SAFETY IS IN THE EYE OF THE BEHOLDER

THE "PUT-YOURSELF-IN-OTHER'S-SHOES" CONCEPT FOR SAFETY CULTURE

Whenever we use the word 'safety', we tend to have our own ideas about what safety is. Some may be thinking more about the regulations and SMS, while others may be thinking more of the front-line human performance. Is it about one or the other, or both? In this article, **Florence-Marie Jegoux, Ludovic Mieusset, and Sébastien Follet** explore the question.

KEY POINTS

1. **Safety may not be achieved by just 'regulated safety'; 'adaptive safety' is essential.**
2. **Exchanges between different professionals help to fill the gap between work-as-imagined and work-as-done.**
3. **Trade-offs may be more accurate if we 'put ourselves in others' shoes', if we learn about their worlds.**

"What the heck, no need to push, he can do it on his own!" What a surprise, as ATCOs, to hear that coming from a marshaller at our airport.

What happened?

As ATCOs, we once had the opportunity to spend an afternoon with the ground crews at our airport. During that time, we experienced different types of push-back and autonomous departure according to the rules in force. At one point, during a very busy period, we were about to push back a CRJ7 on the edge of his CTOT on stand 3, when our tug was sent to another stand. It appeared that an ATR42 on stand 1, which should have departed well before, had to depart right away. The consequences of this mess: for the ATR42, a delay; for the CRJ7, a missed CTOT. Both resulted in missed connections for their passengers. It appeared that due to the high level of activity, there was a lack of tugs.

Considering his objectives and his constraints, the marshaller had decided to prioritise the departure of the ATR42 for the good of the passengers and the company. He suggested to the pilot to ask the controller for an autonomous departure. It was not acceptable regarding the rules in force for this stand, and thus it was refused.

What does this show?

Undoubtedly, there is a difference between the work-as-prescribed and the work-as-done. Let's go back to the process of implementing this very rule. On one hand, in order to implement safety on the departure of airplanes from the terminal, airport managers, handling company managers, and ATC managers imagined the work as it has to be done and prescribed some rules. They defined a so-called regulated safety (see Figure 1). On the other hand, the ground operator, confronted by the lack of means and the operational aim of the company (no delay) had to find a solution. He took into account what he imagined to be the spirit of the rule; who wrote it and for what

Regulated Safety	**Adaptive Safety**
Building safety via rules and norms in anticipation of situations. Legal requirements are written to ensure safety.	Producing safety by giving responsive answers to situations. This represents adaptive intelligence from professionals.

Safety = Regulated + Adaptive Safety (see Morel, et al, 2008)

Figure 1: Regulated Safety and Adaptive Safety

purpose. With this picture in mind, he made a trade-off and did his work the best he could. As with all operators, his strategy was to implement the best safety according to the immediate situation. This defined a so-called adaptive safety.

Generally, when a new situation arises, managers from different sectors gather to determine undesirable events and risk mitigation. They rely on their perception of the situation; their conception of their operators' work.

This is work-as-imagined. Based on this, they write some rules, which is considered as work-as-prescribed. What happens if the work-as-imagined is different from the work really done? Operators have to solve immediate safety situations. They try to work as prescribed as much as possible. However, when there is no pertinent answer, they have to imagine the work done by those who wrote the rule in order to adapt it in the best way.

What happens if their perception of the managers' work is different from the work they really do?

Indeed, there is a difference between work-as-prescribed and work-as-done. Each side imagining the way the other works creates a gap.

What are the consequences?

First, managers and operators are following their own safety path. Each one tends to implement safety, but the two sides do not always practice the same kind of safety. Indeed, one side will apply regulated safety, while the other will stick to adaptive safety. This may lead to misunderstandings, frustration, and loss of confidence amongst co-workers. Furthermore, this situation may create a rift in the global safety of the system. Ultimately, this may result in a ludicrous situation where the managers write more and more rules, while the operators apply them less and less.

Second, if the managers of the airlines, ATC and airport companies are sharing their points of view and write some rules together more and more frequently, this is still not the case between operators. So, even when there is a common prescribed work given to operators, the work done does not always converge. Operators can share a common point of view and deal collectively with the situation. But this is not always the case. They have different points of view, situation awareness, objectives, and constraints. The imagined solutions often differ significantly, and the work done is not always what others expect. These differences could lead to misunderstandings, conflicts, prejudices, and safety events. The best way to figure this out is to imagine a system where the work done by each operator is like a pendulum (see Figure 2). The movement of the pendulum is influenced by the context, the constraints, the objectives, the pressure, and other similar influences. Depending on these conditions, operators share a common work-as-done, or not.

This mechanism can be found in many situations when two parts or more are engaged on a common task. What about the guidance of airplanes on approach? We share a common prescribed work between pilots and controllers. We have the same rules for ILS interception, for example. But what is really done? Sometimes, pilots or controllers shorten the approach. According to the context, the constraints, the objectives, and the pressure, a pilot may try to shorten his or her route even if it's not in standard stabilised approach rules. What if it doesn't match with the vectoring or the sequence the controller is doing? We can easily imagine that pilots have the same kinds of examples about controllers. Relying only on imagination to understand the other side leads to misinterpretations and misunderstandings. This explains why pilots often don't understand why controllers ask for speed reductions very far from the arrival airfield, or why they give descent step by step.

Indeed, as ATCOs, we have endless examples like this about the difference between the actions of pilots and controllers: speed reductions, radar vectors or approximate fly-over points are further examples. It could be between controllers of two different control centers, approach or ACC, civil or military, between marshallers and pilots, between fire services and ground controllers, between bird scaring services and pilots or controllers, between engineers/technicians and pilots or controllers, UAV operators and controllers, etc. The list will expand as long as different operators have to work together.

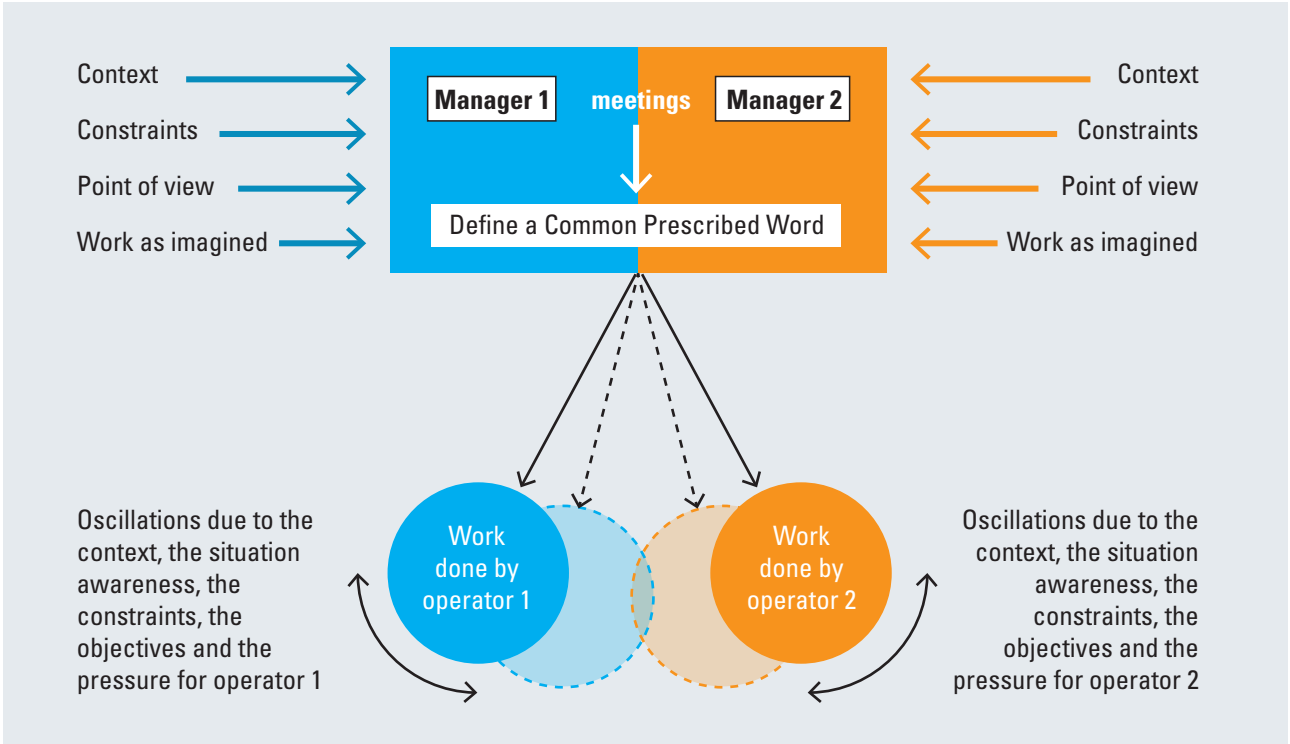

Figure 2: The pendulum of the work done by operators

What are the solutions?

First, fill the gap! Filling the gap between reality and imagination could be a way for regulated safety and adaptive safety to converge. For this to work, every concerned party will have to explain in detail all the details of their jobs. There is a real need to understand what the others do.

In the ultra-safe system of aviation, regulated safety might seem to be sufficient. However, it's utopic, as there will always remain some chain of unexpected events leading to situations that will fall outside the parameters prescribed by the rules. Rules have to be adaptable to most situations. They must take into account the reality of work-as-done. It is not sufficient anymore for managers to rely on what they imagine the operators do. To achieve the next safety step, they have to look at what is really done, and understand operational trade-offs. For managers, sharing time with operators will help them to move from a deficient perception of the work to a more enriched and accurate one.

If managers have to understand what operators do, the reverse is also true. To fully understand the spirit or the rules, operators have to meet up with managers and understand their jobs. Sharing time with managers will help operators to move from a deficient perception of the prescribed work to a more enriched and accurate one.

With a clear, curious, honest, benevolent and open-minded view between operators and managers, prescribed work will be more operational and interpreting and implementing rules will be more effective.

The solutions suggested above solve only one part of the problem: the differences between work-as-prescribed and work-as-done in the same company. What about the differences between work-as-done involving two different operators? The same recipe of sharing, sharing, and sharing even more can be used to fill the gap. As shown in the first example of this paper, as ATCOs we sometimes get the opportunity to go on the field, meet other operators, discuss and share their environment, their point of view, their objectives, their constraints, their experience; the essence of their jobs. This benefits safety because it gives the opportunity for operators to get closer to their problems and to find trade-offs that are operational and acceptable for both sides. It benefits relationships because very often we speak through a radio or a telephone and sometimes via someone else.

We have been organising meetings between pilots and controllers as part of our HF training for over eight years now. Additionally, we have been attending their CRM training. It has helped a lot in resolving misunderstandings and created long-lasting friendships that enlarge our perception of professional situations. We are now more prone to give the benefit of the doubt when conflict arises rather than grumpily venting on the frequency.

To improve adaptive safety, we must play as a whole team. Instead of each individual operator trying to improve safety, all operators must build safety together. To get a chance to do it together, we have to know each other, and we have to communicate face to face.

The concept of 'putting yourself in another's shoes', could seem unimportant when we're talking about safety, but it seems to be a key point to make regulated and adaptive safety more efficient. It will help to fill the gap between work-as-prescribed and work-as-done, and between the different work done in specific situations. As operators, we urge the implementation of these exchanges.

Reference

Morel, G., Amalberti, R., & Chauvin, C. (2008). Articulating differences between safety and resilience the decision-making of professional sea fishing skippers. *Human Factors, 1*, 1-16.

Florence-Marie Jegoux became a certified air traffic controller in 2004, working for the French Civil Aviation Authority (DGAC), in the Air Traffic Service provider of Western France. She then has been working as a Human Factors coordinator and specialist for their training department for the last 8 years. Florence-Marie also works for the French HF National Group and is trained in systems theory. She is a private pilot.

Ludovic Mieusset has been an Air Traffic Controller for the last 26 years. He began as a French Air Force ATC on a fighter jet Air Base. After 11 years, he joined the French DGAC and became a Tower Controller in busy General Aviation airfields near Paris and Grenoble (French Alps). This aviation enthusiast is now an ATCO and HF Facilitator – among other aviation related activities – at Rennes Airport (West of France).

Sébastien Follet has been working as an Air Traffic Controller for the last 15 years. He is also a HF facilitator for controllers in his ANSP. Formerly in Paris-Le Bourget airport, he is currently working in Nantes airport. In Paris, he has worked on various safety studies to implement new equipment. He has a degree in Ergonomics & HF Basics from Paris Descartes University. This aviation enthusiast has been a private pilot for 15 years.