

## ABSTRACT

In the future, a single air traffic controller will be responsible for the simultaneous management of several small airports during times of low traffic volume. The increased complexity of such multiple-airport-control scenario certainly requires major changes on the part of the air traffic controller and other traffic participants like pilots and ground handling staff. One major concern involves the controller-pilot communication via voice radio. Today, controllers and pilots within a given sector exchange information over a shared radio frequency. This so-called 'party line' allows pilots to overhear both their own conversations as well as those of the other aircraft tuned to the same frequency. In a multiple-airport-control situation, this practice may lead to problems for both controllers and pilots. To explore these issues, two empirical studies were conducted focusing on the controllers' perspective and the pilots' point of view respectively. Results of the first study indicate that, from the controllers' perspective, using a single global party line for all simultaneously controlled airports would be the preferred choice. However, there is concern that implementing this design option might impede the pilots' ability to develop an accurate situational picture of the surrounding traffic situation hence leading to degradation in flight performance. To test this assumption, a second empirical study focusing on the pilots' perspective was conducted. Results show that receiving party line information from other airports may indeed lead to confusion, although no impact on flight performance was observed. Nevertheless, a high safety level in field operations is still demanded. Further discussion generated several alternatives in minimising the risk of confusion errors while taking the controllers' requirements into account.

Key words: *air traffic control, multiple-airport-control, controller-pilot communication, party line*