skyguide

safety bulletin

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New Safety Manager in place

Dear safety bulletin readers,

Two months ago I took up a new position as safety manager at skyguide. First of all I'd like to tell you a little bit about my background. After high school I studied at the University of Zurich and then moved on to train as a military pilot. I was infected by the flying virus and joined Swissair as a first officer on Caravelles and DC-8s. From the mid 1970s I served as captain on DC-9s, A-310s, B-747s and MD-11s. In addition to giving training on all types of aircraft, I acted as deputy Fleet Chief for the Airbus and then as a Chief of the Jumbo Fleet. From the mid 1990s until my new assignment I was responsible for safety at Swissair and Swiss.

When the skyguide Board of Management asked me 4 months ago to help with the consolidation of the safety management system (SMS) I simply couldn't resist the challenge, and here I am! Skyguide still has a long way to go and that this was one of my main reasons for accepting the skyguide challenge.

I have learnt from experience that there are a few basic requirements for operating a system reliably and safely. I would like to focus only on the most important features:

- A safety structure which can be implemented horizontally and in a coordinated manner throughout the entire organisation and which is not only understood but also put into practice at all times and on all levels. The company has to speak the same safety language.
- A corporate culture which is not based on blame and which allows mistakes to be analysed confidentially with the aim of further promoting safety and trust
- A culture of reporting that enables weak points to be identified before they become incidents and grow out of all proportion.
- Once these criteria are in place we will start moving towards a learning culture which will make all our jobs less stressful.

Actual safety management organisation at DS

Finally I'd like to leave you with my guiding principle:
If you stop trying to be better, you have already stopped being good

Jürg Schmid
DS, company safety manager

A new safety policy

Since 2001 we have had a safety policy at skyguide. It puts forward safety as the maxim to guide our conduct. It clearly states that I, as the CEO, have overall responsibility for safety, and that I also should and will promote safety. However, I am not alone in this undertaking.

The implementation of the safety policy and of the various measures is the responsibility of the line managers. The policy also gives some concrete pointers as to how safety can be constantly improved. There are explicit statements regarding matters such as training, and risk and occurrence management. Under this policy, every staff members also bears responsibility: «All members of staff are individually responsible for the safety of their actions.»
Even though I assume that you have all already read through the safety policy, I suspect that only a very few of you will have noticed that there

have been some slight changes made to it over recent weeks. In fact, the «new» safety policy is subtitled: «Safety is our number one priority.» I have had this new statement added. This is an explicit condition for SES certification. The point is that under the SES regulations, the safety policy must include such a sentence, and there are just a few wordings to choose from.

Our safety policy may predate the SES regulations, but one may indeed wonder why the «old» policy did not already include such a sentence. The main issue here is the wording, because even in the previous policy, this consistent thrust was unmistakeably present. But having the new addition virtually as a main motto certainly raises the profile of our safety policy even higher.

It's my conviction, that safety must have the number one priority. Nevertheless, we must be aware that safety in a corporate environment can never be seen in isolation. In every consideration and judgement, we must also factor in the impact on costs and capacity – because they also have a bearing on safety in an indirect way. Safety is not an absolute value, and it is not a state, but rather an everyday effort by the entire company and every individual at his or her working position. The new wording maintains this mindset. It underscores our determination and our obligation with regard to safety.

The «new» safety policy can be found in skyline on the Safety Homepage *(http://skyline/skyguide/controller/safety)* under «Policies». I would encourage every one of you to take this opportunity to reacquaint yourselves with the safety policy and to use it constantly as the template for all your personal activities. In this way, we can work towards constant improvements to our safety culture at skyguide!

Alain Rossier
CEO

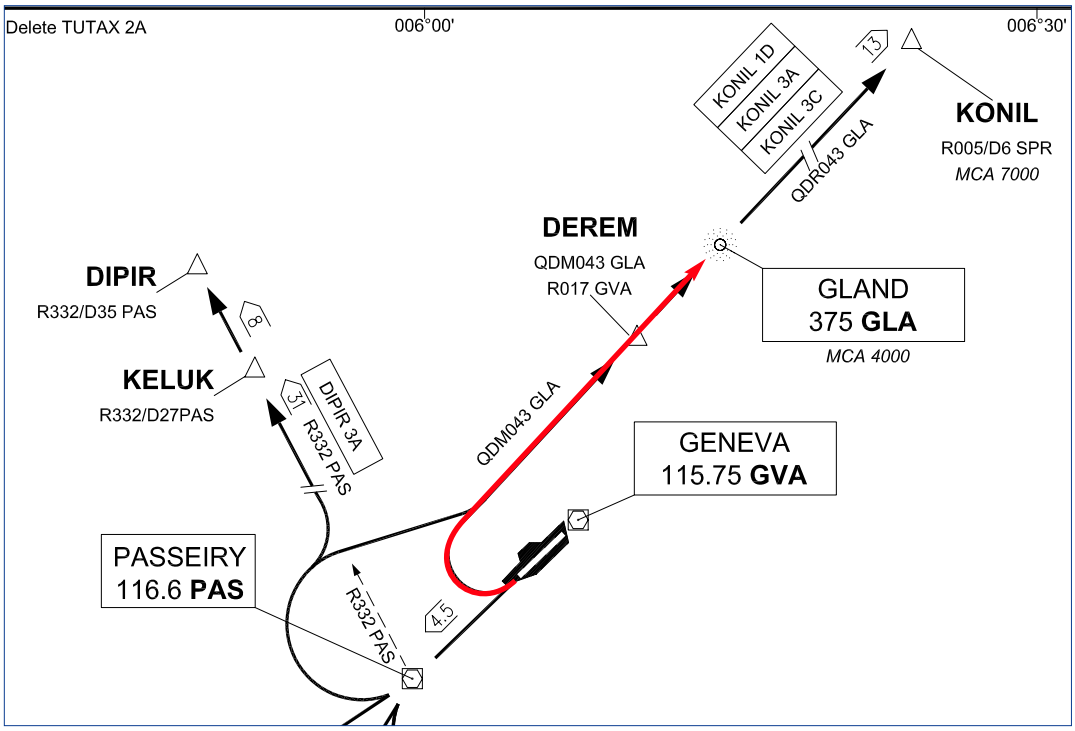
Problem Addressed!

A KONIL Story

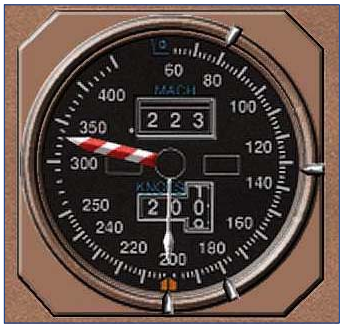
For a certain length of time now, ATCOs working at the Geneva Tower and Departure sectors have encountered quite a high number of incidents with aircraft flying the KONIL 3C and 1D (the difference between these two routes is the cleared initial altitude) Standard Instrument Departure routes (SID). These departure routes have been published and are used to enhance the efficiency and capacity of Geneva when using runway 23.

The description of both routes to be flown is published as following in the Swiss AIP LSGG AD 2.24.7-9 & 12 (Picture 1):
«Climb on R226 GVA (R046 PAS). When passing 1900 ft but not before D3 GVA (D4.7 PAS) turn right (MAX IAS*1 190 kt, bank angle 25°), establish TR 030 to intercept QDM 043° GLA. Proceed via DEREM, GLA to KONIL.»
In other words, after take off and only when passing a set altitude (1'900 ft ≈ 630 m / 200m above ground) and a fixed distance from Geneva VOR (3 NM ≈ 5.55 km), the aircraft must turn right not faster than 190kts (352 km/h) of indicated airspeed*1 and with a bank angle of 25° (see picture 3).

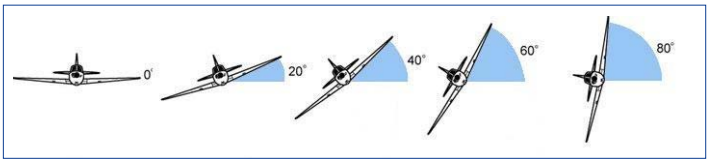
**1: IAS: Indicated airspeed (IAS) is the speed read directly from the airspeed indicator on an aircraft (see picture 2)*



Picture 1: SID KONIL 3C & 1D published in the Swiss AIP



Picture 2: Boeing 767 Airspeed Indicator



Picture 3: Representation of different bank angles

Problem Adressed! ...

Why is it a problem?

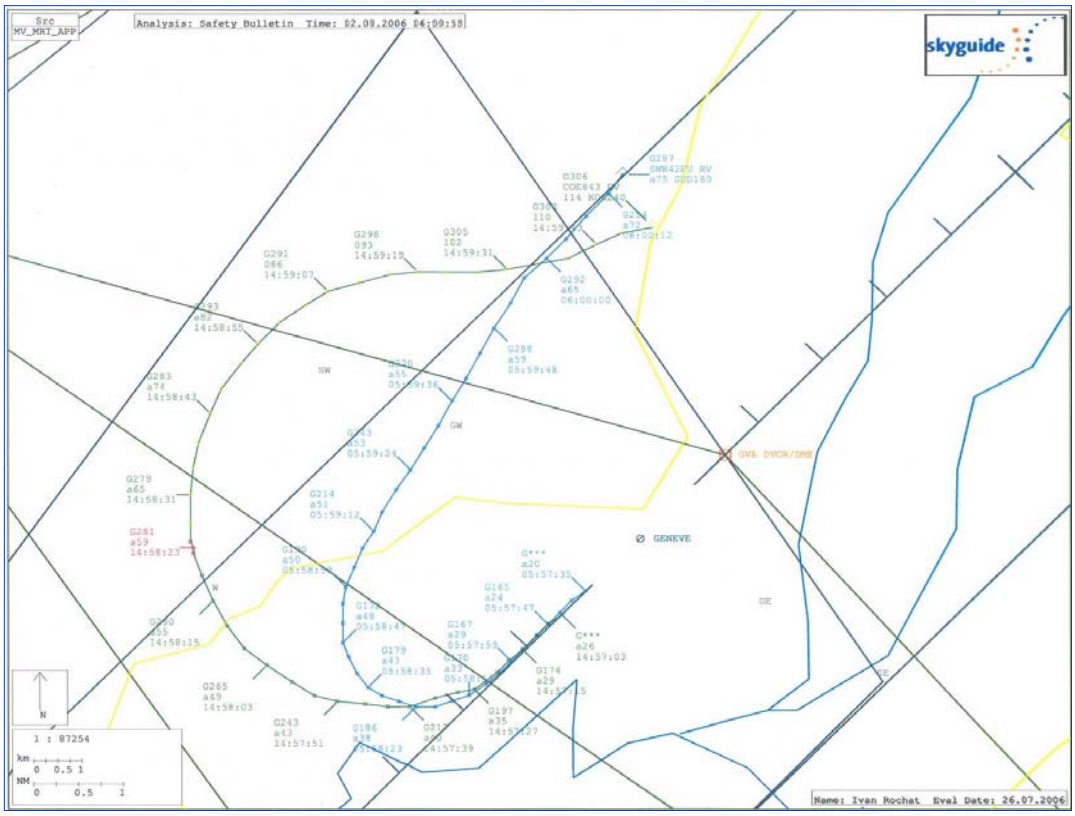
Mainly due to the terrain: the Jura Chain is not that far out. If the aircraft has a IAS higher than the one published or a bank angle smaller than 25°, it will perform a wider turn which takes it close to the terrain.

If you refer to the radar plot (picture 4), you will see two radar tracks: the one in blue (ACFT 1) where the aircraft flew the appropriate route as published and the green one (ACFT 2), where the aircraft's speed was above 190 kts IAS and probably the bank angle below 25°.

NW (VFR reporting point) is at the foot of the Jura.

Problem identified, action taken

After our umpteenth case this year, Pascal Hochstrasser (Head of Operations Terminal Control Geneva) decided that we had to be proactive in this matter; filing ATIR Procedure one after the other was not going to solve the problem and something had to be done before an aircraft ended up in the Jura Chain. He suggested inquiring on the pilot side to know what information was displayed on the FMS (Flight Management System) concerning our problem and if this information

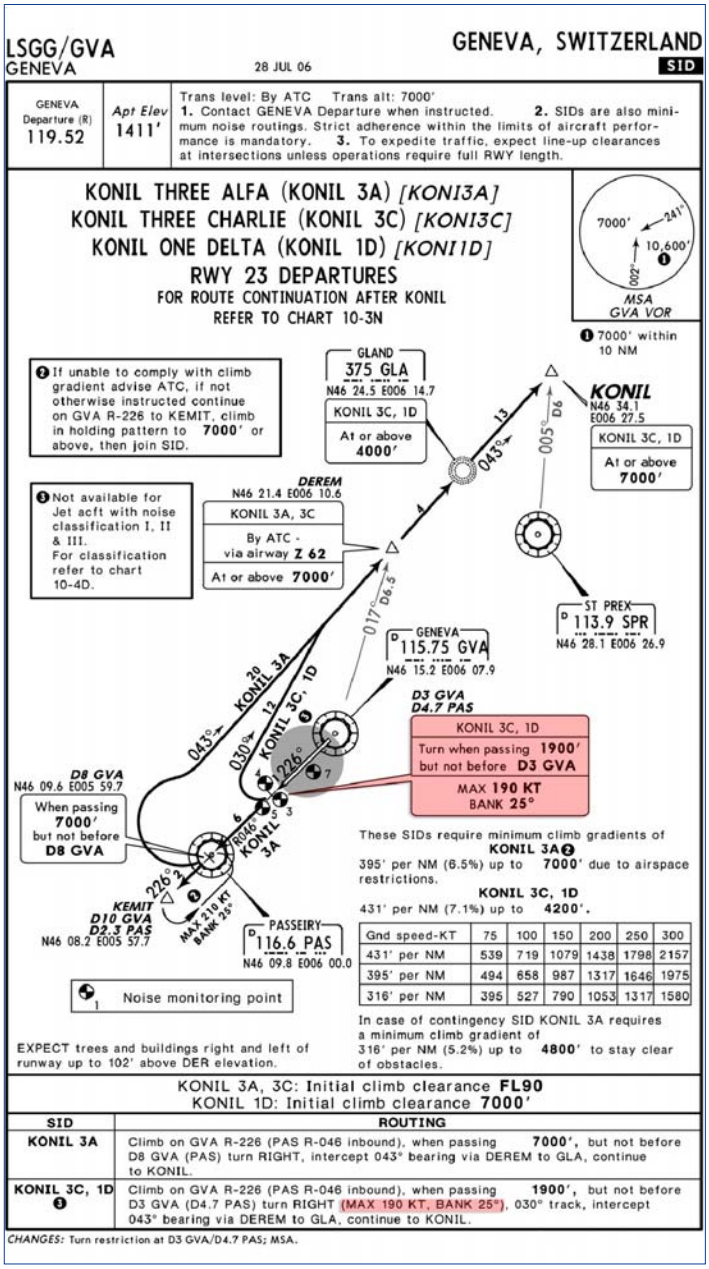


Picture 4

could be used by the autopilot. All the pilots gave us the same answer: the FMS provides the information regarding the route to fly (which can be used by the autopilot) and any other relevant information if available in the system. However, considering the specific speed restriction, if the information did appear on the FMS screen, it would have to be manually entered by the crew into the autopilot system via the speed selector / speed bug or the controls of the aircraft would have to be in the hands of the pilot flying.

A second idea was to publish a NOTAM to draw the crews attention to this matter. After talking our intention over with Thomas Buchanan (Head of Instrument Flight Procedures); he informed us that this would not fit the scope of a NOTAM, but exposed a third suggestion: the Data Providers. NOTAMs are used to issue short term, time limited, corrections. In this case, the procedure is not incorrect, but just not codeable (especially the speed) in the airborne systems.

Problem Adressed! ...



Picture 5: Corrected map published by Data Provider (in red: the updated elements)

As he had good contacts with people working for the two majors ones (which cover about 98% of the airspace users), Thomas took care of asking them for the maps concerning the SID KONIL 3C and 1D they published. Very fast, we had the documents and for one of them, everything looked okay. For the second, although all the information was displayed on the map, we believed that the part covering the speed restriction and bank angle was lacking in visibility. Thomas looked on how to include additional information on the map while Pascal expressed the operational need of such a change. Our suggestion was very positively welcomed by the Data Provider which was only too eager to continuously improve their manual.

The publication of the updated map (picture 5) is only a month old now and it is too early to know the exact impact this solution will have on the problem in the future. Nevertheless, this item will continue to be closely monitored by Pascal and DSO Geneva. Should we keep observing such deviations, other possible solutions will be explored. It is however a step towards improvement!

I would also like to mention the particularly efficient coordination between all the different services (internal skyguide and external). From the initial contact to the publication of the new map (see picture 5), only two weeks elapsed.

Ivan Rochat
DSO Geneva

The «Good» and the «Bad» Controller

Individual competency

At the moment the airline industry within Europe is discussing the implementation of the so called «non-punitive» reporting systems. These systems allow people to report incidents without the fear of retribution, which then contributes to learning.

I have been involved in the handling of occurrences within skyguide for about two years and now realize that the implementation of a «non-punitive» reporting system is more complex than previously assumed. One major obstacle to learning from the information derived from reporting systems is the inherent feeling amongst so many professionals (ATCOs, Supervisors, Technicians, Managers) that there are «good» controllers and «bad» controllers and that they willingly use this notion as the explanation for incidents and accidents. (A few years ago I probably applied this notion too, and maybe it's still deep inside me.)

You might think that this inherent feeling is no longer the case, but take a look in your environment and look for labels like «ATCO error», «individual mistake», «complacency», «rule violation» or other motivational explanations for unwanted outcomes. I imagine that you will find this reasoning everywhere and that you might use them yourself!! What I found, about «good» and «bad» controllers, told me that if we want the public to understand our business and if we don't want them to not seek the easy solution, then we have to do something within our own community before we can expect the public to change their way of handling information about accidents and near-misses.

Threats to reporting systems

An additional important issue is the reporting systems that are renowned and asked for in our community. Over the years reporting systems have been accepted as one of the best ways to receive information about what is going on within complex systems. And all empirical knowledge conveys that reporting systems are fragile creations that will break if not handled with care. In my experience the main threat to reporting systems is the implicit and explicit connection that almost all stakeholders (ATCOs, Supervisors, Technicians, Managers) make between people who where involved in incidents and operator competency.
There are different reasons why this connection comes about. For the ATCOs it has to do with professional pride and wanting to isolate themselves from a system that failed. For managers it largely has to do with tools to control the system. Managers are often put in a position where they have very little support in controlling the system that they are supposed to control. This situation that managers find themselves in creates an acceptance of the appropriateness of using information from reporting systems to check the competency of individuals. This process is indirectly supported or at least not actively rejected by Eurocontrol, which talks in ESARR5 about; Competence of ATCOs are in doubt if they have been involved in incidents where the safety of aircraft has been compromised. The ESARR does not define what to do with the ATCOs after a certain time, so there is some doubt about how to handle this issue. By the way, Eurocontrol is working on the explanation of this issue and in the newly released EGSMM (Eurocontrol Generic Safety Management Manual) on P. 29 there is a clear statement about the separation of occurrences and individual competence (ATCOs, Supervisors, Technicians, Managers).

The Investigator

Furthermore Investigators of occurrences amplify and authorize the notion of «good» and «bad» in their way of describing incidents and accidents. Investigators of incidents within ANSPs and national aircraft accident investigation bureaus are usually more or less biased by the idea that operators who are involved in incidents have some kind of inherited capability to make more mistakes than others (of course we, inside skyguide, try to avoid this fallacy). This is in my opinion very wrong and is a very dangerous path to follow! I urge everybody involved in using and controlling our ATM-systems not to make any connection between incidents and competence. The vast majority of scientists agree that success and failure are two sides of the same coin. ATCOs use patterns of working strategies to handle the traffic. They continuously revise their «picture» and if the signs are strong enough the pattern of solution will change (for a recent

comment on this, see Eurocontrols Hindsight nr.2 article by Sidney Dekker *http://www.eurocontrol.int/safety/public/standard_page/hindsight.html).*

ATCOs are in a constant conflict between efficiency and thoroughness (by Hollnagel called ETTO). Incidents do not happen because of individual competency problems, but much more because the environment changes too quickly and operators are not able to revise their «picture» and keep up with the changing environment. If it was because of individual shortcomings we would always see the same persons being involved in incidents and that is definitely not my experience.

The notion about «good» and «bad» is bizarre. There is some evidence that it is mostly the operators that are regarded as «good» that end up in accidents and «nasty» incidents, which coincide with failure and success being two sides of the same coin. Said differently, the more «success» you create the more «failure» you will generate. This hypothesis has yet to be verified by empirical studies, but my assumption is that the so called «good» controllers are the operators that have developed exceptional skills in handling the conflicting goals of efficiency and thoroughness. Since they are good at «pushing» the limits the impact of the incidents they experience happen at a later stage and at a stage where the loss of control will be more difficult to recover from and where there is less time to react.

In my opinion operators have different kinds of performance and these different kinds of performances fit different kinds of situations. Meaning, the «good» operators will get into different types of trouble than the «bad» operators. I would even go as far as to say that that the operators that are considered by their peers as «good» get into much more trouble than the operators considered as «bad», although their experience and skills generally guide them out of that trouble before it turns too «nasty».

Why use «good» and «bad»?

How do ATCOs and other professionals get to the point where it is important to construct the terms «good» and «bad» operators - where does the desire to judge performance come from? Part of the explanation is maybe connected to when the snake told Eve that the apple on this tree would bring her happiness and other positive feelings. History is part of us and we are part of history. In the western part of the world, societies are built on good and bad. We learn it at school and we are trained to judge between what is good and what is not. This is a construct that people carry with them and this is then amplified by the process that makes people experts. We have to judge novices, if they are good or bad, and this is a relentless process where the novice is looking for a way through a complex assembly of people who do their job in many different ways. In the end we all get used to judge situations – and we tend to focus only on the negative performance rather than the positive - and we tend to forget to look for improvements. This leads to much more judging than necessary and we start to accept that this is the right way to handle our environment and especially adverse events. If we judge the individual performance and find it inadequate, then we are satisfied and we found the clue to regain control of a situation that could have led to «difficult» questions about how we organized our systems. Furthermore it could lead to situations where operators would have to deal with a condition of not really being in control of what they are educated to control. The job-title is still Air Traffic Controller. What if the last part of the title wasn't so much about control but much more about «luck» in the situations that lead to occurrences. Most controllers know that it is more a matter of «luck» than a matter of «good» and «bad», at least when they close their eyes at night or when they themselves are involved in incidents.

The consequence

If we can agree that there is no connection between incidents and individual competence, we have to revise some of our ways to use the information derived from reporting systems. One consequence is that those taxonomies that are mainly used to identify causes have to be revised – usually these categories are more about measuring what you can measure instead of what is meaningful to measure. The creation of context-independent terms/numbers (planning mistake, ATCO misjudgment, rule violation, hear back error, etc) is a discipline used by many. These labels might be something that is part of what has happened but what we often forget is that these elements are necessary elements to make the system work and are necessary to confirm our illusion about 'good' and 'bad'. The use of labels as a picture of what happened also provide the basis for managers/controllers and the

public to connect individual performance and competency when they need to use it as a tool for proof of competence problems. No manager would ever use incident information «against» people that they believe are «good» ATCOs.

Conclusion

There is no such thing as «good» and «bad» ATCOs. When we join and support the discussion about individual competence and the «good» and the «bad» controller we have to know that we are (1) confirming the public opinion, which could create resistance among the people who are trying to enforce legal measures to help reporting systems (2) taking the attention away from the «real» safety issues and fooling ourselves that it is fruitful to attribute unwanted outcomes to individual competence (3) amplifying the process of drying up voluntary reporting (4) not successful in attaining more control over our complex, safety critical systems – we are only creating a «lose-lose situation».

Instead we should revise our way of producing information. We have to start looking for explanations of incidents and not causes. There is a difference between explaining an incident and finding a cause. When you explain incidents there is a fair chance that we understand what took place and thus we can start the search for reasonable countermeasures (if there are any). When we find a, to the environment, acceptable cause – which is known to be a very subjective process anyway – we try to find a countermeasure to the cause. This might look adequate but, finding a cause (maybe even the cause) is not the same as having understood why the incident happened. Thee are some dangers attached to «looking for causes». One is that the countermeasures we use tends to be an exercise of having «done something» instead of addressing the real «tough» issues behind the incident. Finding a superficial cause preserves the system and directs the attention towards better training or more awareness for the operators involved. Moreover when we explain incidents in causes we create the fundament for human shortcomings/human error as the cause of incidents and thereby confirm the 75% myth (that 75% of accidents are caused by human error), which again leads to the consequences mentioned above.

If we want the public to help us to redesign laws and public opinions in order to implement reporting systems where operators can report their adverse events without having to fear retribution, we have to be able to liberate ourselves from the mechanisms that amplify the notion of «good» and «bad». It would be a shame if you have to learn about the «good» and the «bad» operator the way that I did.

I hope this little piece of text can help you to start thinking about your own reaction to occurrences and how you judge performance and thereby help making a step towards growing success of reporting.

Tom Laursen
DSO Head of occurrence management

Good or Bad?

Constructed situations