OBSERVING EVERYDAY WORK: NORMAL OPERATIONS MONITORING AT ENAIRE

Observation and listening are two of the most basic but powerful tools to help understand everyday work. In this article, **Alberto Rodriguez de la Flor** explains the approach to observing normal operations at ENAIRE, and some of the unexpected benefits.

KEY POINTS

- **Safety-II and systems thinking have been important topics of discussion in recent years, but practical implementation has been limited in ATM.**

- **The priority for many organisations is still traditional occurrence investigation and risk assessment. Neither provides significant understanding of everyday work.**

- **Many safety interventions do not have the intended effects since they are applied from a proximal perspective, only addressing those factors close to the incident, mostly the pilot or the controller, the local equipment and procedures.**

- **ENAIRE has developed and applied a normal operations monitoring method to understand everyday work via observation and listening. This has had a range of benefits for operational safety, and operational performance more generally.**

Over recent years, concepts of Safety-II and systems thinking have been promoted by EUROCONTROL (2013, 2014). A large part of this effort has been to improve learning from everyday work. ENAIRE has been following the development of these approaches since their conception.

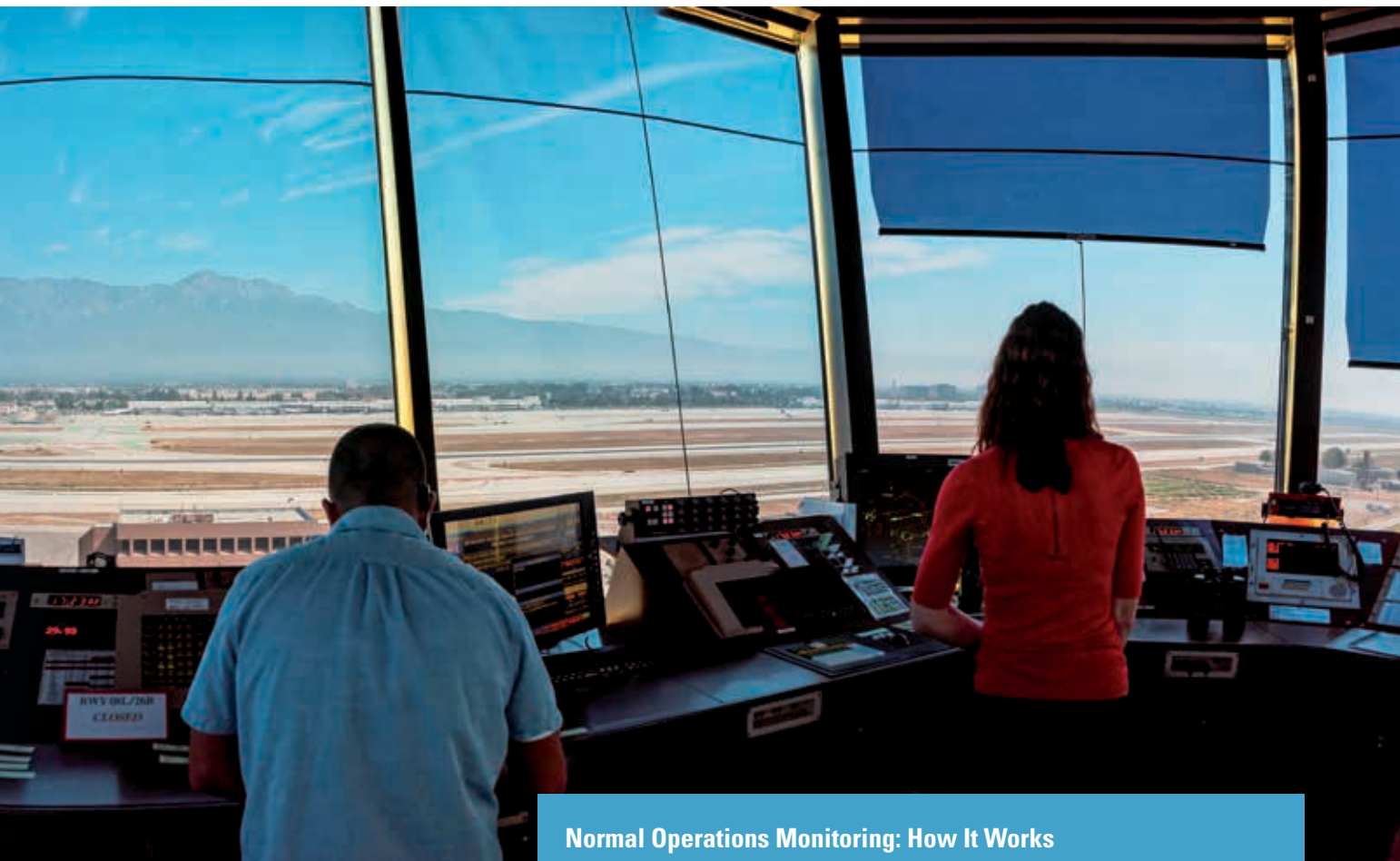To summarise, Safety-II is an appealing concept that evolves from traditional thinking about reducing what goes wrong to maximising what goes right. But there are aspects that have hindered its development into real practice in aviation. Apart from the fact that it is not a hot topic for regulators, Safety-II uses normal operations as the 'observation space'. This is immensely bigger than the typical Safety-I area of interest – unwanted events – which is often reduced to local and proximal factors in incidents.

Systems thinking principles are not opposed or particularly different from Safety-II thinking. Systems thinking simply enlarges the way to think about Safety-II. It can have a profound impact on the way that safety is approached within an organisation, but it concerns more than safety itself. It recognises that designed processes cannot fully cope with the complexity of work. It allows an understanding of the local and distal factors that shape all types of events, which is key to all safety activity. Root causes and chains of events are replaced by networks of interactions and influences, which naturally makes

the concept of linear causality and guilt for 'honest mistakes' disappear, left only for judicial analysis, if required.

The practical application of such thinking is still a challenge for many organisations, and remains limited. Only a few ANSPs have developed and deployed practical and tailored methodologies.

Indeed, the priority for many organisations is still traditional occurrence investigation and risk assessment. Safety interventions often remain biased toward local aspects at a certain point in time, which can hinder the understanding of everyday work. There is also an invisible but strong effect on safety language, focused on negative and judgemental vocabulary and structures. This is far from normal operational reality. The result is a negative mindset that holds back safety thinking and practice. There could be several reasons for this, not least regulatory requirements and the difficulty of integrating new concepts and approaches with existing ones.

Some safety applications have focused on 'everyday work' (without necessarily adhering to Safety-II principles). For instance, ICAO developed a standard for

Normal Operations Monitoring: How It Works

NOM has a focus of interest on what happens everyday: the actions of front-line operators, the factors influencing them, and the reasons behind, in order to keep operations safe and efficient. Most of the methodologies require over-the-shoulder observations that can be more or less structured. Structured observations seek pre-defined actions or elements and their relevance in the operation. ICAO NOSS aims at profiling the number of errors and threats present in everyday work, and how these are captured and managed. More recent methodologies, like the one we are developing, enlarge this scope by identifying the good practices, even if not related to threats or errors, and seek for a deeper search for systemic and distal factors. It is essential that observations are complemented by talking with the observed people to gain a better understanding of the dynamics, this also being a chance to identify relevant factors not necessarily observed. Observation sessions can total around 50 hours during one week. The gathered data is then processed and analysed and recommendations are made to reinforce good practice, along with proposals to tackle recurrent error types and existing threats. Other methodologies combine observations with group facilitated sessions.

line operations safety audits (LOSA) for ATM, namely normal operations safety surveys (NOSS). Other approaches look for the application of good practices by front-line actors (see EUROCONTROL/ FAA, 2011).

However, one-fits-all methods for normal operations monitoring face difficulties, since they might not be suitable for a specific problem. Normal operations related methodologies need to adapt to everyday work, not the other way around. It is necessary to develop new methodologies and adapt them to

an organisation's needs, problems and objectives. Methods need to be flexible and adaptable.

During the past six years, ENAIRE has successfully explored this line of thinking by implementing new normal operations monitoring (NOM) processes and policies. NOM offers a window to operational reality and can influence safety processes and an organisation's mindset. The approach combines existing and new safety approaches into tailored methodologies to tackle specific problems.

The practical application of normal operations monitoring started years ago by chance. Despite efforts to improve investigation and the implementation of recommendations, the rate of occurrences in a tower ATS unit was still unusually high. A project was set up to perform an observational survey in order to understand the operational reality and the complexity of factors that could have been invisible in the investigations. We drafted a methodology and performed weeks of preparation, briefing the unit controllers. After many hours of observation, we were astonished about the simplicity of the issues at hand when observed with a fresh mind.

During the first 30 minutes of observation, a key topic underlying many past incidents was identified: visual scanning practice. This was confirmed by the ATS unit managers, based on their own observations. There was then an effort to get further information regarding the influencing factors and possible solutions from ATCOs. Previously, visual scanning was taken for granted, and ATCOs had not been observed with the aim to understand their scanning in the context of the system as a whole.

The analysis showed that the common trick of using a flight strip paper when the runway is occupied was not useful due to the working position design, which made operation fully dependant on the ATCO performing a runway visual scan. In addition to this, the traffic types were so varied that it added an unusual complexity to the operation.

By investigating normal work, we could trace this issue back to ATCOs initial training. After developing a specific training module based on self-observations, aimed at making the motor behaviour of visually scanning the runway more automatic for controllers, the safety occurrences lowered by 80% the following year, with severities also dropping dramatically.

Since then, observational surveys have become a flexible and valuable tool. It is especially valuable where the safety issue is just a concern, a weird feeling, or so unspecific that is difficult to verbalise.

It is also valuable where a problem is complex and requires a systemic understanding.

Observational surveys have had a great impact on safety through new and creative ways of understanding normal work and promoting everyday safety. NOM has had other unexpected, deep effects. The simple presence of safety observers within the units has broken the invisible divide between safety experts and front-line operators. Working practices that are usually taken for granted are identified and discussed, thus creating an opportunity for analysis and improvement using the expertise of the staff.

At ENAIRE this systems thinking implementation strategy is changing safety-related language to explain why things happen, and is providing new tools for investigation. We have also used 'influence maps' to understand interactions between people and other elements of the system, starting from the event, moving up and out to the system as a whole, considering the whole organisation and beyond, including events that may have happened in the past.

This positive thinking has allowed us to 'decriminalise' human error and find new directions for safety recommendations, both locally and globally. Creative recommendations are frequently adopted, like involving ATCOs previously involved in incidents (on a voluntary basis) in the design of changes, procedures, working tips and safety culture events.

The interaction of NOM with existing processes has been beneficial for all safety activities, including investigations and our approach to just culture. No complex methodologies are necessary. No state-of-the-art software is required. The true prerequisites to encompass these concepts are a sound safety mindset, getting rid of prejudices, and being able to zoom in and out. Ultimately, the best methodology is to be quiet, watch, listen and ask yourself why things are happening that way. 🅂

References

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Alberto Rodriguez de la Flor is an en-route ATCO, working also as a specialist in ATM safety, team resource management, and human factors in the Safety Division of ENAIRE. Apart from being an aerospace engineer, he holds an MSc in educational neuropsychology and an MSc in psychobiology and cognitive neuroscience.

ardelaflor@enaire.es