

Submission to the Aviation Safety Regulation Review

Prepared for the Deputy Prime Minister and
Minister for Infrastructure and Regional Development,
the Hon Warren Truss MP.



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This submission describes the Air Traffic Management capabilities resident within Saab with particular emphasis on how regulatory reform can facilitate the safe and expeditious implementation of emerging ATM technologies.

Introduction

Saab supports the Government's commitment to a review of Aviation Safety Regulation in Australia. Saab also welcomes the opportunity to highlight to the Deputy Prime Minister areas in which we can enhance not only the safety but also the effectiveness of Australian aviation safety in the future.

Australia remains at the forefront of global aviation with an enviable aviation safety record. However, given the anticipated growth in traffic levels over the next twenty years not only within Australia but also the wider Asia Pacific, the safe and expeditious application of emerging technologies through a combination of Industry, Air Navigation Service Providers (ANSPs) and the Civil Aviation Safety Authority (CASA) will play a crucial role in allowing the system's capacity to meet the ever growing demand. New technology will be an essential enabler not only in complex capital-city airspace but possibly more so when we consider traffic growth in regional Australia. The regional aviation industry has frequently expressed concern that the costs of regulatory compliance will force them out from the marketplace. The advent of 'Fly In Fly Out' operations, particularly within some parts of Western Australia and Queensland, has led to passenger movements in rural areas increasing at rates well beyond those predicted and beyond those at which CASA must conduct some form of Aeronautical Study. The provision of air traffic services at several remote locations may soon become a necessity.

Saab is keen to contribute to any policy discussions on ways in which regulatory reform can contribute to enhancing aviation safety in these regional locations, without incurring what may be perceived as traditional costs resulting in untenable expenses for regional airlines.

Background

The Swedish-based Saab Group employs approximately 14,000 people worldwide and generates annual revenues exceeding AUD\$4 billion. With operations and employees on all continents, Saab constantly develops, adopts and improves new technology to meet customers' changing needs

Saab has been based in Australia since 1988 but has been a supplier to the Australian Defence Force since the 1940's when Bofors guns were first fitted to Royal Australian Navy ships.

With a Head Office in Adelaide, Saab Australia (formerly Saab Systems) specialises in high technology, computer-based command and control systems for the defence forces. Through a separate company, Saab Security has developed technology for security and aviation in major installations such as prisons and airports.

Saab Asia Pacific is part of Saab's global marketing organisation which has its Australian office in Canberra. It provides the marketing point of contact for Saab operations in Australia comprising air traffic management (ATM) applications, defence command, control, communications and intelligence (C4I) systems, radars, weapons, training, deployable hospitals, and civil security.

Saab Air Traffic Management

Saab offers a wide range of solutions to support the wider aviation industry ranging from air traffic management solutions to aircraft leasing and support. Rex Airlines continues to be the largest operator of Saab 340 aircraft in the world. It is within the realm of ATM however that Saab is in many ways making the greatest advances. Although Saab's organic ATM capability had been developing relatively quickly, in order to establish itself as a market leader, Saab acquired two leading ATM equipment providers. In August 2011, Saab acquired the former Sensis Corporation. The company, with its headquarters in Syracuse, NY, provides extensive engineering, manufacturing and lifecycle support services to many of the world's top militaries, civil aviation authorities and related organisations. Saab now has ATM products in over 200 locations worldwide and has systems operating with 18 of the 20 biggest ANSPs. This acquisition also means that Saab ATM is the leading supplier to Airservices Australia (AsA). In addition to the highly successful Integrated Tower Automation Suites (INTAS) that AsA are implementing in up to 28 Towers

across Australia, Saab are providing Runway incursion safety systems at Perth, Melbourne, Brisbane and Sydney. In November 2012, Saab also acquired the Holland Institute of Traffic Technology (HITT), a renowned leader in the provision of runway safety systems.

Remote Tower Technology

It is with the introduction of Remote Tower technology however that Saab believes it can make a significant contribution to providing safe and cost effective ATC services in regional locations across Australia.

In 2006, Saab and the Swedish ANSP, LFV, embarked on a project named Remotely Operated Tower (ROT). The aim of the project was to prove that ATC Tower services could be safely provided from a location removed from the airport. Ängelholm airport was chosen as the target airport with the Remote Tower Centre (RTC) located at Malmö, approximately 100km away. The ROT trial was successfully completed in early 2009 and such was the success that the project was awarded the Jane's Airport Review Industry Award during the ATC Global 2010 exhibition in Amsterdam.

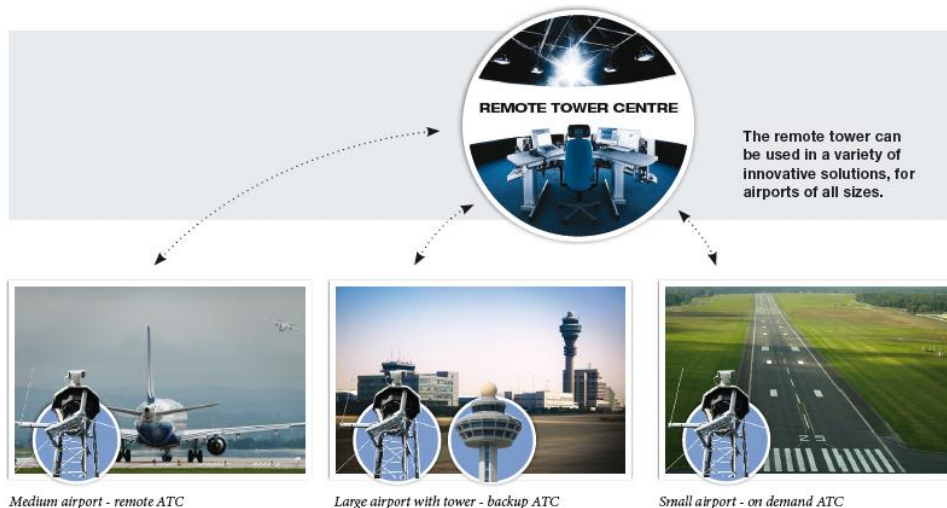


The Saab Remote Tower (r-TWR) concept is a game-changing initiative in air traffic control, providing benefits for airport owners, airlines and ANSPs alike. For the first time, high definition cameras are providing real time images, leading to safety levels being improved and services provided from a user-preferred location.

Remote Tower represents the perfect solution for:

- Provision of ATC services (ATS) at new or growing airports – enhances safety and reduces construction and maintenance costs

- Replacement of outdated Tower facilities – reduces ongoing maintenance and refurbishment costs
- Merging the provision of ATC services at two or more existing locations
- Provision of ATC services during contingency operations.



Although there is a clear financial benefit in not having to construct a traditional ATC Tower facility, the principal benefit associated with r-TWR is that it allows ATS to be provided quickly on demand, guaranteeing safe airport operations at locations where services may not currently be available. In the RTC, technologies have been developed to support the controller. Features such as on-screen label presentation to maintain traffic identification in poor weather conditions will increase the ATCO's situational awareness, thereby reducing workload.

Following on from the success of the Swedish trial, Saab was selected to deliver the world's first full-time Remote Tower facility to LFV. The facility includes a Remote Control Centre and two connected airports in northern Sweden. All implementation is complete and the Swedish regulator is in the process of issuing certification of the system. In neighbouring Norway, Saab is currently bidding on a tender that will provide for around 40 Remote Tower installations.

AsA quickly recognised possible applications of r-TWR in Australia and signed a contract with Saab to assess the viability of the technology in vastly different

conditions to those experienced in Sweden. Cameras are currently installed in Alice Springs airport with real-time information being relayed to the AsA Adelaide facility, almost 1500 kilometres away. The trial will be completed by mid-2014 at which stage AsA will decide if this technology can be used at other locations.

Remote Tower and Regulation

Changes in the ATM regulatory process is quite rightly a conservative and safety driven process. The introduction of Remote Tower technology presents a considerable challenge to regulatory bodies around the world, as there is not yet any firm guidance from ICAO on standards and recommended practices. CASA should be commended for their supportive approach to the implementation of this technology in Australia. Visits to both LFV and the Swedish regulator have been conducted and regular briefings received from both Saab and AsA. The Director of CASA has also taken a prominent role at the latest Air Navigation conference promoting the development of ICAO provisions for remotely operated air traffic services. However, given the clear benefits that r-TWR that can provide particularly to remote regional locations, CASA should be encouraged to maintain their current positive approach to not only implementing the technology but also introducing requirements for ATS and flight crew training, ATS personnel licensing and related procedures for remotely operated air traffic services.

Saab looks forward to continued engagement on this topic, and is pleased to be contacted in relation to any points raised in this submission.

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SAAB



REMOTE ATC SERVICES ON DEMAND

What if it were possible to provide air traffic services (ATS) at several airports from a remote location, making operations safer and minimising the need for local personnel?

Well now it can be done.

The Saab Remote Tower (r-TWR) concept is a revolutionary initiative in air traffic control, providing benefits for airport owners, airlines and Air Navigation Service Providers (ANSPs) alike. For the first time, by sharing high definition information in real time, safety levels are being improved and services can be provided from a user-preferred location.

A number of ANSPs and airports have already recognised the potential benefits of r-TWR. With r-TWR systems currently deployed in several countries worldwide, Saab has consolidated its position as the acknowledged market leader in the provision of safe and efficient remote tower services.

Saab is very committed to r-TWR technology. The close involvement of all stakeholders during the developmental process has resulted in a high degree of standardisation and functionality. Enhanced safety and reduced costs are guaranteed.

Many benefits from a new technology

The Saab r-TWR package is modular and can be offered in many forms to suit differing customer needs. It is the ideal solution when seeking alternative methods of providing safe and efficient ATC services.

r-TWR represents the perfect solution for:

- Provision of TWR services at new or growing airports – enhances safety and reduces construction and maintenance costs
- Replacement of outdated TWR facilities – reduces ongoing maintenance and refurbishment costs
- Merging the provision of ATC services at two or more existing locations
- Provision of ATC services during contingency operations.

Enhanced safety opportunities

Although the economic benefit of not needing to build a new TWR facility is clear, r-TWR principally allows ATC services to be provided on demand, guaranteeing safe airport operations at locations where services may not currently be available.

In the r-TWR centre, technologies have been developed to support the air traffic controller (ATCO). Features such as on-screen label presentation to maintain traffic identification in poor weather conditions will increase the ATCO's situational awareness, thereby reducing workload.

At locations where the provision of ATS is required, implementing an r-TWR solution provides for safe operations whilst also significantly lowering costs associated with the construction of a traditional ATC tower.

Additional benefits

When traffic levels permit or the contingency role is not activated, the functions of r-TWR allow many diverse additional activities to be undertaken:

- Perform proficiency training and evaluation through replay of key scenarios
- Conduct In Flight Emergency Response training
- Simulate traffic patterns to eliminate bottlenecks in airside infrastructure
- Conduct incident replay for investigative purposes

Improved Situational Awareness

- Real-time object tracking
- Radar and video sensor fusion
- Labels on moving objects
- Geographical overlay during low visibility
- Anomaly Detection
- Pan, tilt, zoom (PTZ) camera target tracking with image incorporated into airfield view

At the Remote Airport

- High Definition cameras cover 360 degrees of airspace and manoeuvring area
- Camera PTZ capabilities, and 36x zoom to replace binoculars
- Video encoding and compression
- Microphones to pick up airfield sounds
- Signal light gun
- Meteorological sensors
- Integrated tower systems (airfield lighting, navigation aids, crash alarms etc.)
- Aircraft and vehicle tracking functionality
- Flexibility of location of r-TWR as determined by the required security level

At the Remote Tower Centre

- Up to 360 degrees of real time video
- Airfield stereo sound
- PTZ camera and signal light gun controls
- Automatic Weather Observation System (AWOS),
- Control of Integrated tower systems,
- Remote Control monitoring system, (airfield lighting, navigation aids, voice comms)
- Flight Data Processing system,
- Radar Data Processing and Display system,
- Information Data Processor,
- Electronic Flight Progress Strip system, (e-Strip)
- Record and Replay System for video, audio and flight information
- System redundancy

Contingency Operations

Remotely Controlled Tower



Remotely Controlled Tower / AFIS



Remote Tower Centre