



## Compact digital tower

ICAO-compliant turnkey solution

Integrated hosting platform

Comprehensive data presentation

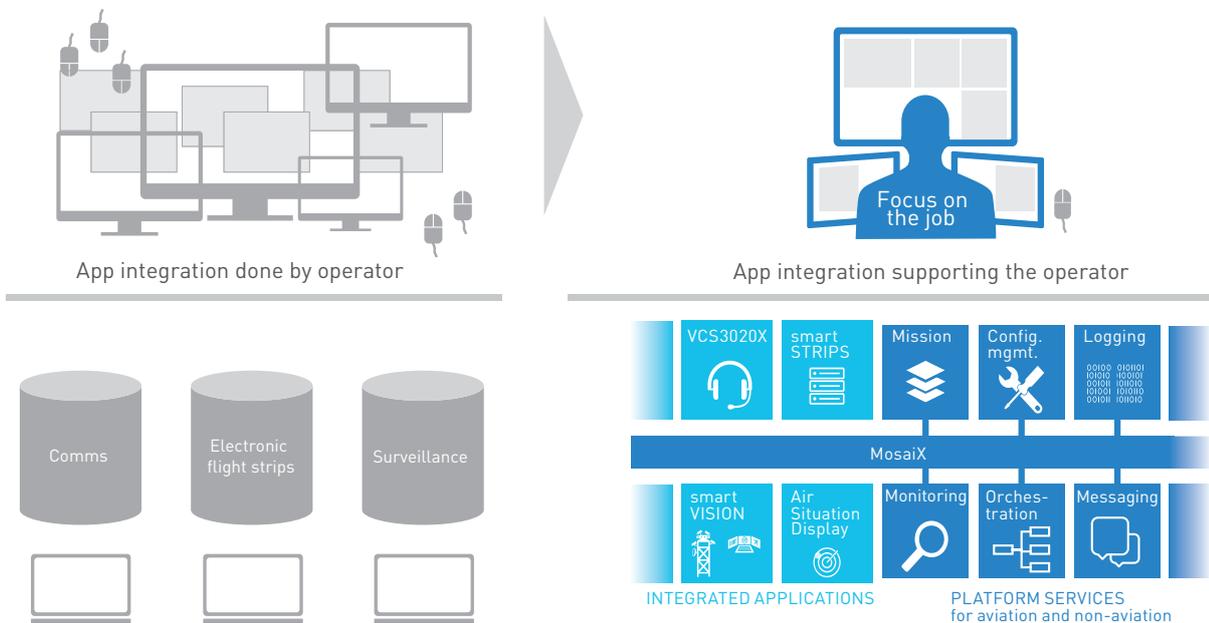
Air Traffic Management

**FREQUENTIS**  
FOR A SAFER WORLD

# Cost-efficient solutions require seamless integration

Air traffic controllers in towers typically use a variety of independent, standalone air traffic management systems. Working with different vendors can result in budgetary constraints, making it difficult for ANSPs to always stay on the cutting-edge of ATC technologies. Equally, using different systems simultaneously often impairs the situational awareness of controllers and consequently the efficiency of the whole airport. Frequentis offers a wide variety of digital tower products for communication, automation, and flight handling. Now, they can be seamlessly integrated, using an integrated data platform and a harmonised HMI for all our components. Our customers can leverage a workflow-oriented environment for controllers while optimising operational costs with a low-complexity, standardised tower solution, to ensure safe and efficient handling of air traffic.

## Compact digital towers in an ANSP environment



Given constantly tightening budgets, ANSPs are required to accelerate their rollouts and integrate solutions more efficiently, all while reducing operating expenses. Nevertheless, it remains mandatory to provide a set of essential ICAO-compliant technologies, to enable controllers to operate reliably against a backdrop of constant growth in air traffic.

The digitalisation of compact towers starts with the concept of harmonising both the existing technology platforms and user interfaces. This removes the requirement for controllers and technical personnel to handle standalone systems, which increases cost-efficiency.

To achieve these goals, the compact digital tower solution is a fully standardised, modular solution that grows with our customers. All our components are based on an integrated data platform which ensures a small footprint and easy maintenance based on a single vendor concept.

The platform comes with all the pre-configured services and standardised interfaces that are needed in small to medium tower environments, with the option to extend the system with additional applications.

# Seamless digitalisation and integration

Frequentis compact digital tower solutions focus on reducing ANSPs' independent product silos by integrating our tower information and a control display (smartTOOLS) with additional flight information services and our VCS (voice communication system). The combined knowledge base provides a wide variety of workflow- and decision-support functions that operators can access instantly throughout their work procedures. One approach for the compact digital tower is an integrated controller working position, which provides a sophisticated and intuitive information display to the air traffic controller.

## HMI integration for an efficient and compact ATC solution



## Off-the-shelf solutions for different airports

Compact Digital Tower enables the integration of ATC services as well as new technologies into a single HMI, using our data migration platform – MosaIX – to harmonise products and provide a single operational display. Tower information displays, voice communication and flight information data can be integrated and displayed together, providing full

situational awareness and enabling controllers to safely operate an airport. Existing infrastructure can be interfaced, enabling all relevant information to be displayed on a single HMI.

Frequentis offers a customisable solution that can be adapted to the specific requirements of every airport.

**Remote digital tower**  
 Remotely controlled ATC  
 Contingency operation  
 Visual enhancement  
 Multi tower operation

**Advanced digital tower**  
 High capacity operation  
 Complex runway layouts  
 Integrated surveillance  
 Enhanced workflows

**Compact digital tower**  
 All essentials for air traffic control  
 Integrated package  
 Off-the-shelf:  
 Turn key solution  
 Compact platform;  
 modular & expandable

# Enhanced situational awareness

There is a set of essential systems and tools that all compact tower environments require today. Runway management, weather data processing, tower cabin control, voice communications and flight information are all necessary to ensure air traffic safety and to enhance the operator's situational awareness.

Frequentis supports this approach through the seamless integration of our ICAO-compliant tower portfolio into an integrated platform. Integrating Frequentis products at the backend into a single and consistent presentation layer provides significant benefits.

## Selected references

### AVINOR, Norway

Avinor, the Norwegian air traffic control authority, selected Frequentis to deliver its ICAMS (Integrated Control and Monitoring System) project. The challenge for Frequentis was to integrate several tower subsystems into one system for the initial five regional and local airfields, with five more to follow. The solution uses our integrated information and support display to automate airfield data retrieval, processing and distribution, and integrate control subsystems within a single User Interface (UI). After an initial design and integration phase, early sites were deployed in parallel, with subsequent airfield implementations rolled out one-by-one on a swift, bimonthly basis. During the course of the project, Avinor has added two more airfields to the programme, bringing the total to twelve sites.

### AFL, Fiji

The delivery for Airports Fiji Limited (AFL) encompassed a "glass tower" concept for the two main airports of Fiji, covering voice communication as well as integrated traffic control components. Frequentis was awarded the contract for the delivery and installation of Tower and Airport Tools for the Nadi ATMC and Nausori Tower. The upgrade included the replacement of the current meteorological display and was extended with airfield lighting control, which allowed AFL to reduce controller working position screens. The solution includes VMware virtualisation technology in order to ensure server compatibility across extended time horizons. Thanks to the Frequentis deployment concept, the maintenance for Nausori Tower can now be handled from Nadi Airport as well.

### AIRNAV, Indonesia

Frequentis delivered the first mobile tower to Airnav Indonesia. The fully equipped and ready-to-operate mobile trailer-mounted ATC tower was developed to meet the need for fast, safe and reliable mobile ATC services in Indonesia. One design objective of the mobile tower was rapid and easy deployment, even under harsh environmental conditions. The solution also needed to operate independently of any infrastructure and to permit transportation by land or sea. Within these challenging constraints, the Frequentis compact tower concept fully supported the demands of Airnav Indonesia to provide a fully integrated compact tower platform, including voice communication, MET information, and tower control systems – ready to deploy.

The Frequentis tower solutions roadmap is fully aligned with the SESAR 2020 wave of ATM research and ICAO Aviation System Block Upgrades. This enables airports to rely on support to address future industry challenges according to standardised best-practice approaches.



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