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**Interdependence between Safety Culture and Safety Management Systems
In Air traffic Management**

A positive Safety Culture can be a strong enabler to ensure the SMS works in practice. The reverse can also be true: implementing a good SMS can be an enabler for Safety Culture.

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Safety management implies a systematic approach to managing safety, including the necessary organizational structure, competencies, accountabilities, policies and procedures.

It is recognized that the existence of an appropriate and comprehensive Safety Management System (SMS) is necessary for maintaining and improving the safety of Air traffic management operations. However, it may not be sufficient to guarantee adequate safety performance.

The question is, is an **SMS** enough?

Well the answer is NO! A SMS will not assure safety if it is not used properly, all the staff involved in the provision of Air traffic management services need to be properly aware of its existence, understand its basis, and be motivated to use it. Organizations are managed by organizational practices, which affect both performance and reliability of safety systems. A well-developed SMS can therefore serve as an accelerator of (Safety Culture. (Reason 1993, 1997))

It is not enough for an organization to have good safety management system, because performance is determined by how organizations actually 'live' or 'act out' their systems.

Thus, an Air navigation service provider needs both a SMS and a positive Safety Culture in order to be safe. They are like body and soul and should reinforce each other.

Implementing an **SMS** or a **Safety Culture**.

The strength of treating Safety Culture and safety management in tandem is that the approach can sometimes translate or focus Safety Culture improvement needs into tangible improvements to the SMS.

An alternative approach is to retain some distance between the two areas. This still allows feedback on where a SMS may not actually be working in practice (e.g. a technical problem in the error reporting system that stops people from bothering to report incidents), while allowing an albeit fuzzier focus on deeper cultural issues that can be unearthed during Safety Culture surveys, e.g. regional differences in safety attitudes, or problems of mistrust between different sections or layers in the organization (e.g. operational staff believing an SMS is just **'for show' or to 'protect' managers**).

Improving the SMS through Safety Culture!

A properly implemented SMS operates in a complementary and interdependent way with the Safety Culture to create a safer organization. The SMS must be actively improved and realized.

A SMS represents an organization's **competence** in the area of safety, and it is important to have an SMS and competent safety staff to execute it. Safety Culture can be summarized as the degree of **commitment** to safety evident throughout the organization. This includes a commitment to use the SMS as intended.

Improving Safety Management System from the Safety Culture Perspective.

The idea about improving SMS from Safety culture perspective coming from **L** in the SHELL concept of Elwyn Edwards, the L represented Live ware, in this case operators, safety culture is an practice study and

implies by important human resources, however, SMS as it represented itself, is a system that need to be improve and keep updating by human resources who practicing safety culture.

The following list shows tips to improve SMS through principles inherent to Safety Culture:

1. Consider the SMS as a 'living system' that should reflect best industry practice matched against the particular needs of your Air navigation service provider.
2. Review the content of the SMS regularly, drawing on new ideas and current best practice.
3. Strengthen the SMS using internal feedback from the primary sources of safety data within your organization (occurrence reports, confidential reports, safety forums etc.) and from Air traffic management more generally.
4. Conduct a gap analysis to identify areas where the SMS could be improved. These often surround issues like incident reporting, stress and fatigue management and competence in safety science.
5. Make sure there is a clear focus on risks associated with human factors. These are known to contribute to the majority of accidents, yet are often less well-understood in technology-based industries.

Linking SMS and Safety Culture.

The safety health of any organization is the product of two key elements:

- The quality and execution of the systems and processes implemented to deal with risk and safety-related information (the Safety Management System, which may or may not be formalized), and
- The Safety Culture, which includes people's shared values, beliefs and attitudes about safety.

These two elements combine to characterize the way that people behave within their organization, the 'behavioral norms'.



Figure - Interdependence between SMS and Safety Culture in an organization.

Therefore SMS and Safety Culture are interdependent with the SMS embodying the competence to achieve safety, and Safety Culture representing the commitment to achieve safety. The outcome of these features is an adequate cognizance, referring to the organization's correct awareness and understanding of the threats to its operations, which in turn shapes behaviors towards safety.