	Board Soon
15:40	WJ 344	J	Tokyo/MNL	222	Board Soon
15:50	ZH 9468	C	Haitian	222	Board Soon
16:15	UD 9468	D	Dia Niang	222	Board Soon
17:05	PG 806	P	Siamul	222	Board Soon
	CX 884	C	Siamul	222	Board Soon
17:35	UD 763	D		222	Board Soon
17:45	AK 137	N	Chiang Mai	222	Board Soon
17:55	TR 2055	N	Kuala Lumpur	222	Board Soon
18:00	MM 064	M	Singapore	222	Board Soon
18:10	PR 307	N	Osaka/Kansai	222	Board Soon
18:10	UD 150	D	Manila	222	Board Soon
18:15	UD 622	D	Taipei	222	Board Soon
18:45	UO 1620	N	Tokyo/HND	222	Board Soon
18:55	IG 538	G	Secou/KIV	222	Board Soon
19:00	TR 2067	N	Singapore	222	Board Soon
19:35	9C 8960	C	Singapore	222	Board Soon
19:40	U8 665U	P	Bangkok/DMEK	222	Board Soon
19:40	UD 874	D	Osaka/Kansai	222	Board Soon
19:50	FD 806	F	Bangkok/DMEK	222	Board Soon
19:55	BW 075	N	Mumbai	222	Board Soon
	EY 797	E	Mumbai	222	Board Soon
20:05	AK 238	N	Kota Kinabalu	222	Board Soon
D-10	ZZ 1286	D	Manila	222	Board Soon
D-25	3K 696	D	Singapore	222	Board Soon
D-25	FD 525	D	Phuket	222	Board Soon

Existing Problem Of Traditional Model

01 Many Systems

02 Redundancy Planner

03 Low Efficiency and Quality

04 High Maintenance Cost





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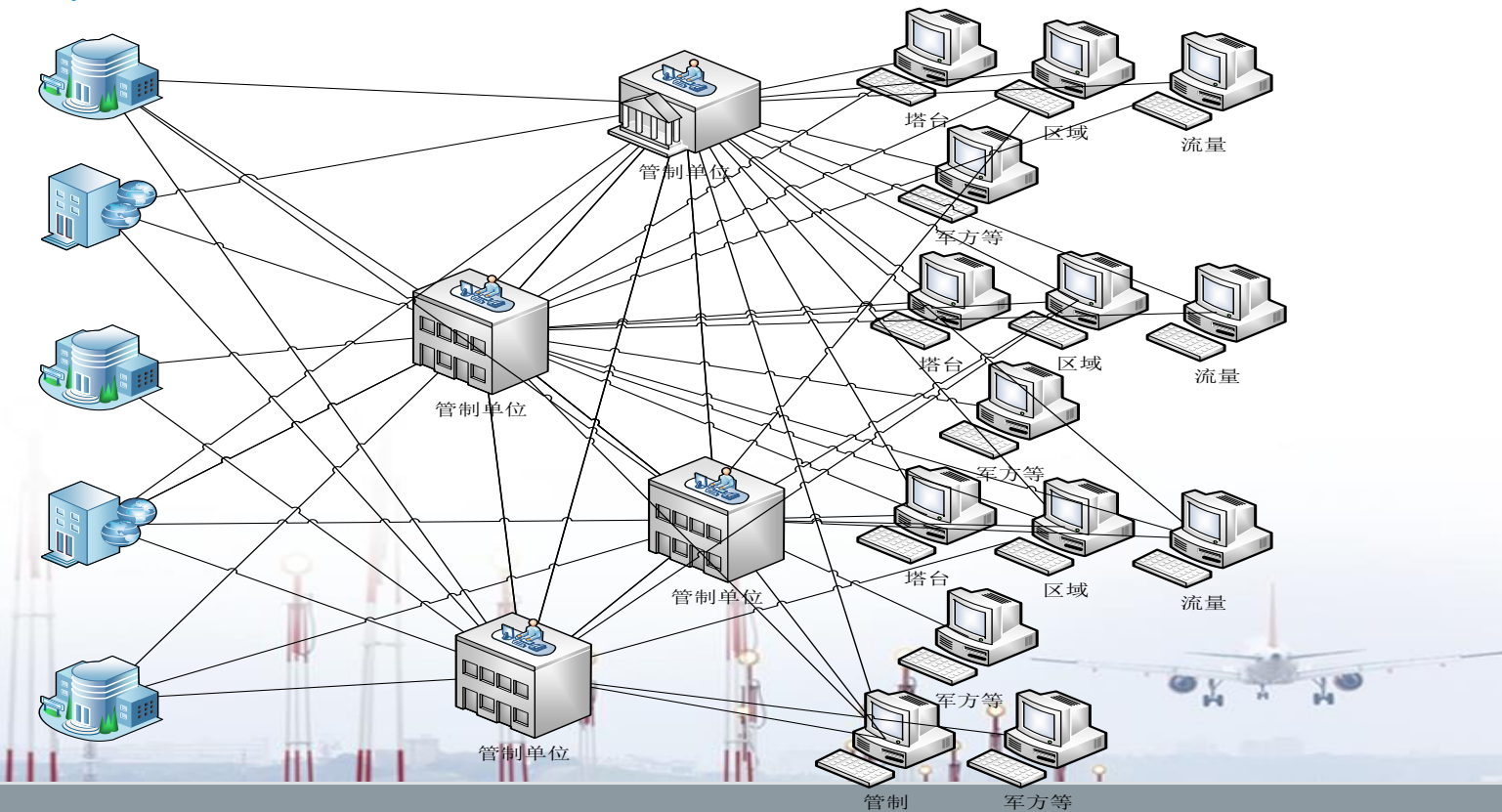


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Airports

ARO

AIR CONTROL UNITS





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BACKGROUND



Civil aviation flight plan is the basis for air traffic control unit to organize and implement flight tasks. It is the main data source of the air traffic control automation system and traffic flow management system and other related ATC systems .

AIM to improve the efficiency and quality of flight plans processing, ATMB started the reform of national flight plan centralized processing in 2014





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STEPS TOWARD REFORM



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ATMB of CAAC developed a reforming plan for national flight plan processing system, which started from **Shanghai FIR** (Flight Information Region) in 2014.

1. ATMB of east china (ECATMB) researched and developed a centralized flight plan system called **IFPS**(Initial Flight Processing System) which located in Shanghai FIR .



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The Flight Plan Processing Center (FPC) in **Shanghai** has been completed and come into use in midyear of **2016**, which is responsible for maintaining the related basic data and processing flight plan message.



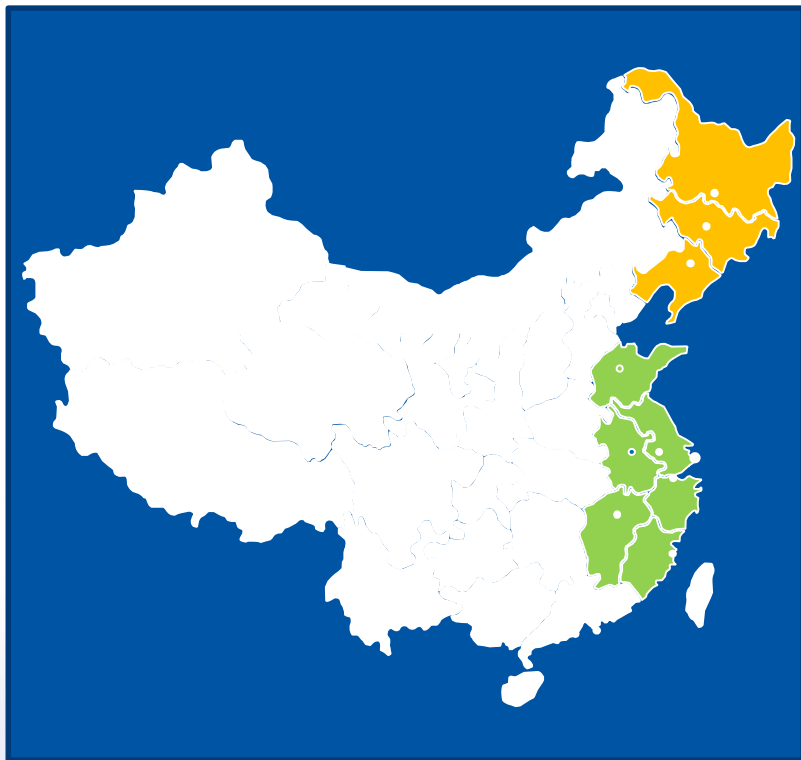


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STEPS TOWARD REFORM



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2. Followed the arrangement, ECATMB decided to extend the system into the rest of China.

Then ECATMB took over the flight plan processing function of all the airports within the SHENYANG FIR successfully.

SHENYANG FIR became the first experimental area in the end of 2016





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图片来源：视觉中国 www.vcg.com

3. After half year system operational evaluation and safety assessment, ECATMB tried to take over the function of flight plan processing from other airports within the rest FIR until the end of 2017.





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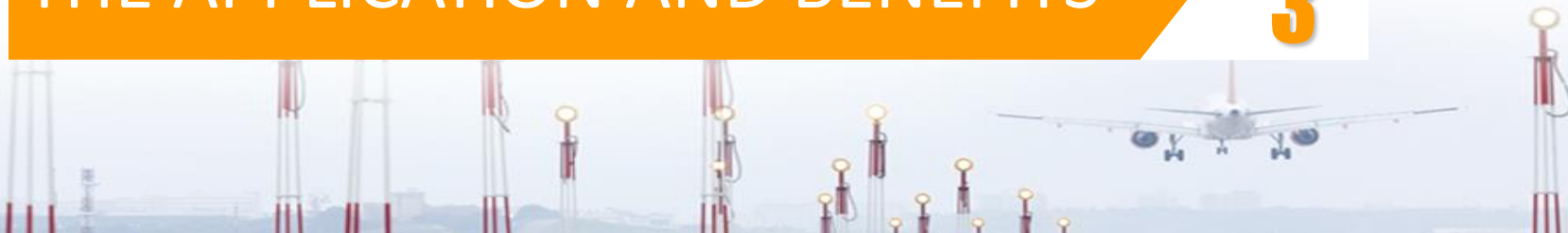
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MAIN FUNCTION OF THE SYSTEM



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2. System Functions

The screenshot displays the National IFPS system interface. At the top, there are navigation tabs for '时刻表管理' (Timetable Management), '计划处理' (Plan Processing), '通用航空管理' (General Aviation Management), '用户管理' (User Management), '航情通告管理' (Flight Information Management), '航路校验' (Route Check), '基础数据库' (Basic Database), '基础数据表' (Basic Data Tables), '基础数据分表' (Basic Data Sub-tables), 'GIS地图' (GIS Map), '数据校验' (Data Check), and '联合模式' (Joint Mode). The main area is divided into several sections:

- 航班计划表 (Flight Plan Table):** A table with columns for flight number, origin, destination, departure time, arrival time, aircraft type, and status. It lists flights like CSC8726 from ZGNN to ZHHH.
- 航班网络图 (Flight Network Map):** A map of China showing a dense network of flight routes connecting various airports.
- 航班消息 (Flight Messages):** A list of messages with columns for message ID, type, content, and status. It includes messages like 'DZCC FMD1352 140331' and 'PN ZH424HPF'.
- 航班计划 (Flight Plan):** A detailed view of a flight plan with fields for origin, destination, aircraft, and various codes.
- 航班消息列表 (Flight Messages List):** A list of messages with columns for message ID, type, content, and status.

National IFPS is based on the CAAC and ICAO message data format standard and all kinds of basic database.

It checks and analyses the pre-flight plan messages, next day's plan messages, flight dynamic format messages, and processes these messages automatically or semi-automatically. To give the error label and the reason to the message which does not conform to the standards, then process it manually.





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1. The Operation concept of centralized flight plan processing



Two centers : Shanghai

Beijing (Under construction)

Flight Plan Processing Center

Two addresses :

AFTN ZSSSZFPM(Shanghai)

ZBBBZFPM (Beijing)

STIA SHAFP8X(Shanghai)

PEKFP8X (Beijing)

Two-layer of data application structures, receive、 process and distribute flight plans by one unit.

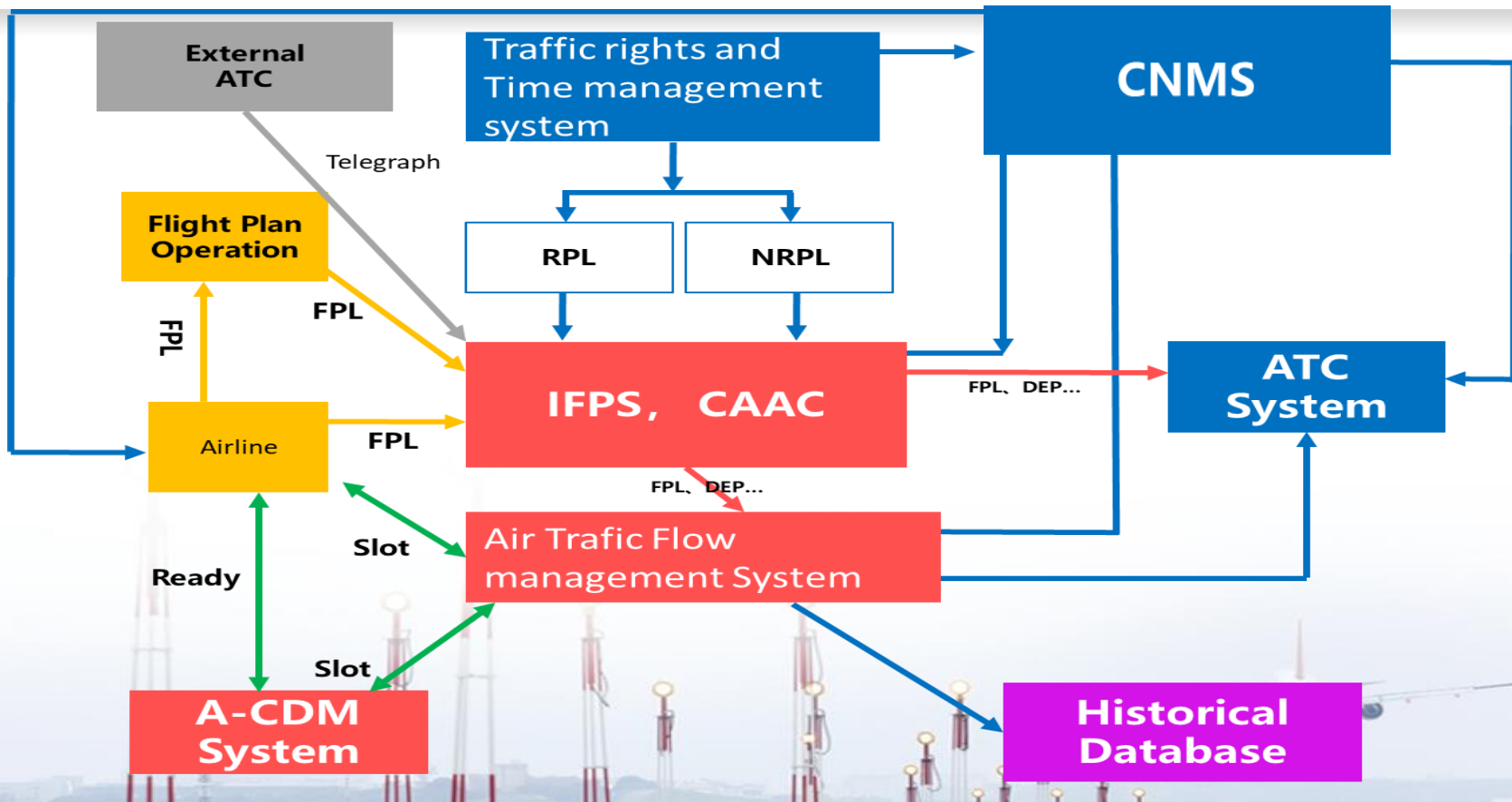


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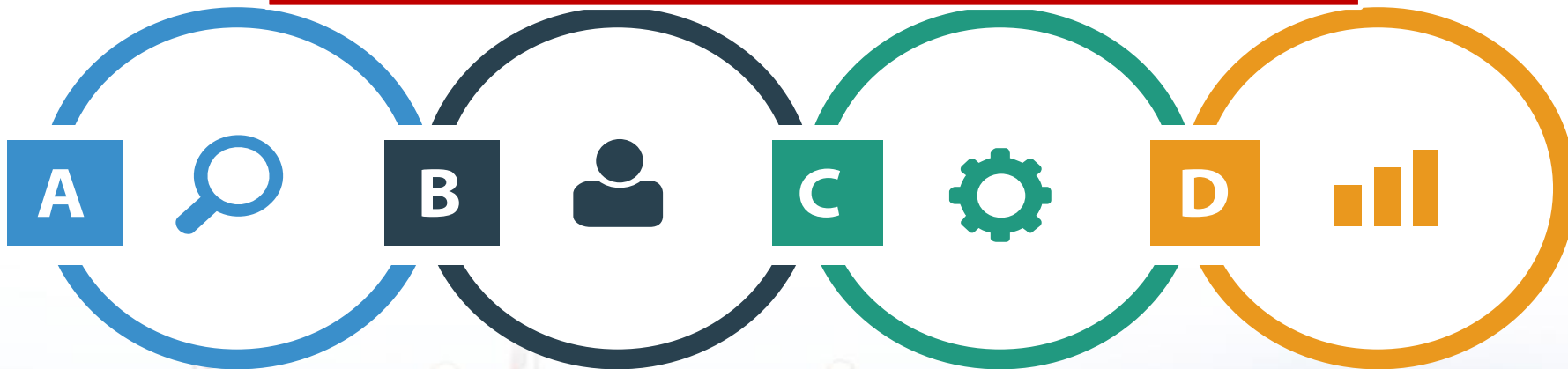


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2. System Functions

The IFPS system mainly have four major modules.



Pre-flight plan
processing module

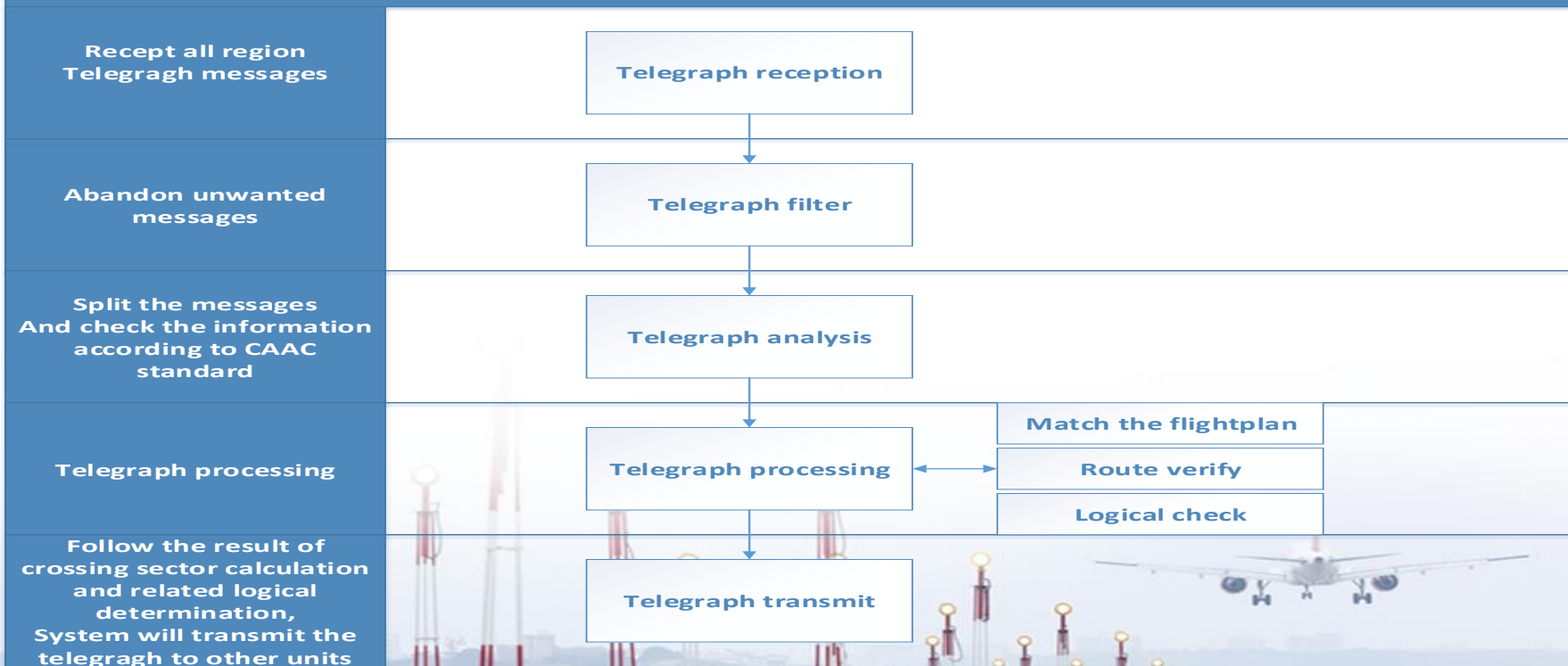
General aviation
flight plan
processing module

Flight plan message
processing module

Fundamental
Database Module



System Architecture



2. System Functions

The IFPS system mainly have four major modules.



Pre-flight plan
processing module

General aviation
flight plan
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Fundamental
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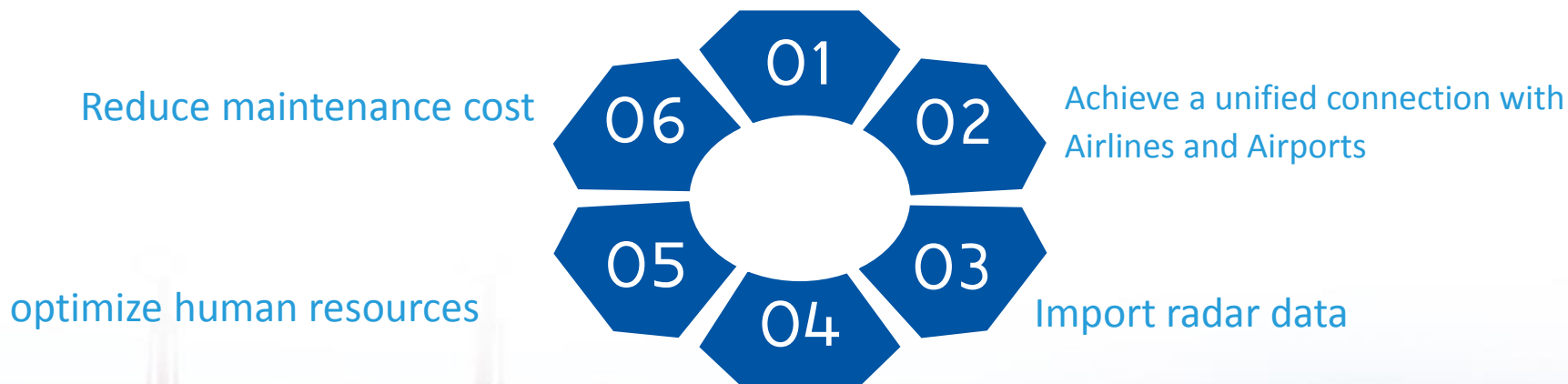
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THE APPLICATION AND BENEFITS



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THANK YOU !

