MY VERY SAFE NEAR MISS

When front-line staff inherit tools and procedures that are not fit for purpose, it is often because these are designed on the basis of work-as-imagined from afar, instead of work-as-done. How can we close the gap? Empathy and understanding is the first step of 'design thinking', but means getting closer to the work. **István Hegedus** describes one way to make this possible.

KEY POINTS

1. **It can be hard for those without an operational background to understand the experience of operational staff.**
2. **Practical experience in a safe environment offers a way to develop empathy with controllers.**
3. **Simulation can be of support not only to controllers, but also to managers, designers, engineers, project managers, airspace designers, and anyone else who has to think about the design of ATC work and equipment.**

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I was managing both arrivals and departures in the rather compact control tower of Horn Airport. It is a facility serving mostly the domestic routes of some local airlines, flown typically by Q400's and ATR's of various lengths, complemented by few international operations during the day. Not much hustle, even a little boring at times. However, in the late afternoon, flights tend to want to land in little flocks, rather than one-by-one. And there are still some who want to depart.

I was carefully calculating time and distance in advance between a tourist-filled departing Airbus 319 taxiing to the only runway and an arriving ATR passing 8 miles on final. I asked the Airbus pilot if they were ready to take off immediately once they reached the runway, and the pilot confirmed. So I issued the clearance to line up and take-off from RWY 27. The nose of the jet was just moving over the holding point marking short of the runway when I looked at the ASMGCS screen. At that moment my blood froze. At a mere 1 NM from the threshold there was another flight on the final approach path, a Q400. It came back to me all of a sudden: yes, I had cleared this Q400 to land a couple of minutes ago. Then I became so preoccupied with sequencing the departure of the Airbus 319 and the landing of the ATR further out on the final that I completely forgot about the plane in between the two, cleared to land. I quickly instructed the A319 to stop and the Q400 to go around, and looking back over my shoulder I saw that my instructor had seen this too.

Luckily, all this took place in a simulator. I never was and never will be an air traffic controller – which I think is a considerable contribution to flight safety on my side. The story above is one short episode from the Air Traffic Control Basics course provided by Entry Point Central, which I attended a few years ago.

This course put me into many more situations where I, along with my course mates, encountered things that those who are not controllers can otherwise only hear or read about. I still remember the struggle, mastering the ATC position HMI, then a new HMI, radio problems, feeling overwhelmed with traffic, planning and re-planning as a result of turbulence and thunderstorm reports, being fatigued, or visualising in 3D restricted airspaces that were just a flat shape on the screen.

My course mates included colleagues from fields such as airspace planning, project management, quality assurance, law, and myself from safety promotion. We all finished the course – nobody dropped out – with a much better ability to take into consideration the actual challenges that confront air traffic controllers, the ultimate users and targets of projects, development, regulation, training, and other manifestations of work-as-imagined, intended to improve safety or efficiency.

Along with the dozens of hours of APP, ACC and TWR simulation, accompanied by theory training, we also had plenty of opportunities to interact with the instructors, real air traffic controllers. They reflected on our performance and put our simulator experience into the context of real-life air traffic control, by sharing with us their work-as-done knowledge, comparing what we did to what would actually happen in the Ops room in Budapest. Thus, experiencing air traffic control in the simulator and being able to discuss it with 'original' controllers gave us a truly unique opportunity to explore for ourselves the core business, in order to be able to plan and create tools, solutions and regulation that are more convenient to use, and thus more likely to be effective. If you want to gain such experience, the ATC Basics course is probably the second best way to achieve this.

An ATC Basics type course requires considerable resources: many days away from the office, many hours of simulator and instructor time. Obviously, this restricts the number of employees who can go through this type of training. However, there are other, more time- and budget-friendly alternatives that have proven successful. A two-day ATC familiarisation course can also give the participants a taste of what air traffic controllers actually do. After a day of theory and another day of simulator practice with the help of an instructor, and an appropriate debriefing in the end, freshly enrolled colleagues will go home not only with a better understanding of the core business, but also with increased empathy towards controllers. And if even the two-day course is beyond the capacity of your simulator and instructors, your organisation can still decide to run a 90-minute 'ATC in a nutshell' session, as part of your induction training, for example. You can do this by using a simple, easy to handle ATC simulation game following a short presentation of the control task and some basic separation rules and techniques. A well-chosen ATC game can simulate relatively realistically at least one or two aspects of air traffic control, such as working under performance pressure – with more flights than would feel comfortable.

Maybe you have seen, heard of or even used safety or efficiency enhancement tools that proved to be inefficient or counter-productive after implementation. A conflict alert function that gets deselected by the controller because it makes it difficult to visually follow the traffic scenario? Or an aural warning – either ATC or airborne – that is routinely disabled by the user because of the high number of nuisance alerts? You could probably come up with much better examples. The point is: learning-through-experiencing opportunities, such as the Air Traffic Control Basics course, a two-day ATC familiarisation course or even a 90 minute 'ATC in a Nutshell' session can help managers, designers, engineers, project managers, and airspace designers to think about the design of work and equipment, and perhaps help to produce designs that are welcomed by users, and not seen as another burden to consume time and attention, and to be quietly bypassed.

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