

Title	Development of a Business Excellence Model of Safety Culture
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Executive Summary	<p>Aims and approach</p> <p>This project aimed to develop a Safety Culture Improvement Matrix based on the Business Excellence Model (BEM) for use by Nuclear Installation Inspectors. The ultimate goal is to develop a tool that helps licencees improve safety culture rather than simply measure safety climate. Therefore, the tool needs to incorporate guidance on progressive improvements and be sufficiently detailed for users to ascertain what is required to improve safety culture.</p> <p>The study comprised a number of stages, namely:</p> <ul style="list-style-type: none"> • Identification of the key elements of safety culture and those factors that promote or inhibit achievement in the area of safety • Assessment of whether BEM provides a suitable framework for the assessment and improvement of safety culture; • Drafting of a safety culture improvement matrix (SCIM); • Trialing the SCIM with a group of NII inspectors; • Concluding whether the SCIM is useful and, after responding to trial results, producing a final version for use by inspectors. <p>The review of previous research and publications, has been used to answer the following questions:</p> <ul style="list-style-type: none"> • Do the nine elements in the Business Excellence Model capture the critical safety culture factors? • Do the statements contained in the Business Improvement Matrix address, at a micro level, the key safety culture sub-factors? • What are the advantages and disadvantages of delineating safety culture in this way? <p>We have used the ACSNI report on Organising for Safety (HSC, 1993) as a starting point of the review as it is based on a comprehensive review of safety culture research completed in the period up to 1993. We then identify and summarise research completed since the publication of the ACSNI report. The more recent work is used to check whether the view of safety culture has changed or the weights attached to various elements have altered, due to either new findings or changes in management structures in the nuclear sector, such as contractorisation.</p> <p>In addition, the study examines:</p> <ul style="list-style-type: none"> • The extent to which it is valid to read across from an assessment of the quality of business management to the quality of safety management, and; • The conditions under which it is likely that there will be a congruent style of business and health and safety management. <p>The goal here is to examine whether it is “safe” to read across from one area of management performance to another.</p> <p>Findings from the literature review</p> <p>There is a broad consensus amongst earlier models that the following factors are important:</p> <p>A. Commitment of the organisation, particularly senior management, to the</p>

achievement of a high standard of safety, and the demonstration of this commitment through communications, consistent decision making, reward and approval systems, allocation of resources training, a caring management attitude etc.

- B. An effective process of communication between all parts of the organisation, based on trust, openness and mutual respect.
- C. Communication and maintenance of a shared view of risks and standards of acceptable behaviour.
- D. Open-minded learning from experience.
- E. Ownership and acceptance of the need for health and safety controls, typically requiring a participative approach to the development of control and a co-operative non-confrontational approach to securing adherence to agreed procedures and practices.

It is also broadly agreed that it is necessary to reinforce a culture over time by assuring consistent management response to incidents, feedback on unsafe/unacceptable behaviours and consistent decisions on resourcing. Attitudes are, in part, a product of an individual's interpretation of what other people expect of them. Therefore, if individuals perceive that there has been an implicit shift in expectations, perhaps due to changes in (say) management response to incidents, they may believe that the expected standard of behaviour has changed regardless of stated policy.

There are four areas where models either differ or where new research provides a different perspective;

- A. Differences in the emphasis, content and philosophy of earlier models of safety culture.

In particular:

- Many models recommend a participative approach to the development of a safety culture, involving staff in the identification of issues and development of initiatives. However, some models, especially the INSAG-4 model, places greater emphasis on the role of management in defining the required norms and thereafter securing acceptance of these norms, viewing the development of a safety culture as a "top-down" process.
- The ACSNI and some other studies appear to presume that an organisation will possess a valid view of what constitutes "strong safety commitment" and that such commitment can be assumed to apply equally to all areas of health and safety performance. There is also something of a presumption that once a set of "good" norms and beliefs have been defined they remain unchanged thereafter, with the only remaining task being the maintenance of these norms. It could be argued that the ACSNI model focuses on internal processes and overlooks the issue of who/how safety norms are formulated and reviewed. This stands in contrast to the NUREG work that places emphasis on external reference points.

Indeed, recent studies suggest that safety culture is a dynamic entity which may need to change due to internal and/or external events. In this context an organisation must be adaptive and flexible, displaying an ability to recognise the need to change norms and attitudes.

- B. Developmental versus descriptive models.

The earlier models and research sought to describe the features of an effective

safety culture and the attributes of organisations which exhibit effective cultures, rather than trying to explain how an organisation can develop such a culture.

C. Recent changes in organisation and management.

The early models of safety culture were developed in the 1980's and early 1990's before research had been completed on the ramifications of "new ways of working", delayering, downsizing and outsourcing. There has been a shift from larger hierarchical organisations and traditional command and control styles of management towards more decentralised, devolved styles of management and much greater use of contractors. These changes not only create new issues, such as how the use of contractors affects safety culture, but also raise questions about the continued validity of some of the earlier recommendations on safety culture.

D. Recent research on safety culture.

There has been some new research on safety culture that allows some further elaboration of the earlier models.

A development model of safety culture

The SCIM needs to fulfil a number of aims, including:

- Allow users to recognise what is required to improve safety culture.
- Be applied via self-assessment and/or observations of an organisation.
- It must be theoretically sound.
- It must be applicable to a range of organisational types.
- Be sufficiently detailed to allow specific areas of improvement to be pinpointed.
- The model must be progressive, directing progressive improvements.

The review indicates that a developmental model of safety culture should comprise the following main parts, as illustrated in Figure E.1:

- A. A means of defining health and safety cultural ideology, norms and goals which takes account of the opinions, perceptions and expectations of internal and external stakeholders.
- B. A means of communicating and demonstrating the organisation's commitment to these goals and norms, and maintaining this sense of commitment over time.
- C. Processes to facilitate the achievement of stated goals and norms, such as participation, empowerment, staff-management-contractor communications, training, proper resource management etc. These processes must allow for the impact of organisational structure, outsourcing and new ways of working on the means by which an effective culture is developed.
- D. A means of checking that the organisation's cultural goals and norms have been effectively achieved or at least that the behaviour of people is consistent with these norms and/or within the boundaries of agreed acceptable behaviour.
- E. A means of tracking the opinions, perceptions and expectations of stakeholders and assessing whether the organisation's norms need to be adjusted to reflect significant changes in these.

Comparison of BEM with models of safety culture

The correspondence of the BEM, as shown in Figure E.2, with models of safety

culture has been assessed by:

- A high level comparison of the main elements of the BEM and the development safety culture model shown in Figure E.1;
- Comparing the questions and issues addressed by BEM and the earlier safety culture models.
- A comparison of the compatibility of the sub-division and ordering of questions, and;
- Back-fitting BEM to the composite safety culture model to test their compatibility.

In addition, the implications of research into the congruency of attitudes for the validity of reading across from one area of performance to another have been examined.

Key points of comparison:

- The earlier safety culture models do not pose questions on “results”.
- The majority of matches from earlier models are in the area of leadership, policy and strategy and people management.
- The safety culture models pose questions in areas which are not explicitly noted in BEM such as hazard management.

These differences reflect the origins of the models, namely that:

- the BEM reflects a view that quality and business excellence must be driven by an outward looking attitude, comparing performance with competitors and assessing customer satisfaction;
- the early safety culture models focus on the internal processes of leadership and communication, reflecting the focus of early research in the area of safety culture, and;
- the BEM covers the more formal aspects of resource management and management processes. These processes are generally regarded to fall into the area of safety management systems rather than safety culture.

It is suggested here that the lack of matches to the “results” part of the BEM reflects limitations of the earlier safety culture models rather than a failing on the part of the BEM. This conclusion, in combination with the finding that the first 3 elements of the BEM do match well with the safety culture models, suggests that the BEM may be a reasonable “vehicle” for framing a developmental model of safety culture.

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