

Case Study

IRISH AVIATION AUTHORITY (IAA)

Ireland

Branch

Airports & Air Traffic Control

Project

Provision of a premier Business Continuity and Operator Collaboration Solution for three international airports and a communications site in Ireland (Dublin, Shannon, Cork and Ballygirreen).





Client

The Irish Aviation Authority operates three major airports in Ireland, in Dublin, Shannon and Cork, as well as the North Atlantic Communications Centre (or Shannon Aeradio) in Ballygirreen, County Clare. Here 50+ radio officers provide communication services for the North Atlantic air corridor.

Irish airspace is a crucial gateway for 90% of all air traffic between Europe and North America. Air Traffic Control guides over 1750 flights per day during peak summer months, the majority of which fly over Ireland without landing. The IAA also oversees safety operations for all aspects of general aviation within Ireland and all Irish-registered aircraft.

IAA's Air Traffic Management department provides services across 451,000 km² of Irish air space. It operates a complex network of communication, navigation, surveillance, radar and flight data processing systems on a 24 hour basis, 365 days per year. Dozens of key systems, including but not limited to airport and runway maps, weather and temperature systems, pumps, ground radar and control, are replicated across ATM's three control rooms in Dublin, Shannon and Cork.

Challenge

Prior to the WEYTEC project, local staff in all three locations supported and maintained their respective systems and infrastructure independently. There was no visual information sharing between sites, or status alarms available beyond each isolated local area network. Whether for routine measures or during emergencies, expert staff at one location could not cover for missing staff at another location.



Operator workplaces each with a single keyboard and mouse



Goals

The first goal of the project was to interconnect and network key data sources at all four locations across Ireland. Experts at one site should be able to access and administer systems remotely. The second goal was to unify the visualisation of disparate systems and alarms onto video walls at the control room sites. The IAA wanted to take advantage of state-of-the-art video wall functionality to maintain not only the local but also a national overview of critical systems. Thirdly, the IAA wanted to realize a fully integrated alarm management concept. The video wall and multifunctional keyboards from WEYTEC should pro-actively alert operators, both visually and audibly, in case of incidents.



The four IAA locations

Network Solution

WEYTEC proposed a world premiere solution for the aviation branch based upon the networking capabilities of the WEYTEC distributionPLATFORM. This Platform makes it possible to connect, switch and distribute virtually any system to any workplace in the network, securely, latency-free and without performance loss. The systems themselves can be located anywhere in the network, either in a secure and air-conditioned system room or even at the desks. For the IAA project, several of the sources were legacy systems that could not be moved.

The solution is deployed over an IAA-managed IP network with links between the three airports and Ballygirreen. WEYTEC's unique compression algorithms reduce the bandwidth required for transmission by a significant factor.

Engineers at any of the four locations have real-time access to all of the systems, in accordance with their permissions profiles. Individual operators or collaborative teams can view, control or share the data. They use customised keyboard keys and layers on the smart-TOUCH multifunctional keyboards to quickly access and interact with the systems, and display the data on their workplace screens or on the video wall either in Shannon or Dublin.



Video wall



Visualisation

IAA's visualisation solution consists of two large LED video walls based on WEYTEC smartVISUAL technology that is designed for 24/7 operations. The walls display video streams for 60+ defined systems. Control room operators can easily choose and toggle between predefined layouts. Operators enjoy the complete overview and can respond to incidents anywhere in the network. For example, if an alarm goes off at an unmanned site, an expert staff member at another location will be pro-actively informed and can respond quickly and effectively.



Video wall: Flashing border around source which trigger an alarm.

Alarms

Proactive alarming is a star feature of IAA's new control room solution from WEYTEC. Their Input/Output cards capture alarm signals from the PC sources and present them via the WEYTEC distributionPLATFORM to both the smartTOUCH multifunctional keyboards as well as the video walls.



Alerting control panel fully integrated in the smartTOUCH keyboard touchscreen



At the video wall, a red border flashes around the affected source, drawing everyone's attention to the incident. At the keyboard, each alarm triggers a visual event on the smartTOUCH keyboard screen while an audible alert is piped through the keyboard speakers. WEYTEC IP Audio Cards distribute the analog soundwaves of each alarm to the desks, so that operators can actually hear the unique sound footprint of each alarm source. A customized keyboard layer flashes the exact name and location of the source until an operator acknowledges the event on the touchscreen, cancelling the alarm on the videowall and keyboards at all sites associated with either the Shannon or Dublin WDP/smartVISUAL system..

IAA Staff

The WEYTEC Solution enables the IAA to leverage staff expertise on a 24/365 basis across multiple sites. According to **Mr. Peter Nolan, Head of ATM Systems and Technology**, the day-to-day administrative involvement for new and legacy systems has been reduced and simplified, "allowing the IAA staff to get on with providing the best air traffic management services imaginable." Further, the acceptance of the new system has been high among the operators who like the improved switching functionality and the flexibility provided by the smartTOUCH keyboards.

Disaster Recovery

Shannon and Dublin are fully functioning business continuity sites. If, in a disaster situation, employees at one location were to become suddenly and unpredictably unavailable, all systems and alarms can be managed from the other location. In other words, operators in Dublin can see and control everything in Shannon, and vice versa.

Note: The Dublin and Shannon systems now function independently of each other since an upgrade of both sites in 2020. This decision was taken by the IAA management.

Benefits

Many of IAA systems can now be centrally monitored, and alarms are distributed in a common format. This significantly enhances alarm management processes and the overall reliability of ATM service provision. Fault management procedures have been streamlined and staff members use their keyboards to respond to critical incidents more quickly and efficiently, regardless of location. Video walls provide the overview, improving team collaboration and the coordination of interventions.

Facts & Figures

WEYTEC distributionPLATFORM

- Four networked ATM control rooms
- Six operator workplaces each with a single smartTOUCH keyboard
- 30+ sources per control room
- Visual and acoustic alarm management

WEYTEC smartVISUAL

- Two 6x3 55" LED video walls in Dublin and Shannon
- Four WEYTEC smartVISUAL Controllers



Future Proof

System requirements evolved over time during the project, changing as IAA grew to appreciate the flexibility of the WEYTEC distributionPLATFORM. IAA states that they were able to “continually bring in new functions and requests, and know that they would be solved whenever possible.” The WEYTEC distributionPLATFORM solution continues to evolve and new features are added according to customer needs.

Testimonial

According to Mr. Nolan, “IAA would recommend the WEYTEC solution to other airport operators and specifically air navigation service providers (ANSP), as it provides a completely unique way of managing disparate systems. The knowledge built up during this project can be shared with IAA’s global operator partners to provide a solution that many operators need.”