

ADVANCED RUNWAY SAFETY IMPROVEMENT (ARSI) **MANAGING ZÜRICH'S COMPLEX RUNWAY SYSTEM**



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Jörn Winkler is the project manager of Advanced Runway Safety Improvement (ARSI) at Zurich Airport; Mathias Burtscher, being head of Operations International Airports at skyguide, is the project owner. ARSI is a software solution to generate alerts if necessary, in order to enhance safety and efficiency of the runway system of airports. After the introduction of ARSI at Zurich airport, skyguide is planning to bring its functionalities into operation in Geneva too.

SKYGUIDE **Why was the ARSI project started?**

MATHIAS BURTSCHER The runway system in Zurich is complex, arrivals and departures are made even more difficult because of additional constraints such as conflicts with residents, involvement of politics and agreements with neighbouring Germany. ARSI allows us to map clearances and instructions in the software solution to generate alerts if necessary. Since we pursue the same safety and efficiency objectives as our partners, we launched the project together with Zurich Airport and Swiss International Airlines.

JÖRN WINKLER The cooperation with end users, engineers and Zurich Airport was tight and software suppliers – such as Sita, Indra Navia SA and SkySoft-ATM – were closely involved. The Federal Office of Aviation (FOCA) supported the project financially since we intend to improve the overall safety.

What were the challenges and how did you tackle them?

JW The ARSI project is a Research & Development project whose target could only be formulated imprecisely at the beginning. That was and still is our challenge. How can we design these inputs, taking advantage of the

technical possibilities? How can we automate and thereby reduce the number of necessary clicks? How can we support the workflow of the air traffic controllers efficiently? On top of several existing applications, we had to re-develop a new software which we call TRACE (Tower Approach Coordination Equipment) and extend the software architecture of our Swiss Airport Movement Area Control System (SAMAX) equipment.

Did you, as with other skyguide projects, proceed according to the agile method?

JW Yes, indeed. The agile method with two weeks cycles has helped a lot. With this method, we were able to deliver results efficiently and quickly and to correct them immediately if necessary. We also could review many features and functions before finalizing the design. The most positive aspect of the agile development method is to quickly get first results: it keeps people's motivation high, fosters the collaboration and creates an important buy-in on the user's side.

How did the implementation of Iteration 1 perform in live operation?

JW During the first two days of operations, the implementation and stabilization phases encountered a complicated start. A small non-expected software bug caused important disturbances: a problem in the ground radar system SAMAX affected the TRACE system. Thanks to the system design, the preventive measure of reducing the capacity during the stabilization phase as well as the trained procedures of air traffic controllers rapidly



reduced the impact. Within a few hours, the software bug was identified and corrected.

MB The implementation of a new software and additional tools will always be a great challenge for the entire company. The team has to constantly evaluate, weigh and decide. One cannot test those complex software solutions connected to numerous systems one hundred percent in advance but must be aware that in live operation, certain side effects might occur. Such undertakings are only possible because of the professional cooperation and the trustworthy work of all involved.

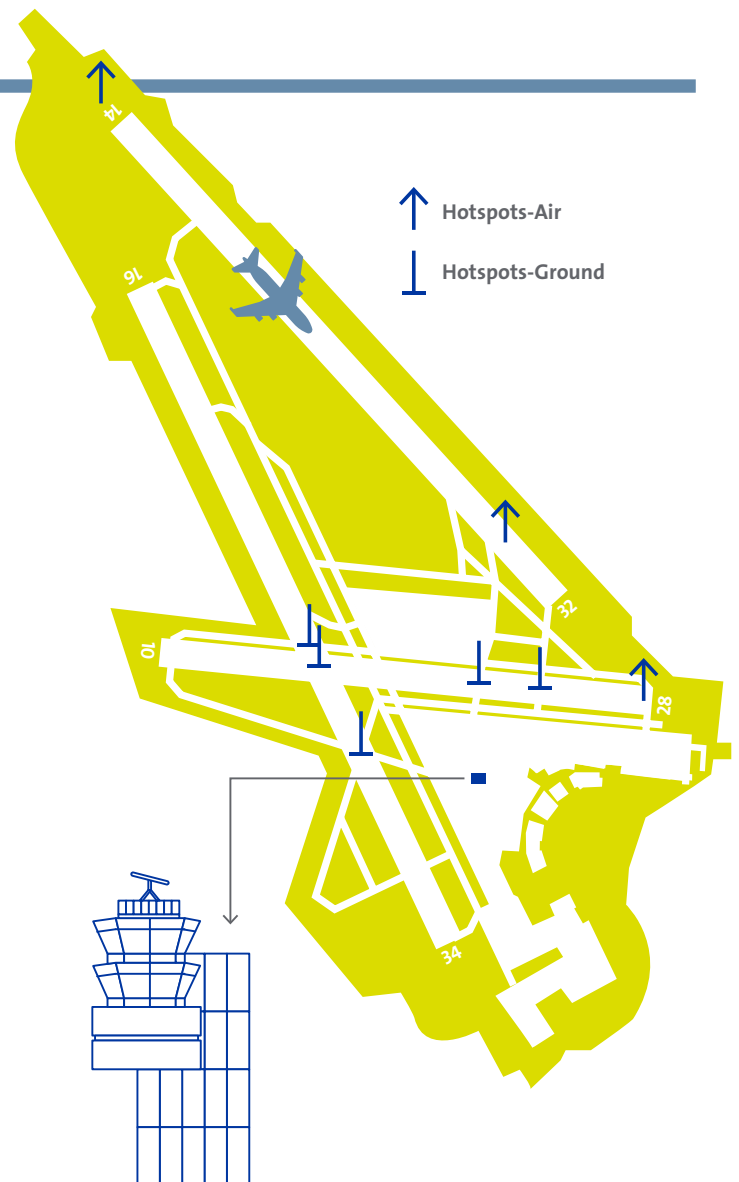
What are the key success factors from the project management perspective?

JW The success is largely based on excellent cooperation. The project team efficiently worked together independently of the employer. The team constantly challenged itself to make sure that the design would provide the expected benefits to the end users. The involved ATCOs contributed substantially to the success and acceptance of the system. A further positive aspect was that the integration into the Tower Simulator (TOSIM) to prepare the ATCO training was started simultaneously with the Software development. This allowed integrating the feedback of the involved ATCOs into the system before its implementation.

What are the next steps?

MB After Zurich, skyguide is planning to bring the ARSI functionalities into operation in Geneva. This solution is at the forefront in terms of system support. It creates the foundation for further development. Due to the limited space available on the ground and in the air, the company has to continuously innovate on customer-oriented, intuitive and efficient solutions.

“THE COMPANY HAS TO CONTINUOUSLY INNOVATE ON CUSTOMER-ORIENTED, INTUITIVE AND EFFICIENT SOLUTIONS”



ZURICH RUNWAYS AND POTENTIAL CONFLICTING AREAS