IDENTIFYING 'INVESTIGATIVE BLIND SPOTS'
THE EVERYDAY WORK OF OCCURRENCE INVESTIGATORS

In learning from everyday work, we should learn not only from the work of front-line staff, but from the work of all support and specialist staff, and management. In this article, **Rogier Woltjer**, **Jonas Lundberg**, and **Billy Josefsson** consider the work-as-done of investigators, and blind spots that can affect their work.

KEY POINTS

- **Occurrence investigators' 'work-as-done' may be different from the organisation's 'work-as-imagined'. This can create a discrepancy between the safety that the organisation aspires to, and the safety that it achieves.**

- **'Investigative blind spots' are organisational factors that impede or otherwise affect the occurrence investigation process.**

- **We have developed a resource-light workshop-based method called 'MIBS: Method for identifying Investigative Blind Spots' using discussion cards.**

- **MIBS helps to identify and address aspects that, for organisational reasons, are (regularly) excluded from investigation work, from investigations' recommendations, or their implementation.**

Air navigation service providers (ANSPs) have extensive safety management arrangements and excellent safety records. They are often called 'ultra-safe'. Among other developments, occurrence investigations have become more oriented towards understanding organisational factors and processes that can contribute to variations in the functioning of people (such as air traffic controllers (ATCOs) and pilots) and technical components, rather than focusing on individual humans and technical systems as 'root causes'.

One could say that to understand sharp-end behaviour and risk (the operational safety of air traffic, the work of ATCOs and pilots), safety science has increasingly focused on blunt-end factors (organisational aspects further away from the operational work).

Recent research has uncovered that occurrence investigation processes may be subject to similar pressures. Occurrence investigation may therefore also have 'incidents', when issues are not examined or recommendations are not written, implemented or followed up, due to organisational factors that affect investigative work. Similar to organisational factors that affect ATCO performance, investigators are also affected by organisational blunt-end factors. These could be investigated to improve organisational safety performance through occurrence investigation.

In the language of the Safety-II perspective, investigation 'work-as-done' by occurrence investigators may be different from the organisation's 'work-as-imagined' about investigation. This creates a discrepancy between the safety that the organisation aspires to, and the safety that it achieves. We call the organisational factors that impede or otherwise affect investigation as 'investigative blind spots'. By this, we mean that the organisation is unable to see and address certain issues that affect their occurrence investigation processes.

"Investigation 'work-as-done' by occurrence investigators may be different from the organisation's 'work-as-imagined' about investigation."

The Swedish ANSP LFV is interested in improving their investigation processes. A method that helps organisations to identify 'investigative blind spots' may be helpful to guide this improvement. Organisations will likely want to employ resource-light methods. To our knowledge no methods were available prior to our work, but some organisational factors affecting incident investigators' work have been described in prior research. We developed these into a pragmatic 'method for identifying investigative blind spots' (MIBS), together with LFV.

MIBS was developed in close collaboration with occurrence investigation practitioners, and has now been applied in three iterations, some years apart. These involved semi-structured workshops focusing to identify investigative blind spots and come up with ways to improve investigative practices and safety.

The method relies on key personnel, in this case occurrence investigators, willing to discuss their work circumstances and difficulties, and the organisation allocating time. Our approaches required two five-hour workshops and some hours of 'homework', roughly following the steps

below. The first workshop focused on identifying blind spots. The second workshop focused on distilling the blind spots into the most important issues to address, and generating remedial actions.

Step 1: Workshop 1.

This workshop starts with a familiarisation with some relevant theory, introducing the investigative blind spots and blunt-end concepts, and the method. This is followed by an initial brainstorming session to determine which organisational factors and roles affect the occurrence investigators' work, and the consequences of these factors. Following the brainstorm, a set of known factors (based on research or previous applications of the method) are presented on discussion cards with a heading and some examples.

A simplified example of one of the (currently 16) discussion cards is shown here:

2. Resistance to recommendations

Ownership of the recommendations, the level at which they are written, and how they are received, interpreted and understood, can hinder recommendations' impact. 'Education in the reception of recommendations' may be necessary.

Limitations in resources, economic and personnel, which the receiver of the recommendations needs to allocate, can make implementation difficult.

A lack of agreement and feedback on expectations, purpose and outcomes of investigations, between investigator and receiver, can make recommendations difficult to implement.

Step 2: Homework.

Based on updated discussion cards from workshop 1, the participants go through the cards again allocating a few hours during the week(s) following the workshop (individually or in pairs). They prioritise by rating which discussion cards they would advise the organisation to work on to improve (a

first prioritisation can be done already during Workshop 1, if time allows). For their top-rated cards, participants write down: 1) real examples of the situations described on the cards, and 2) suggestions for how the organisation's blind spots may be addressed.

Step 3: Workshop 2.

In this step, the blind spots are refined and prioritised based on the homework, and mitigating or improvement activities are generated. Cards may be revisited and reformulated, grouped or split in this step. A final prioritisation is done after these revisions, followed by a brainstorm to generate specific activities for mitigating or improving the circumstances that are regarded as 'investigative blind spots' that the organisation needs to address. As part of the wrap-up, participants reflect on how they experienced the workshops and homework, and improvements to the method are discussed with a feedback form and a round-table discussion.

The list of discussion cards headings that was generated during the last case study is shown here:

1a Fragmentation regarding ownership, use, management, and maintenance of technology

1b Fragmentation regarding the air traffic services market that is shared between several different ANSPs in Sweden

1c Fragmentation and inertia regarding the aviation industry and the ability to affect international regulations

1d Fragmentation and ANSP-internal circumstances

2 Resistance to recommendations

3a Relationally uncomfortable recommendations

3b Organisationally uncomfortable recommendations

4 Transitioning from analysis to recommendations: the stop rule

5 Focusing on own areas of interest

6 Focusing on what one understands oneself

7 Focusing on what is easy to understand and one knows will work

8	Focusing on what one can find facts/information about
9	Focusing on symptoms
10	Available resources for investigation: workload and manning affect the time it takes
11	Prioritisation of investigative work
12	Minimum levels of safety
13	Dissemination of information, principle of public access to official records, confidentiality

Step 4: Stakeholder seminar.

Results are presented within the organisation at a seminar where investigators and other specific roles and managers with safety-related responsibilities are invited. Prioritised discussion cards and activities are discussed in some detail, as well as ideas on when to perform a next iteration, and with whom.

Note that this investigative-blind-spot method (MIBS) is not intended as a strict method: variations can be made to local practical circumstances. It requires facilitation skills and benefits from the facilitator having some domain knowledge. An open, trustful, blame-free and learning-oriented atmosphere is important. The method focuses on placing blind spots (and suggested activities to mitigate these) in the spotlight, but it is up to the organisation to address these and improve their safety management practices accordingly.

The participating occurrence investigators stated that they appreciated the method and the opportunity to reflect upon their work in an organised and methodological way, and they suggested (mostly practical) method improvements. LFV Safety Management expressed their interest in both the results and the suggested activities for mitigating the blind spots.

A fourth iteration of the MIBS approach is being considered for 2021. Future ideas for the method are among others to include safety assessors (tested in the third case), receivers of recommendations (e.g., ATSU chiefs, SOP managers), and various managerial

roles as part of the workshop activities. This would help to gain a more systemic multiple-perspective understanding of the issues. It is likely that other ANSPs and other stakeholders in both aviation and other safety-critical industries may benefit from applying a similar method. �

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For further details on MIBS, the MIBS Discussion Cards, and literature references on investigation practice, please contact the authors.

Editorial Note: The EUROCONTROL Safety Culture Discussion Cards include cards on many different aspects of investigation, which can be selected and used with this method. The Safety Culture Discussion Cards are available in different languages, which will be released in the coming weeks on SKYbrary.

Rogier Woltjer is a Deputy Research Director at the Swedish Defence Research Agency (FOI) in Stockholm, Sweden. He has a PhD in Cognitive Systems from Linköping University, 2009, and has human factors, safety and security management, pilot training, and human-automation teaming as his primary research interests. He has worked with research and development in air traffic management since 2006.

rogier.woltjer@foi.se

Jonas Lundberg is a Professor in Human Centred Design at Linköping University, Norrköping, Sweden, and has a PhD in Computer Science from Linköping University, 2005, in the area of interaction design, with human-automation collaboration as his current main area of research. He has also conducted research in Safety Science since 2006.

jonas.lundberg@liu.se

Billy Josefsson is a Senior Air Traffic Controller. Since 1994 he has been active within research and development in human performance, safety and human factors worldwide. Billy has a background in psychology. Since 2014 he is Manager Automation & Human Performance at LFV Research & Innovation, in Norrköping, Sweden.

billy.josefsson@lfv.se