The ATC Data System is a supporting system to conduct smooth ATC services. It manages the safety of the aviation and the regularity of the aircraft service. (The IECS isn't to the ATC Data System. But it's described here because it's connecting with ATC Data Processing System closely.)
1. Function summary and flow of the information of ATC Data Processing System

1) Function summary about FDMS-FDPS

The FDMS-FDPS is set up in ATMC (Air Traffic Management Center in Fukuoka). It manages and processes the FPL (the Flight Plan Information from airline, etc...). It's connecting with the FPDE (FDPS en-route data Processing and Distribution Equipment) at ACC (Area Control Center in Sapporo, Tokyo, Fukuoka and Naha). It provides the Flight data strips to the ACC controller and the FPL to other ATC Data Processing System via FPDE.

The main function is as follows,
1. Sends the concerned flight data to the appropriate controller at ACC and domestic airports.
2. Sends the FPL to RDP, ODP, ATFM, ARTS and TRAD.
3. Processes the flight data with the departure messages from ARTS and TRAD and with aircraft's position data from RDP.

2) Function summary about RDP

The RDP is set up in ACC. It processes the radar data from ARSR (Air Route Surveillance Radar) and displays the symbol that shows the position of the aircraft, identification by alphanumeric characters, altitude and ground speed on the assigned radar scope.

The main function is as follows,
1. Processes the position and altitude data from primary and secondary radar and perform tracking based on secondary radar data and FPL from FDMS-FDPS.
2. Performs the multiple radar processing for radar data about the overlapping radar coverage.
3. Indicates the aircraft symbol, flight course and FPL route on the assigned radar scope.
4. Exchanges the radar hand-off process with ARTS, TRAD and adjoining RDP via data communication line.
5. Sends the passed time of the aircraft’s to FDMS-FDPS.

3) Function summary about ARTS and TRAD

The ARTS is set up at radar approach control facilities. It processes the radar data from ASR (Airport Surveillance Radar) and displays the symbol that shows the position of the aircraft, identification by alphanumeric characters, altitude and ground speed on the assigned radar scope.

The TRAD is set up at radar approach control facilities unable to have ARTS. It processes the radar data from ASR and has the functions less than ARTS.

The main function is as follows,
1. Processes the position and altitude data from primary and secondary radar and perform tracking based on secondary radar data.
2. Displays the aircraft symbol, altitude and ground speed on the assigned radar scope.
3. Exchanges the radar hand-off process with RDP and adjoining ARTS and TRAD via data communication line.
4. Sends the departure time and the arrival time of the aircraft's to FDMS-FDPS.

4) Function summary about ODP

The ODP is set up in ATMC. It predicts the position of the aircraft given from ADS using the satellite over the Pacific of the Fukuoka FIR and indicates the traffic situation on the display.

The main function is as follows,
1. Calculates the predicted position of the aircraft from the FPL route and the position report.
2. Displays the flight direction and FPL route.

5) Function summary about ASM

The ASM is set up in ATMC. The ASM is the central management system for special use airspace, including the airspace for civil training, restricted airspace for SDF, as well as airspace usage for rocket launches.
By utilizing the ASCW installed at the ACC and airports in Japan, along with registered airspace users via internet, the information is distributed to relevant stakeholders.

The main function is as follows;
(1) Management of airspace including airspace for civil training, testing, and the restricted airspace for SDF.
(2) Management of information on use of airspace, such as rocket shooting.
(3) Management of the conditional route (CDR).
(4) Transmission of airspace information to the related systems such as ATFM and RDP.

6) Function summary about ATFM

The ATFM is set up in ATMC and its units are set up at ACC and radar approach control facilities (Tokyo, Chubu, Kansei, Fukuoka and Naha). The ATFM has 10 subsystems which predicts appropriate traffic volume based on radar data from RDP and FPL from FDMS for preventing excessive traffic congestion on airways and at airports.

The main function is as follows:
(1) Calculates the reasonable amount of the air traffic from various information.
(2) Displays the current air traffic flow and traffic volume.
(3) Displays the predicted air traffic flow and traffic volume.
(4) Displays the information of the air space, traffic density monitor information and flow control etc.

2. Function summary about CADIN

The CADIN is the general term of data terminals set up in airports all over Japan, information and communication network of FIHS and terminals; connects to AFTN, AMHS, ATC Data Processing System, system of the Meteorological Agency, the Ministry of Defense and Airlines etc., and conducts to deliver, exchange, handle and process plentiful kinds of information such as FPL, NOTAM, weather information needed for aircraft operation, and information necessary for Search and Rescue.

The main function is as follows:
(1) Relays and exchanges various messages for the domestic aeronautical facilities.
(2) Keeps the data base systematically arranged and stored of data such as NOTAM, airport information (Using runway, approach procedures and weather, etc.) and pilot reports in flight to allow airmen and relevant aviation facilities efficient use of this information.

3. Function summary about Integrated Air Traffic Control Data Processing System

The Integrated Air Traffic Control Data Processing System achieves accommodate future air traffic demand and ensure the continuity of ATC services. It integrates the capabilities of conventional systems, architecture has drastically changed.

1) Flight object Administration Center System (FACE)
The FACE system is installed with separated in ATMC, Fukuoka ACC and Tokyo ACC as the successor to FIMS. FACE relays various aeronautical messages between foreign ATS facilities, stores FPL to flight object data base (FODB).

2) Integrated Control Advise Processing system (ICAP)
ICAP is installed in Fukuoka ACC and Fukuoka ACC as replicated each other, creates a trajectory based on each FPL and registered in FODB. Trajectory will be commonly used in all of the ATC systems to support air traffic controller.