

Invited paper:

Towards a nuclear “European Higher Education Area”

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ABSTRACT

A European strategy for nuclear knowledge management is discussed, based on the “*knowledge triangle*” (i.e. *research, education and innovation*), proposed by Science and Research Commissioner, Janez Potočnik. The emphasis is on the component “education”, which rests actually on 3 principles: common qualification (delivery of a quality label), mutual recognition (Bologna 1999 mechanisms) and mobility of teachers and students (practical instruments at European level). Some achievements are presented, such as the degree “*European Master of Science in Nuclear Engineering*”, developed by the legal Association ENEN, and similar initiatives related to waste management and radiation protection. Finally, conclusions are drawn regarding achievements and prospects of Euratom research and training.

Key Words: Euratom, knowledge management, research, education and innovation

Information Management and Collaboration Support within SARNET

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Abstract

The success of the Sarnet project depends to a high degree on the collaboration of the 52 partner organizations, with over 200 participants. As the organizations are spread throughout Europe, an efficient way had to be provided to enable information to be shared between all participants, and to support communication between them. For these tasks, a so-called “Advanced Communication Tool (ACT)” had to be developed.

The design of the technological basis for information management and collaboration started from a survey of existing solutions. Today, portal solutions are available for this purpose. In general, they combine document management facilities with collaboration features. The survey indicated that at this moment in time, a solution based on a commercial software was best suited for the purposes of Sarnet. The features of this solution, particularly with respect to document management and collaboration, will be described in more detail.

In a next step, the ACT was customized to fulfil the needs information management needs in the project. A natural way of considering the ACT consisted in structuring the project in topics and work packages as stated in the Description of Work document. This led to a design on two levels: a first level covers general information on the project and important topics. This level is managed by the project leader and by topical coordinators. On a second level, team sites are established for cooperation between partners in work packages. This level contains collaboration feature, and is managed by the work package leaders. Access to the team sites may be restricted to account for possible restrictions on the information handled in the work package. This basic two-level structure is supported by navigation and user help features.

A survey on the usability of the ACT was conducted; the results of the survey will be discussed.

Data Preservation and Dissemination: a Scientific and Professional Obligation

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The completion of an experimental research programme should always leave the results of the activity in a form that is complete, easily accessible and updatable with new information. Although this statement seems quite logical and trivial at the beginning of a project, this is very often not the case in many examples.

At the start of the project considerable resources are devoted to the project development and the project execution. The storage and maintenance of experimental data and all the supporting information is seen as a temporary activity to allow all the interested persons to access the newly produced information. When a project is at its completion no more resources are available to collect all the produced information in a systematic and complete way and the researchers are generally interested in new activities. The consequence is that after some years it becomes difficult to retrieve all the information which should allow other users to fully benefit of the research results.

The collection and storage of the projects information should be since the beginning performed taking in mind the final storage and ease retrieval. The knowledge management should be one of the key points of the project and not elaborated and its completion.

Today various solutions have been developed which allow to collect and manage scientific information. The paper describes the experience of the SARNET network in the creation of a scientific network for the storage of experimental data related to severe accident research.

Education and Training Activities in SARNET

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An important component of the European network project SARNET are the Education and Training Activities. The principal objective of these activities is the spreading of the knowledge and excellence achieved already or in the process of achievement. Thus, these activities are also nicknamed as 'Excellence-Spreading'.

The Education and Training Activities are divided into the following work items: (1) develop courses on severe accident phenomenology (SAP) and the PSA, (2) develop a text book on SAP and (3) develop a mobility program for students, researchers and operators for training. The courses are focused on providing knowledge and insight to the students and researchers so that they understand how to perform severe accident prevention, mitigation and management. In this respect, the text book will be focused to document the most pertinent and important knowledge base on severe accidents, accumulated so far, in the form of a consistent and logical education vehicle for students and researchers. It will not be a source book listing and describing all the research results on severe accidents obtained so far. The book will describe the important 'state of art' models for the severe accident phenomena. The mobility program is focused on training of students and researchers through their mobility to laboratories and Universities different from their own.

All of the above items in the Excellence-Spreading work have been initiated. A one week course on SAP will be held on January 9, 2006 in the Cadarache laboratory of CEA. The text book has been outlined and writing of the text has started. The book will have several authors who are experts in various areas of SAP. Prof. Sehgal will be the editor. The first draft of the book should be completed by end of 2006. the mobility programme started with some students going to other laboratories and Universities in summer of 2005. Some researchers are currently in the process of getting trained in severe accident research. The main trend observed is that students and researchers from Eastern Europe are choosing to go the laboratories and Universities in Western Europe. The typical period for students is 3 months, however, the researchers' time periods have extended from 3 months to 1 year. We expect that this activity will grow much in the coming years.