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Challenges to be met

The focus of Learnsafe is senior managers at nuclear power plants and power utilities who are responsible for strategic choice and resource allocation. This focus was selected with the understanding that their decisions, approaches and attitudes have an important influence on both the safety and economy of the nuclear power plants. The challenge for the project is to create an understanding of how organisational structures and work practices contribute to safety and efficiency for the nuclear power plants. Building on such an understanding it is possible to create methods that plants can use to assess their performance and suggest ways to improve work processes. These challenges can only be met in a multi-disciplinary research project, which combines a thorough understanding of the nuclear industry with deep insights from psychology, sociology and the management sciences.

OBJECTIVES

The main objective of the Learnsafe project is to create methods and tools for supporting processes of organisational learning at nuclear power plants. Organisational learning has become increasingly important for the nuclear industry in its adaptation to changes in the political and economic environment, changing regulatory requirements, a changing workforce, changing technology in the plants, and changing organisation of nuclear power plants and power utilities. The danger during a rapid process of change is that minor problems may trigger a chain of events leading to a degradation of safety and/or diminishing political and public trust in the safety standards of a particular nuclear power plant, utility or corporation.

A general objective of the project has been to create a better understanding of how issues connected to organisation and management can influence safety and efficiency of nuclear power plants long term.

Achievements

The Learnsafe project was set up in two major phases of empirical investigations and theoretical considerations. The first phase placed a focus on management of change and the second on organisational learning. During the first phase of the project senior management views related to the current challenges facing nuclear power plants were collected and analysed. Data was collected from ten nuclear power plants in five European countries and one international organisation. The analysed data was used as a basis to identify and assess strategies, plans and actions used for coping with the challenges.

The second phase of Learnsafe focuses on the features and attributes of learning organisations. The questions addressed in this phase are aimed at identifying the characteristics of learning organisations and the most common hindrances to organisational learning. Findings include descriptive characterisations of organisational learning together with methods and tools that can be used by the participating nuclear power plants to assess and improve their work practices. Learnsafe has also collected and documented good practice in safety management used at the participating nuclear power plants. At the conclusion of the research organisational safety principles will be formulated.

A safety problem at a nuclear power plant, real or perceived, is always a risk to the business of the utility or corporation. In a serious case there would be regulatory intervention with the threat of licence revocation, loss of production income, remedial investment cost and potential or actual damage to their reputation, all on a massive scale. A serious incident at a European nuclear power plant would affect the whole nuclear sector in Europe and beyond. The way senior managers view and approach this risk is one of the main issues that have been addressed in the empirical part of the project.

One feature of Learnsafe has been its close interaction between researchers and senior managers in addressing issues of organisation and management that are important for safety and efficiency.

This has been further facilitated by various spin-off tasks in which participating nuclear power plants, with the support of researchers, have expanded some of the early results from the project to answer interesting questions of their own. Several spin-off tasks have been completed and discussed in small workshops at the nuclear power plants.

The dissemination of the project's final results will start with the final seminar to be held 28-29 April 2004 in Finland. Dissemination is also expected to take part through WANO, which has been one of the project partners. Dissemination of the project's preliminary findings has been facilitated by two websites; one has been intended for Learnsafe partners only and the other is open to the research community. During the project the open website http://www.vtt.fi/virtual/learnsafe/ has been considerably visited. Learnsafe has been presented at several conferences.

Preliminary results from Learnsafe have been shown to be of interest for other safety critical industries. A better understanding of systemic issues connected to human error and organisational deficiencies can have a large influence on safety and economic competitiveness on a broad scale. These issues will be crucial in achieving a successful lifetime management of existing nuclear installations.

Partnership

The project has brought together a unique blend of researchers and practitioners. The involvement of nuclear power plants in five European countries has made it possible to address similarities and differences in organisational structure and work practices. The partnership has been close and has had the benefit of a very open internal communication.

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