

Sébastien Follet Salvador Lasa Ludovic Mieusset

WELCOME TO MY LOOP

In aviation, as in other sectors, every professional operates within their own 'loop', believing they are in control of their work, and sometimes others' work. However, disconnected loops can lead to a breakdown in communication and understanding. Sébastien Follet, Salvador Lasa and Ludovic Mieusset explore the 'Tower of Babel' problem and offer a remedy that we can all work towards.

KEY POINTS

- **The feeling of being in control:** Each aviation professional feels that he or she is 'in control', and believes that they know how work should be done.
- **The problem of isolated 'loops':** Isolated 'loops' and different languages within aviation professions can lead to miscommunication, misunderstandings, and disconnections between how work is actually performed (work-as-done) and how it is supposed to be done (work-as-prescribed).
- **Shared understanding:** Building a shared understanding of each other's roles and responsibilities can help prevent 'Tower of Babel' scenarios and ensure people work towards common goals.
- **Exploring multiple perspectives:** Aviation professionals should be encouraged to step outside their own roles and explore the perspectives and challenges of other groups.
- **Informal interactions:** Encouraging informal interactions, such as casual conversations and social events, can improve relationships and help bridge gaps between different professional groups.

Developments in modern aviation have followed a path defined by the aspirations of many kinds of professionals aiming to be the 'people in control'. Phraseology is one example. For air traffic controllers (ATCOs), phraseology is perhaps the most important tool. It helps them to fulfil their mission, as its versatility provides different solutions for a wide range of scenarios. Multiple safety issues and regional disparities have steered its evolution locally. But one regulator decided to regain control, returning to a more standardised phraseology. Frontline operators – and especially air traffic controllers or ATCOs – perceived this as a step backwards. For them, the amendments failed to integrate lessons learned from experience and deprived them of a tool that allows them to be operationally 'in control'. So, who are the people in control, and what do they think they control?

WHO IS IN CONTROL?

ATCOs, pilots, front-line managers, middle managers, senior managers, national aviation authorities, EASA, ICAO… Each feels that they are in control, and each believes that they know how work should be done. As ATCOs, we are in control of what 'provision of a control service' means to us. We are in control of what we are trained and prepared to do, and what to accept as working conditions.

Managers also have their own vision of being in control. To stay in the loop and control the work, managers sometimes produce new rules and procedures. Managers also stay in control by examining what is done and scrutinising

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unwanted events. They try to stay in control by ensuring that work-as-prescribed corresponds with work-as-done. In general, managers may feel that they are 'in control' of safety, by pushing 'normative safety', especially by complying with safety performance standards – how things 'should' be done.

This creates a challenge for front-line operators like ATCOs: it is hard to cope with the constant waves of procedural changes and add-ons. Huge effort is required just to keep yourself up to date. Many procedural changes are perceived as 'patches', unfit to resolve identified problems. When an issue requires strong, long-term solutions, and the change doesn´t match expectations, distrust can arise.

So ATCOs, as people in control, tend to adopt 'survival' positions by sorting out what is really needed amid the constellation of procedures and rules. Work-as-done progressively overtakes work-as-prescribed. This defines what is 'in the loop' and ultimately their professional identity.

THE TOWER OF BABEL

The Tower of Babel is a parable from the Bible that is meant to explain the origin of the worlds' languages and the spread of humanity across the world. The origin myth states there was once one common language, but that God chose to confuse the language and scatter languages, so that people could no longer understand one another.

Part of our problem is reminiscent of the Tower of Babel. Every group speaks their own language, adapted to their context. Some language differences even highlight misunderstandings between ATCOs and local safety departments. How can an ATCO accept the term 'abnormal convergence' for the vectoring of two aircraft when all separations have been guaranteed? And what about the label of 'near-CFIT' (near controlled flight into terrain) for a plane that has the ground in sight?

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Different languages and meanings can transform the aviation system into a Tower of Babel. Each profession tends to stay within its group, forming a fairly closed loop, connected with neighbouring professions through bridges (see Figure 1). These bridges should help each loop to maintain awareness and understanding about other loops. But distrust means that managers do not get accurate and complete information about work-as-done, leaving them with gaps and inaccuracies in their understanding of how people work (work-as-imagined). One reason for this is self-preservation attitudes, which lead operators to talk or write about what they are supposed to do (work-as-disclosed) according to procedures (work-as-prescribed), instead of what they actually do (work-as-done). How can managers stay in the loop of operational staff when they rely on what operators – fearing punitive consequences – are prepared to say (see Shorrock, 2023)?

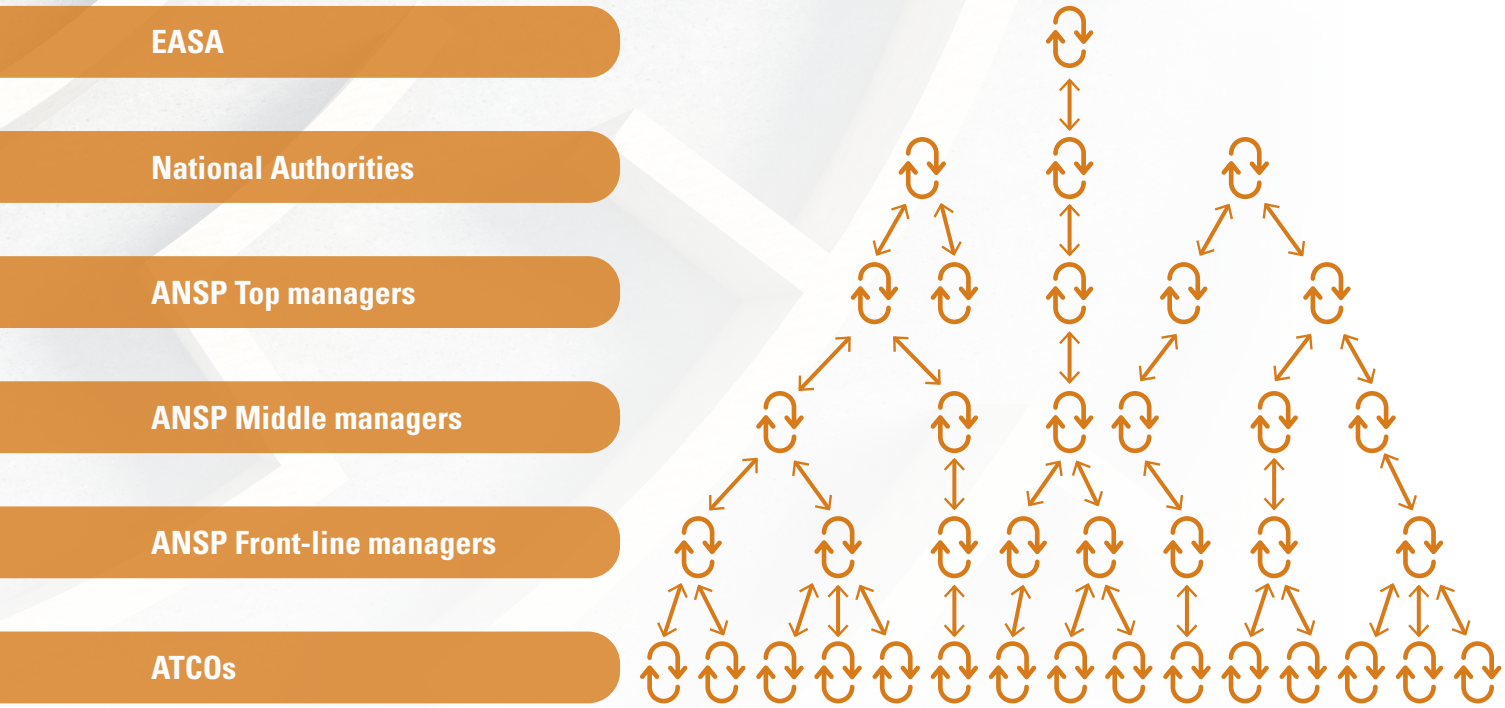

Figure 1: The 'closed-loops' Tower of Babel in the air traffic control system

In this Tower of Babel scenario, gaps of different sizes between groups are linked from point to point by bridges, which are more or less robust. Gaps spanned by weak bridges often result in misunderstandings and suspicion between operational groups responsible for work-as-done and non-operational groups responsible for work-as-prescribed.

Poor or deficient communication can lead to implementation of inadequate measures. Suspicious and full of distrust, each closed-loop group (ATCOs, pilots, managers at different levels, regulators...) tends to develop its own ways to self-generate the feeling of control they need. But there is a difference between a subjective sense of control and actual control. So how do we resolve this? Consider the following example.

EXAMPLE OF DECISION-MAKING PROCESSES IN A MULTIPLE-LOOP ENVIRONMENT: WHEN PRESSURES SEAL THE LOOP

In a context of continuous growth in traffic figures, a large regional airport is expecting a sudden increase in capacity demand. This pushes management authorities to act and find solutions to cope. Eager to achieve fast results, an infrastructure expansion project is swiftly laid out. Needs are identified, objectives defined, and the path to be followed and the means required for the journey are determined. Airport management has defined its own loop and feels in control of this loop.

At the same time, the rest of the players involved (ANSPs, ATC, contractors, regulators, supervision agencies, and all workers in each of them…), start to bring their own needs, objectives, concerns, and measures to mitigate associated risks. Each defines their own loop. Now, the stability of the airport management's loop is under threat from other loops. Interactions between loops challenge the airport management's feeling of being in control. And actors' concerns are sometimes too different, resulting in difficulties to understand each other. Why are ATCOs so concerned about training and safety issues when it's going to be the same scenario with some 'not-so-big changes'?

The project progresses and work is done as planned. However, close to the end of the project, airport management realises that the intervention won't completely fulfil the desired objective: increase airport capacity. They failed to understand other loops' language and incorrectly assessed their needs. Time is ticking and pressure growing. Corrective actions are required. Airport management decide to carry out additional work using spare funds. Manoeuvring area adjustments on the airport are made to improve the traffic flow, responding to the ANSP loop's criteria.

Unfortunately, the high peak season begins, and these new infrastructures cannot be used as they don't match the regulator's perspective: such modifications were not included in the initial blueprint. Airport managers and aviation oversight authorities, sealed in their respective loops, missed the complimentary work needed for such changes.

CONNECTING THE LOOPS

The key to transform the Tower of Babel scenario into a system of interconnected loops aiming towards common goals is improved communication among all stakeholders. This requires a minimum of core knowledge for every stakeholder. This is present in some loops (especially operational roles), but not others. The definition of recommended minimum core knowledge for managers may help to reduce barriers between top authorities' loops and other players' loops.

A path to a virtuous spiral involving all stakeholders also relies on creating conditions for everyone to explore others' loops. Pilots, ATCOs, engineers, etc., tend to use informal contacts as a way to develop mutual understanding and smoothen operations. This informal rapport among colleagues can save the day: it happened when a tower supervisor, despite a note describing maintenance works to be done in a few nights, spent time chatting in a corridor about the potential impacts on operations. It turned out that the technical service wrongly believed that the tower was going to be closed (a large part of the floor had to be removed). Everyone, sealed in his or her own loop, failed to notice this important issue. Enhancing interactions can greatly improve information flow in all desired directions: every stakeholder must explore other loops to understand and improve how things work.

The aviation community should take advantage of the benefits of ad hoc social interactions and promote them throughout the whole system of stakeholders. Informal and inclusive social events might be a way to bring people together. Another way is to create the opportunity to better understand each other's work. For instance, a local control service could organise an open day for airport stakeholders. By improving informal relations and continually exploring each other's activity, everyone has the possibility to understand each other's language, reducing the Tower of Babel problem. It is time for us all to open our doors with one motto in mind: "Welcome to my loop!"

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SÉBASTIEN FOLLET has worked as an air traffic controller since 2002. He is also tower supervisor and an HF specialist. Formerly, he was an ATC instructor and in charge of safety studies to implement new ATC equipment. He has a degree in Ergonomics & HF Basics from Paris Descartes University. Sébastien has been a private pilot since 2001.
sebastien.follet@thehumantree.com

SALVADOR LASA works as an approach air traffic controller at Canarias ACC. Being particularly interested in Human Factors and aviation psychology, he is currently studying a psychology degree at the Universitat Oberta de Catalunya. He is also a member of the Technical Committee of the Spanish Professional Air Traffic Controllers Association (APROCTA), and holds a Law Degree from the University of Oviedo.
Oviedo.lasasalvador@gmail.com

LUDOVIC MIEUSSET has been an air traffic controller since 1991. He began as a French Air Force ATCO on a fighter jet air base. In 2013, he joined a civil ANSP and became a tower controller in two busy general aviation airfields. He is currently Head of Training and HF Facilitator in a regional approach control centre. Ludovic has been a private pilot since 2004.
ludovic.mieusset@thehumantree.com