



Safety Culture

The term **safety culture** was coined in a series of reports published after the 1986 Chernobyl nuclear power plant disaster. The reports were published by the International Nuclear Safety Advisory Group (INSAG), an advisory group to the International Atomic Energy Agency (IAEA). Report No. 75-INSAG-4 outlined roles that organizations and individuals should play in a safety culture, and also provided assessment guidelines. The report included the following definition: “Safety culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance.” (INSAG, 1991, p. 1)

In the decades following the Chernobyl disaster, the safety culture concept spread beyond nuclear power generation to other high-risk domains including aviation, hospital operating rooms, construction, mining, and offshore oil and gas extraction. Numerous definitions of safety culture have been developed (Cole et al., 2013; Guldenmund, 2000; Martinussen & Hunter, 2010; Wiegmann et al., 2004). In a literature review that listed 13 definitions, Wiegmann et al. (2004, p. 123) derived a set of common features which included:

- a concern with “formal safety issues in an organization”;
- an emphasis on “the contribution from everyone at every level of an organization”;
- a “willingness to develop and learn from errors, incidents, and accidents”;
- a culture that “is relatively enduring, stable, and resistant to change”.

As shown in Figure 1, these definitions either explicitly or implicitly situate safety culture within **organizational culture**.

Figure 1: Venn diagram of national, organizational, professional and safety cultures.





Safety culture, as originally conceived by INSAG, was a prescriptive construct, which dictated how organizations and their members should operate in order to ensure safety. By contrast, **national, organizational and professional cultures** are descriptive constructs. Tension between prescriptive and descriptive approaches may account for some of the differences in definitions of safety culture. The review conducted by Wiegmann et al. (2004) cited several prescriptive definitions, such as: “A safety culture exists within an organization in which each individual employee, regardless of their position, assumes an active role in error prevention, and that role is supported by the organization” (Eiff, 1999). In contrast, other definitions were descriptive: “Safety culture is defined as the attitudes, values, norms, and beliefs that a particular group of people share with respect to risk and safety” (Mearns et al., 1998).

According to the ICAO Safety Management Manual, a safety culture should be an integral part of an organizational culture: “A safety culture cannot be effective unless it is embedded within an organization’s own culture” (ICAO, 2013, p. 2-10). However, as Dahlstrom and Heemstra (2009) pointed out, there may be difficulties in implementation. Effective reporting of accidents and incidents requires openness. This can, though, conflict with an organization’s desire to limit the disclosure of sensitive information. Furthermore, tension may exist between the flexibility demanded by a safety culture, so that the organization can adapt and learn from problems, and the requirement for strict adherence to procedures, which is a fundamental tenet of safety in high-risk industries such as civil aviation.

The related concept of **safety climate** likewise has numerous definitions, and the distinction from safety culture is “an ongoing subject for debate” (Noort et al., 2016, p. 517). Safety culture is generally held to consist of “the deeper and historically derived aspects of safety within an organization”, which may be investigated using ethnographic techniques. Safety climate, on the other hand, refers to “surface features of safety culture”, typically assessed by surveys of employee attitudes and perceptions at a given time (Grote et al., 2004, p. 122).

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