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Agenda Item 33: Aviation safety and air navigation monitoring and analysis

DEVELOPMENT OF CRITERIA FOR DEFINING THE APPLICABILITY OF SMS

(Presented by Brazil)

EXECUTIVE SUMMARY

In a performance based regulatory environment, the relationship between the civil aviation administration (CAA) and its regulated entities is expected to develop into a partnership with shared safety goals. This is an evolutionary process that can be developed as cooperation matures between a particular segment and regulators. The safety management system (SMS) is an important step within this evolutionary process. This working paper proposes that criteria are developed by ICAO to address and define when to evolve from a prescriptive regulatory framework for a particular segment within aviation to a performance-based framework, and thus require SMS implementation for that segment.

Action: The Assembly is invited to consider the need for the definition of criteria to be used by ICAO to establish applicability of mandatory SMS to different segments of the aviation industry, considering the safety benefits and the efforts required by industry to implement and States to oversee them.

Strategic Objectives:	This working paper relates to the Safety Strategic Objective.
Financial implications:	Not applicable
References:	Annex 19 – *Safety Management*

1. INTRODUCTION

1.1 In the last 100 years, Aviation has matured into one of the world's safety means of transportation. The regulatory environment established for the sector was largely responsible for this excellent performance. It provided the common baseline standards upon which knowledge acquired from accidents could be quickly applied in practice, efficiently eliminating newly identified threats from on-going operations.

1.2 As most industry-level common-cause risks were mitigated through actions associated with the definition of directly applicable rules, new contributing factors started to emerge. These new issues were mostly related to "softer" human factors aspects such as organizational culture and pressed regulatory authorities to move from a excessively-detailed prescriptive regulatory environment to a higher-level process-oriented performance-based approach. The latter is essentially based on the assumption that industry is in a better position to effectively and efficiently address their specific particular issues and that regulations should emphasize what must be achieved rather than to prescribe what has to be done to achieve it.

2. DISCUSSION

2.1 In a performance based regulatory environment, the relationship between CAA and regulated entities is expected to develop into a partnership with shared safety goals, avoiding that punishment actions hinder the exchange of relevant safety information.

2.2 The performance-based approach however yields benefits only where industry is mature enough to address the responsibilities these changes impose on them. It is crucial that there is adequate consideration of the burden on the industry when regulatory framework of a particular segment is modified. More important than the administrative load of implementing management systems, there is a need to develop maturity in order for industry to make structured decisions on how to comply with these new sets of standards in a cost-efficient but also effective way to address associated risks.

2.3 Aware of its benefits, starting in 2001, ICAO has moved forward with this approach, demanding States to require the implementation of Safety Management Systems (SMS) from different industry sectors.

2.4 Determination of industry segments where SMS implementation would be required in ICAO Standards and Recommended Practices (SARPs) evolved naturally as these Annexes were amended to include these provisions until they were consolidated in Annex 19 – *Safety* Management .

2.5 Service Providers currently required by Annex 19 to implement an SMS are:

a) approved training organizations in accordance with Annex 1 that are exposed to safety risks related to aircraft operations during the provision of their services;

b) operators of aeroplanes or helicopters authorized to conduct international commercial air transport, in accordance with Annex 6, Part I or Part III, Section II, respectively;

Note.— When maintenance activities are not conducted by an approved maintenance organization in accordance with Annex 6, Part I, 8.7, but under an equivalent system as in Annex 6, Part I, 8.1.2, or Part III, Section II, 6.1.2, they are included in the scope of the operator's SMS.

c) approved maintenance organizations providing services to operators of aeroplanes or helicopters engaged in international commercial air transport, in accordance with Annex 6, Part I or Part III, Section II, respectively;

d) organizations responsible for the type design or manufacture of aircraft, in accordance with Annex 8;

e) air traffic services (ATS) providers in accordance with Annex 11; and

Note.— The provision of AIS, CNS, MET and/or SAR services, when under the authority of an ATS provider, are included in the scope of the ATS provider's SMS. When the provision of AIS, CNS, MET and/or SAR services are wholly or partially provided by an entity other than an ATS provider, the related services that come under the authority of the ATS provider, or those aspects of the services with direct operational implications, are included in the scope of the ATS provider's SMS.

f) operators of certified aerodromes in accordance with Annex 14.

2.6 Considering the evolutionary approach taken to date to develop SMS SARPs and the burden oversight functions impose on States, it would be positive for those structuring their long term roadmaps for SMS implementation to rely on more precise criteria to determine applicability of mandatory SMS to particular segments of the aviation industry.

2.7 Examples of approaches to determining such applicability are presented in regulatory theory literature. From a more general perspective, safety is a subject to social regulation. It is thus mainly externalities and asymmetric information that drive the definition of regulatory strategies for particular problems. When evaluating applicability of performance based regulation, John McCormick, from CASA Australia, proposes the adoption of criteria based on the research by Professor John Braithwaite, of the Australian National University:

a) the nature and complexity of the activity and the outcome;

b) the stability (or instability) of the operational environment;

c) the willingness and ability of the regulated organization to take responsibility for their conduct with good judgment and necessary expertise;

d) the willingness and ability of the regulator to exercise corresponding measures of expertise and good judgment; and

e) a sufficient level of trust between the regulator and the regulated organization.

2.8 Other criteria could be studied and established by appropriate expert groups such as the Safety Management Panel if instated by ICAO.

2.9 Considering the aforementioned need for a somewhat more elevated level of maturity of organizations for an SMS to be effectively implemented, it is understood that many organizations in segments not required by ICAO to implement an SMS but not complying to these defined criteria, could still benefit greatly from voluntary implementation.

3. CONCLUSIONS

3.1 Considering what was presented in this working paper, it is understood that the definition of technical criteria to be adopted by ICAO to determine applicability of mandatory SMS to different segments of the aviation industry would greatly contribute to structuring a more systemic approach to SMS implementation from an ICAO perspective, as it demands oversight from States to extend into new aviation segments. In addition, the definition of such criteria would help States structuring their long term roadmaps for establishing oversight structure needed to support SMS implementation.

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