



ECA
Piloting Safety

Performance-based Safety Regulation & Oversight – ECA Position –

Executive Summary

- A ‘Performance-based’ regulatory and oversight approach, which focuses on desired, measurable safety outcomes, rather than prescriptive processes, can become an important tool to manage and enhance safety in view of the expected significant growth in air traffic.
- While a performance-based approach can improve safety, it can also pose new hazards if implemented or overseen inadequately, if perceived as a means to save money and resources, or if allowing for any kind of *de facto* industry self-regulation. The financial sector, the oil-drilling or the nuclear industries have shown the potentially disastrous consequences if things go wrong.
- Hence, a careful, gradual step-by-step approach – with regular feed-back loops – is required to safely transition from a Compliance-based prescriptive scheme to a Performance-based approach. It must be acknowledged that a number of – and possibly even a majority of – stakeholders/users, including national oversight authorities may not be able to transition to such a scheme any time soon or even at all.
- This is why a Compliance-based prescriptive scheme must remain in place in order to set a floor of sufficient, clear and strict standards for all stakeholders. In fact, the Compliance-based and the Performance-based approaches are complementary; they should not substitute each other but add on an *additional* safety layer.
- A Performance-based scheme can *only* be considered if the following conditions are fulfilled:
 - a) The system ‘maturity’ (European, national and operator-level) needs to be assessed and established prior to implementing such a scheme.
 - b) A prior assessment of the operators’/organisations’ safety culture needs to be carried out by independent external auditors.
 - c) Adequate and sufficient resources need to be allocated by all stakeholders, both during the implementation and then during the continuous oversight.
 - d) Front-end safety professionals – in particular flight crew and their representation – need to be involved as equal stakeholders at all stages and levels.
 - e) A Compliance-based prescriptive scheme must remain in place in order to set a floor of sufficient, clear and strict standards for all stakeholders.
 - f) A failsafe mechanism is required to step in to effectively remedy the situation when failures within the Performance-based regulation or oversight system occur.

Introduction

With the publication of A-NPA 2014-12 by EASA and the corresponding stakeholder consultation by the European Commission, the Agency has re-launched the debate about possible advantages and drawbacks of complementing the present Compliance-based prescriptive safety legislation scheme by a Performance-based scheme.

While all stakeholders agree that prescriptive legislation alone may not always adequately fulfill its purpose, it does certainly provide a clear minimum of requirements that all stakeholders need to achieve.

Moving to a performance-based system – while in theory a logical step in a Safety Management environment – may however quickly erode safety standards and safety levels, if implemented badly, too quickly and without regular assessment and feedback loops, and if not properly overseen by the National Aviation Authorities (NAAs) and EASA.

The possible benefits of a performance based regulation environment, as noted by EASA, are:

- Better focus on achieving the desired safety performance;
- Improved understanding of risks and clearer identification of the required mitigations;
- More tailored oversight activities that focus on the areas of greater concern or need;
- Efficiency through a better targeting of resources;
- Better legislative adaptability and flexibility;
- Improved focus on the individuals in the aviation system and their role in safety;
- Possibly more active involvement & interaction of all actors in managing the system.

It is to be noted that these potential benefits can only be achieved if a number of steps are undertaken and certain requirements are fulfilled to ensure a proper introduction of performance-based regulation.

ECA's Position

The successful implementation of a performance-based system into aviation will hinge in no small part on the ability of oversight authorities, both NAA and EASA, to provide enough and adequate resources and expertise to provide credible, harmonized and effective safety oversight across the industry and across EU Member States. Performance-based regulation and risk-based oversight will also require oversight authorities to manage their resources much more efficiently, as this type of oversight will be *more* resource-intensive than checking compliance with prescriptive rules.

Performance based regulation will require a totally transparent approach involving all aviation stakeholders. This includes that stakeholders will need to share a common understanding of the principles and ethics that underlie/create a basis of the system as well as 'mutual trust' and cooperation among the three pillars of such a system: authorities, companies and (air crew) employees.

Stakeholders need to acknowledge the fact that not all parts of the aviation system will be able – i.e. mature enough – to follow the path to Performance-based regulation and oversight. For this reason a Compliance-based prescriptive scheme must remain in place in order to set sufficient, clear and strict standards for all stakeholders – to ensure a uniform and high ‘floor’-level of safety across the industry.

Those operators/organizations that fulfill additional, higher safety standards and that commit themselves to the additional burdens and controls of a Performance-based scheme may then be granted additional flexibility, subject to strict continuous oversight by the authorities.

In order to obtain and retain these privileges, the operators/organizations will need to demonstrate continuous commitment and excellence, transparency and willingness to improve. These requirements for operators will have to include, among others:

- A Safety Management System (SMS) that conforms to latest industry standards / best practice and that is proven to function throughout the organisation. This should include FRM (Fatigue Risk Management), LOSA (Line Operations Safety Audit), FDM (Flight Data Monitoring), reporting systems and other tools;
- Adherence and commitment to Just Culture principles¹ and clear ethical values and a system to monitor and positively influence the company safety culture;
- A pro-active, transparent cooperation and experience sharing and exchange of information with both the oversight authorities and front-end safety personnel, including pilot representatives.

The implementation will have to be a gradual, step-by-step process that includes regular assessment & feedback loops, an ‘emergency break’ mechanism, and must be overseen both at national level and by EASA at European level.

Implementation of a Performance-based regulatory scheme must take into consideration the ‘maturity’ of both the system as a whole and its individual components/stakeholders and their ability to fulfill their obligations. Therefore, it must be acknowledged that a number of (and maybe even a majority of) stakeholders/users, including possibly national authorities may not be able to transition to a Performance-based scheme. They will have to stay on – or fall back upon – the compliance based prescriptive rules. It also means that many NAAs will probably have to fulfill two types of oversight, at least for the foreseeable future: Performance-based oversight of those operators/ organizations that are mature enough for such a scheme, and compliance-based oversight for those that are not (yet) ready.

To prevent that Performance based regulation and oversight will lead to the industry – or parts of the industry – *de facto* self-regulating itself – with only a light-touch superficial oversight – more resources are needed both for the NAAs and EASA.

Hence, as long as EASA (and NAAs do not have the necessary resources and expertise to substantially increase the frequency, quality and depth of their oversight responsibilities – any move to Performance-based regulation and oversight must be considered very cautiously and be refrained from, if there is any doubt. In this respect,

¹ See ‘Just Culture’ definition in the EU Occurrence Reporting Regulation [376/2014](#), Art. 2(12): “ ‘just culture’ means a culture in which front-line operators or other persons are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but in which gross negligence, willful violations and destructive acts are not tolerated.”

EASA will have to carry out in-depth ‘fitness-checks’ of any NAA that intends to move to a Performance-based system and oversight. In the longer term, it would be advisable to set up an independent body – similar to the US NTSB – to assess the overall functioning of the new system and its oversight components at national level (NAAs) and European level (EASA and Commission), and to issue recommendations on how to improve the system and prevent safety lacunae.

It is obvious that such a Performance-based system will need new and innovative oversight methods to be developed, based on a new skill-set of those who oversee. Key Performance Indicators that need to be monitored continuously will need to be defined and tested, including those defining the safety culture and ethical values at company level and for accountable individuals.

It must be clear to all stakeholders that for a Performance-based regulation scheme to function, it will require efforts and commitment way beyond the level that we are accustomed to today. A Performance-based scheme is not a means to achieve light regulation and/or to save money and resources. Quite the contrary: it will require a lot of extra effort, resources and expertise particularly in the initial phases of implementation, but also thereafter.

The most important elements of a Performance-based regulatory scheme will be:

- Sufficient resources at NAAs and EASA level to guarantee that they can and will fulfill their more complex and demanding oversight responsibilities.
- Proper training, education and skills of those in the NAAs in charge of assessing, auditing & overseeing the organisations using a Performance-based system.
- Proper training, education and skills of those within the operators/organizations in charge of adopting the mitigating measures aiming at addressing the safety threats identified in the operation.
- Adequate empowerment of those accountable for managing the Performance-based scheme, incl. financial and commercial capability/control within the organisations.
- Vast and extensive use of tools dedicated to measure the performance of the system (safety performance indicators & targets, alert levels). Care must be taken, however, that the achievement of safety performance targets does not become yet another type of compliance scheme, where achieving the target figures becomes the main focus and where compliance with the set target figures will be the test for a safe organisation/operation.
- Major implication from the front-end personnel, including pilot representatives, in all parts and stages of the safety management process, including in communicating the safety threats identified whilst operating the systems.
- A Safety Culture, embedded in a Just Culture environment, enshrined in the organization that promotes the implication of everyone in the cycle of managing safety threats. Without a proper safety culture the performance-based scheme will become a system where the figures (safety targets) are the aim. And, without the right culture in place, the temptation will be to achieve this aim “at any cost”, rather than genuinely improving safety within an organisation.
- Mutual trust and shared objectives are key to ensure everybody perceives the rules as tools to manage the safety threats, and not as means of gaining leverage power to improve labor conditions or of pursuing commercial productivity objectives.

- An external and independent assessment of the Safety Culture in the respective aviation organizations (air operators & airports as a minimum) is a must prior to the implementation the Performance-based scheme. The overall aviation system (organizations, NAAs and EASA) must have an adequate level of maturity for the effective implementation of the performance-based system.
- A stringent set of prescriptive regulations to be in place and to become applicable (as a ‘fall-back’) in case the Performance-based scheme fails to provide the expected safety results, is not properly overseen, and/or gets misused by certain stakeholders.
- A failsafe ‘emergency break’ mechanism is required to step in to remedy the situation when failures within the Performance-based regulation or oversight system occur.

Conclusion

ECA supports every effort that will allow the European civil aviation industry to excel in both economical terms and in achieving the highest safety standards.

Performance-based regulation, giving operators flexibility depending on the scope and nature of their operation and taking into account their safety record and (extra) efforts within their safety management – may be the way forward.

The performance-based approach can improve safety; but it can also endanger safety if implemented or overseen inadequately or if allowing for any kind of *de facto* industry self-regulation. The financial sector, the oil-drilling or nuclear industry or space-shuttle explorations have shown the potentially disastrous consequences of light-touch regulation, performance-based *de facto* self-regulation and inadequate safety oversight.²

As a stakeholder and representative of aviation safety professional ECA and its Member Associations are ready to be fully involved in the process of further developing the concept itself and of both implementing and maintaining a Performance-based regulatory and oversight scheme in Europe. The development and implementation process will need to be totally transparent and all stakeholders will need to agree on the basic principles and values that will underlie the scheme. In order to be effective, a Performance-based scheme can only be complementary to a Compliance-based prescriptive regulation. One does not preclude the other, and one should not substitute the other but add on an additional safety layer.

The following preconditions will need to be fulfilled:

- The system maturity (European, National and Operator-level) needs to be assessed and established prior to implementing a Performance-based scheme.
- A prior assessment of the operators’/organisations’ safety culture needs to be carried out by independent external auditors.
- Adequate and sufficient resources need to be allocated by all stakeholders, both during the implementation and then during the continuous oversight.
- Front-end safety professionals – in particular flight crew and their representation – need to be involved as equal stakeholders at all stages and levels.
- A Compliance-based prescriptive scheme must remain in place in order to set a floor of sufficient, clear and strict standards for all stakeholders.
- A failsafe mechanism is required to step in to effectively remedy the situation when failures within the Performance-based regulation or oversight system occur.

² See also ECA publication (2013) “[Civil Aviation Legislation & Oversight – Can it guarantee safety?](#)”

Annex

References:

- EASA A-NPA 2014-12
- UK CAA CAP 1184
- ECA Final Comments on EASA A-NPA 2014-12
- EASA Report: A Harmonized Approach to Performance Based Environment

Definitions:

Performance-based regulation:

“A regulatory approach that focuses on desired, measurable outcomes.” (*EASA Report: A Harmonized Approach to Performance Based Environment*)

“A regulatory approach that focuses on desired, measurable outcomes, rather than prescriptive processes, techniques, or procedures. Performance-based regulation leads to defined results without specific direction regarding how those results are to be obtained.

As such, PBR differs from the traditional, prescriptive regulatory approach in that it emphasizes what must be achieved, rather than how the desired results and outcomes must be obtained.”

(*United States Nuclear Regulatory Commission*)

“A regulatory system that is performance-based can be thought of as one in which performance is used as:

1. the basis for the legal commands found in regulatory standards,
2. a criterion for allocating enforcement and compliance re-sources,
3. a trigger for the application of differentiated (or tiered) regulatory standards, and
4. a basis for evaluating regulatory programs and agencies.”

(*Coglianesse Cary, Jennifer Nash, and Todd Olmstead “Performance-Based Regulation: Prospects and Limitations in Health, Safety and Environmental Protection” Regulatory Policy Program Report No RPP-03 (2002) Harvard University*).

Prescriptive regulation:

“A regulation that specifies requirements for mandatory methods of compliance. “ (*EASA Report: A Harmonized Approach to Performance Based Environment*)

Prescriptive regulation, in principle, defines how activities are to be undertaken (e.g, what techniques or materials to use, what qualifications must be held, where the function may be performed). This approach emphasises a known degree of risk mitigation over innovation or cost management.

Risk-based oversight:

A way of performing oversight, where planning is driven by the risk profile and execution, besides ensuring compliance, focuses on the management of operational risks.” (*EASA Report: A Harmonized Approach to Performance Based Environment*)

The identification of aviation safety hazards entailed by the activities of the operator, their evaluation and management of associated risks, including the actions to mitigate the risk and verify the effectiveness. The oversight programme must be developed taking into account the specific nature of the organisation, the complexity of its activities, the results of past certification and/or oversight activities required by ARO.GEN and ARO.RAMP and shall be based on the assessment of associated risks.” (*UK CAA*)

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