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**ORGANISATIONAL CULTURE AND SAFETY
CULTURE AS DETERMINANTS OF ERROR AND
SAFETY LEVELS IN AVIATION MAINTENANCE
ORGANISATIONS: A LATENT FAILURE
APPROACH**

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Abstract

ABOUT A DECADE AGO, a model known as the Latent Failure Model became influential in shaping the manner in which the aviation industry approaches the treatment of human error. It suggested that 'latent conditions', introduced into technological organisations, influence the qualitative and quantitative nature of error and safety.

Under the present thesis, the underlying culture of an organisation represents a pervasive latent condition that influences safety. Using quantitative questionnaire methods, this research examined the relationships between culture, and safety and error in aviation maintenance. An Organisational Culture Measure (OCM), a Safety Culture Measure (SCM), and three indicators, which assessed error level and safety, were administered in six aviation maintenance organisations in New Zealand.

The conclusions, based on the analyses of organisationally reported error data, are: (a) organisations reporting a higher number of errors are safer than those reporting lower numbers (it is suggested that this may be due to these organisations having good reporting systems in place), and (b) the control exercised by organisations, exemplified by compliance with rules, performance orientation, power-oriented autocracy, and passion for industry, co-operation, communication, rewards, and the perceived level of safety are related to the levels of error and safety reported in these organisations. Specifically, organisations demonstrating higher levels of control appear to be safer than those with lower levels.

The research also examined errors reported directly to the researcher from individuals in one of the organisations taking part in the study. These data indicated that where employees are developed within the organisation by work diversity and being allowed to develop at a personal level, and where the organisation exercises control, then individuals report fewer errors. This result may seem paradoxical in the light of (a) above, regarding organisational error reporting and its proposed relationship with safety; however, it is suggested that

organisational/institutional reporting is a different phenomenon to individual reporting, the former reflecting the objective performance of organisations, the latter reflecting an individual's self-awareness and the attributions arising from these. In addition, managerial willingness to address safety issues and an appreciation of the importance of safety issues in the workplace have positive relationships with the number of self-reported errors. Management should overtly indicate their approval of safety practices and routinely monitor the safety culture of their organisations.

This research cautiously suggests that the organisational culture of aviation maintenance organisations in New Zealand is relatively homogeneous. This indicates that similar safety interventions can effectively be applied across such organisations.

Whilst the utility of the quantitative methods used in this research has been demonstrated, it is argued that in themselves they provide insufficient detail to explain the complex interactions between organisational culture and safety. The research suggests the value of using a range of methods, both quantitative and qualitative, in the examination of aviation maintenance culture, error, and safety.

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