



Central Aeronautical Database





INDEX

About ATNS

Central Aeronautical Database (CAD)

Out with the old

In with the new

CAD applications

CAD architecture

Features and applications of CAD

Benefits of CAD

Other services offered by ATNS

Contact details





ABOUT ATNS

Air Traffic and Navigation Services SOC Limited (ATNS) provides air traffic, navigation, training and associated services within South Africa. ATNS is responsible for Air Traffic Control throughout **South Africa** and a large part of the **Southern Indian** and **Atlantic Ocean**, comprising approximately **10% of the world's airspace**. ATNS operates from 9 ACSA and 12 other aerodromes. As a **globally competitive employer of choice**, ATNS is committed to diversity and has achieved ranking within the **top ten companies** in South Africa with regards to female representation at executive levels.



Our Vision

To be the **preferred supplier** of Air Traffic Management solutions and associated services to the African Continent and selected international markets.

Our Mission

To provide **safe, expeditious** and **efficient** Air Traffic Management solutions and associated services.

Our services extend beyond Air Traffic Control services into the provision of **vitaly important aeronautical information** used for all flight planning purposes as well as search and rescue coordination activities, and the maintenance of a reliable navigation infrastructure.



CENTRAL AERONAUTICAL DATABASE (CAD)

CAD is a centralised, digital secure **storage repository** for aeronautical information.

It provides registered users with access to aeronautical information which is **integrity** and **quality assured** to facilitate safety of air navigation.

Part of our **mandate** has been to **transition** from the traditional AIS system to a **Central Aeronautical Database (CAD)**, so all systems can function **smoothly** and **in conjunction** with one another.

In keeping with the **ICAO AIS to AIM Roadmap**, ATNS has acquired a system similar to the **European AIS Database (EAD)** which is currently used by Eurocontrol and the European ATM community. In this way, we can ensure that South Africa, and in time Africa, is aligned with **global technologies** and **initiatives**.



OUT WITH THE OLD

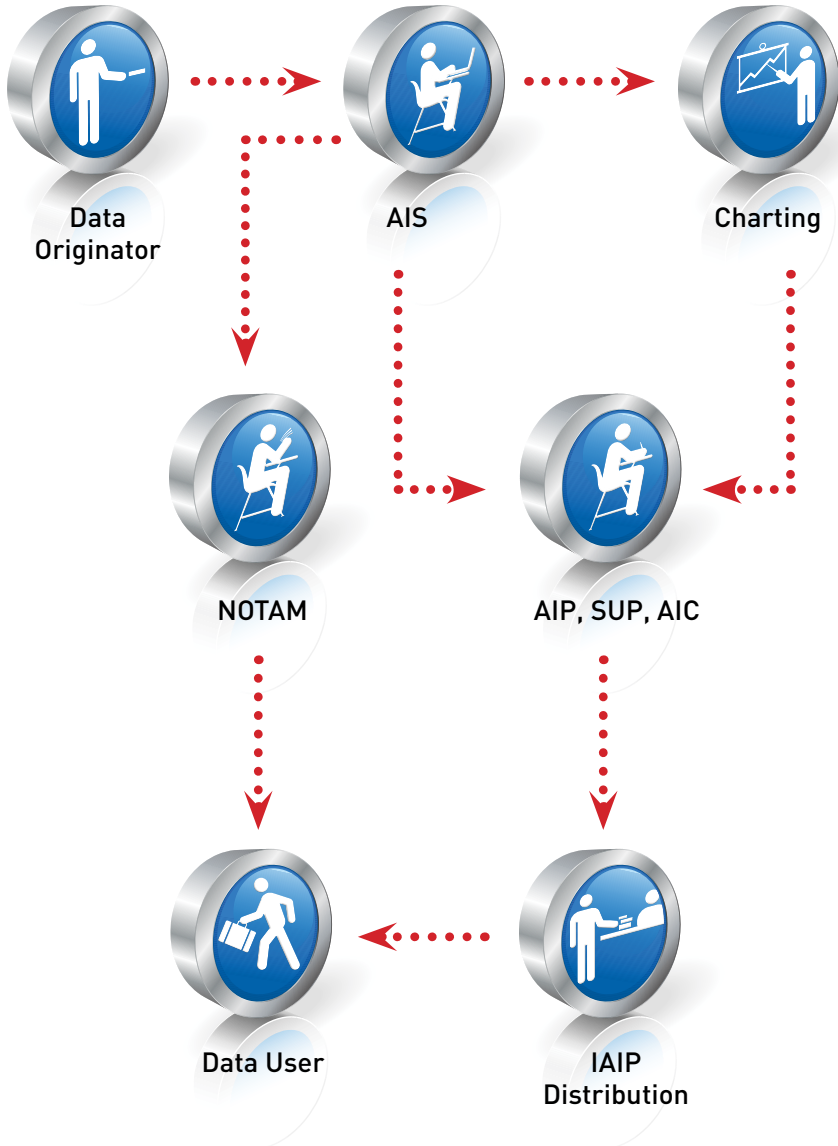
Until recently, ATNS, like many other ATS (Air Traffic Service) providers, has functioned on the **traditional AIS system**. However, the traditional product-centric aeronautical environment is not optimally efficient and there are potential errors. Currently the challenges are:

- Mostly paper-based (AIP, SUPs, AICs)
- Information sharing is not seamless and standardised – including Air Traffic Control, Flight Planning, billing and other systems
- These various systems are not able to speak to one another (systems exist in isolation) and were developed by different developers and on different platforms
- The data is entered into these systems more than once, from different machines, leading to duplication and possible errors

IN WITH THE NEW

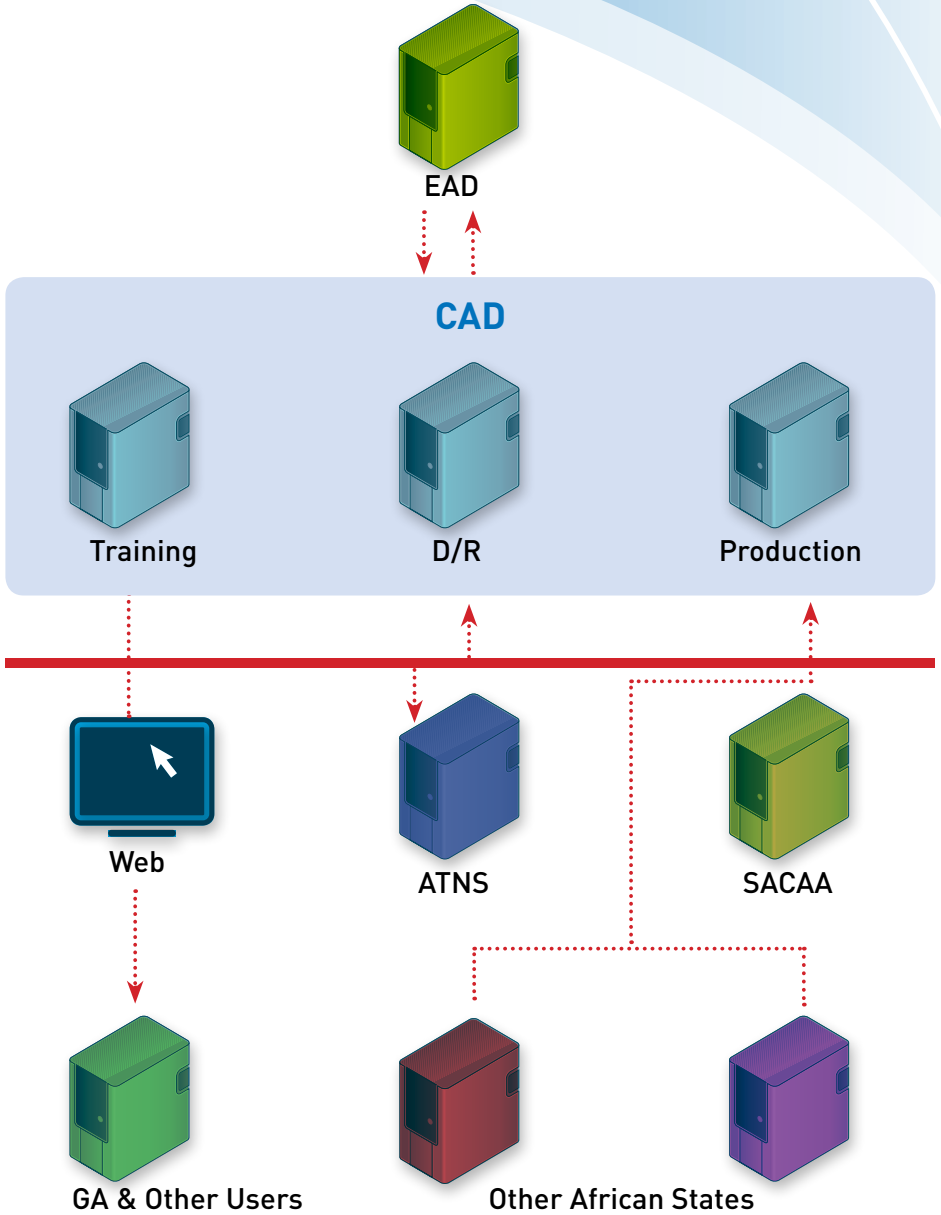
The CAD concept has been **implemented** in Europe, Canada and Australia with **great success**. There are multiple benefits in utilising CAD, as it provides different services and functionality through various **subsystems**. This unique platform presents a **versatile** and **modular solution**.

Typical AIS Workflow Today





CAD Architecture



CAD APPLICATIONS

- **CAD Basic:** Web-presence for airline operators, pilots and the general aviation public. Users can log into the CAD system via Internet Explorer where they can extract the information they need directly
- **SDO Static Data Operation:** User-friendly interface allowing for easy insertion of information into the database
- **GT Graphic Tools:** GIS visualisation of static and dynamic aeronautical information and airspace design
- **smartAIP:** Aeronautical Information Publication
- **PAMS Published AIP Management System** (document management system for aeronautical documents and charts): A library of all aeronautical documents (AICs, Supplements, AIPs and AIP amendments). All countries loaded into the CAD can be found and accessed with ease
- **smartCharting:** Aeronautical Chart Production
- **System to System Interfaces:** Allows users to integrate into the CAD system with new/existing systems



CAD ARCHITECTURE

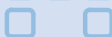
There are **3 databases** within the CAD system: the **Training System**, **Disaster Recovery** and the **Production System**. These systems are able to **run interdependently** (where one fails, the other takes over).

The **CAA** and **ANSP** enters data into the CAD which **synchronises** with information contained at the **European Aeronautical Database (EAD)**. Information that is available in the EAD is then synchronised back to the CAD and is made available for the use of **CAAs** and **ANSPs**.

In addition, CAD contains a **web application** that gives General Aviation and other users the ability to log in via Internet Explorer and **extract data** not previously available in digital format. In support of the CAD, there is an **EAD service desk** which caters for operational queries and a **Frequentis service desk**, handling all technical queries.

FEATURES AND APPLICATIONS OF CAD

- **AIP Production:** Aeronautical information publication is fast and simple
- **Graphic Validation Tool:** Allows users to view information in a graphical context. Navigational aids and updated airspaces are visible. Any errors can be corrected directly in the SDO
- **SDO Slot Management:** Manages the information in the CAD through slots. Information can be moved from one slot to another with ease. All information goes through various checks before being committed into the CAD
- **Regulating slot content:** Various ways of regulating slots and the content of the information within each slot is reported by the system and presented in PDF format



BENEFITS OF CAD

- Instant access to **aeronautical data** not previously accessible in digital format through a **direct network connection** or through an **internet-based interface**
- Information sharing is no longer confined to **specific systems** and can be defined to other **aviation subsystems** using the appropriate exchange model
- A database of **validated Statistic Data** (aerodromes, NAV-aids and routes)
- **Worldwide data maintenance** via Slot Management with standardised AIXM-based Data Exchange
- Application of **multiple rules** for data validation
- **Reporting functionalities** and **upload and download management** for aeronautical data

Key among the **benefits** of implementing CAD is the definition of data providers and users.

- **Providers:** Data Originators, Air Navigation Service Providers and State Civil Aviation Authorities
- **Users:** Aircraft Operators, Airport Operators, Developers, Military and General Aviation



OTHER SERVICES OFFERED BY ATNS

- Aeronautical Information Services
- African Regional Monitoring Agency Services
- Airspace Design
- Billing and Collections Management
- Central Airspace Management Services
- Education and Training
- Engineering and Technical Services
- File2Fly
- Flight Procedure Design and Cartography
- Maintenance Management System
- NAFISAT and SADC VSAT
- Safety and Regulation Assurance
- Upper Airspace Service Provision
- Risk, Security and Quality Compliance Services
- WGS-84 Surveying and Obstacle Evaluation

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