

Status of Information and Knowledge Management in SARNET

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SUMMARY

The ACT as the basis for managing documents and information in SARNET, as well as providing a means of communication between partners in the project, has grown continuously with respect to the content available. The figures concerning the accesses to the ACT show that its utilization has reached a stable level. The work necessary to keep up a stable, reliable platform such as maintenance and user support are shortly described. As the end of the project comes into sight, efforts are under way to provide means of quickly gaining an overview on the main project results, their context and interrelations. This is accomplished by means of Concept Maps, of which draft examples are shown.

A. INTRODUCTION

The SARNET project relies heavily on the cooperation of about 50 organizations in a wide variety of research topics. In order to provide communication between partners and a common point where all documentation relevant to the project is accessible, an Advanced Communication Tool (ACT) has been established at the beginning of the project. The basic design of the ACT has been described in the previous ERMSAR meeting. Essentially, the ACT is structured according to the topics and work packages in SARNET. From each topic site, which summarizes the important information for this particular topic, for each work package the corresponding team site may be accessed, where members of the team may cooperate. The ACT is enhanced by specific sites, e.g. a site containing reference information such as a list of partner organizations and participants, base documents, deliverables etc.

After setup of the ACT, the feedback from users which was collected in a survey in 2005 was utilized in order to correct errors and enhance the functionality of the site. Since end of 2005, the ACT is rather stable, with some minor amendments, but no major design changes. The tasks which were performed since then have concentrated mainly on four categories:

- Recording the main ACT performance indicators
- Maintaining the ACT
- Supporting Users
- Structuring and mapping the SARNET contents
- Setting up and maintaining the SARNET Public Website (<http://www.sar-net.org>)

B. ACT PERFORMANCE INDICATORS

In order to assess the usage of and the items stored in the ACT, some indicators of the performance of the ACT are recorded monthly. Figure 1 shows the statistics over the SARNET lifetime. The indicators are the number of documents, number of items (which includes documents but also contains all entries in different lists, such as announcements, events etc.), the number of users accesses, and the number of different users accessing the ACT. The figure shows a clear, steady growth of the number of items and of the documents (document numbers were recorded only later in the project); in particular, 2718 documents are currently stored in the ACT. User accesses tend to vary according to the particular time in year (holidays, SARNET events ...), but in general have consolidated around 2300 accesses per month. The number of users on the ACT is quite stable around 130 different users.

Overall, the figures show a continuous use of the ACT, with steadily growing information items and documents.

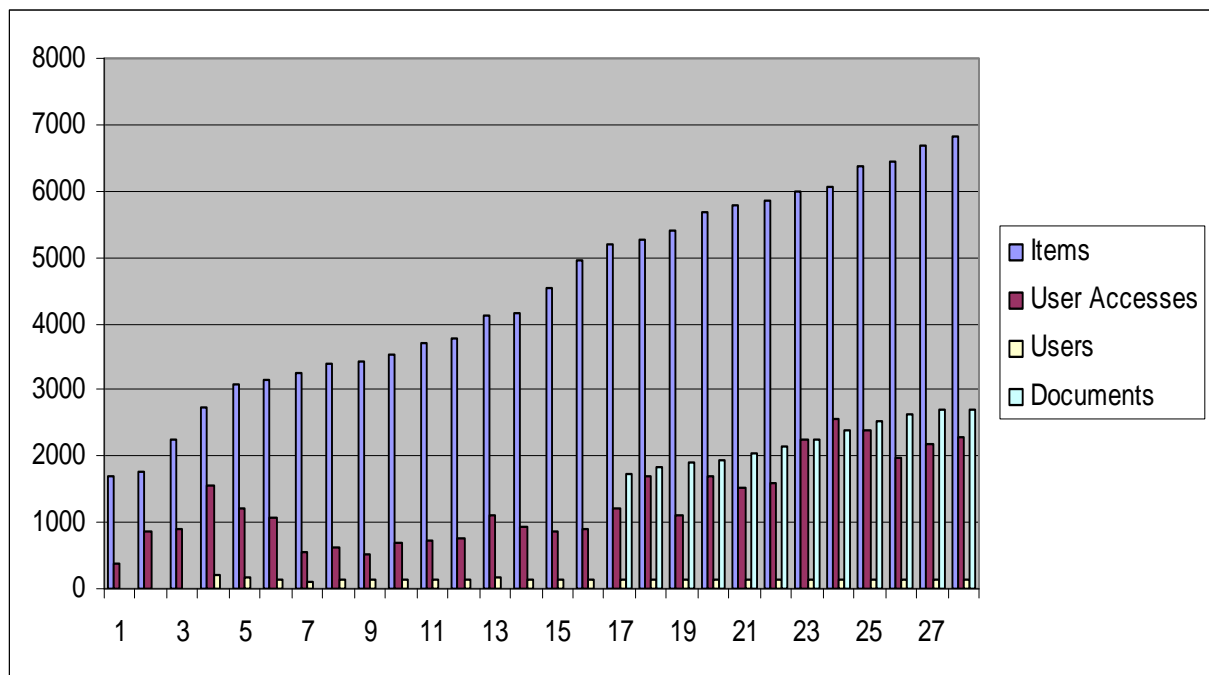


Fig.1: Performance Indicators of ACT

C. MAINTENANCE

The maintenance of the ACT and the Public Web Site concentrated on keeping the networking, hard- and software in adequate shape. Regularly, server upgrades are performed, particularly with respect to the security of the system, and backups are automatically stored daily. The software had to be upgraded by one Service Pack.

As new users join SARNET, they have to be introduced into the system, and provided with access rights. This task is performed by a user administration local to the system, providing user ID's and passwords. In addition, a participants list is administrated by hand, containing information such as affiliation, address, telephone and fax.

The ACT and the Public Web Site have operated up to now without any troubles from hardware, network or software.

D. USER SUPPORT

In the initial phase of the ACT, the number of users requesting support and help from the ACT administrators was considerable. This certainly is due to the fact that the software platform of the ACT, Microsoft's Sharepoint Portal Server, had some features regarding document management and collaboration which users were not accustomed to. The questions regarded mainly storing and retrieving of documents, and the rights management. In the meantime, support requests have strongly decreased, as users had received support and answers to their initial questions. Also, users have in general grown more accustomed to portal tools like Sharepoint. Nowadays, support is almost entirely restricted to topic or work package leaders, who are administrators of their sites and thus have to fulfil tasks of organization and administration which exceed the ones of the average SARNET user.

Feedback from users indicates that the navigation of the ACT should be improved in order to find important documentation with relevance to a given topic. This task will be addressed in the next section on knowledge and information mapping, which also will provide help in navigating the content stored in the ACT.

E. STRUCTURING AND MAPPING SARNET CONTENTS

The SARNET activities cover a variety of topics. Usually, participants are experts in one or a few of the topics; consequently, they have a good knowledge of the structuring and the contents of their topics. Other topics however are not so clearly delineated; a quick view on the most important and relevant topics and their interrelations is not easy to gain.

Another aspect consists in considering the time after the SARNET project has ended. A knowledge map indicating all major aspects of the project would be very desirable to gain a quick overview on the project's achievements. Such maps may be even useful when applied outside the context of the ACT, e.g. in the public web site. This would require that some of

the “internal” links to the ACT must be restructured to point to publicly available documents or to be excluded from access, but should not be difficult to achieve.

A third point is the navigation in the ACT. The organization of the ACT according to topics and work packages fits the need to store documents, but not necessarily the navigation requirements of being quickly guided to the information requested.

The building of knowledge maps relies on methods to represent knowledge. Knowledge representation is an area which is drawing increasingly attention, since much of the actual attempts towards improving the internet are based on it (e.g. the Semantic Web). The methods for representing knowledge range from rather informal ones such as topic or concept maps, to formalized representations (e.g. ontologies), which support reasoning on a given knowledge domain. For the purposes of SARNET, a rather informal method is adequate, and concept maps have been chosen to represent the knowledge in this area. A good tool for building concept maps is the CMapTools developed by the Institute for Human and Machine Cognition (IHMC), an institute of the West Florida University. The tool is easy to understand and to use, offering simple means to create concepts and the relations interconnecting these concepts, and associating resources to concepts, and is freely available on the internet.

Up to now, drafts have been created for the topics ASTEC and CORIUM, and an initial map depicting the main parts of SARNET (figure 2).

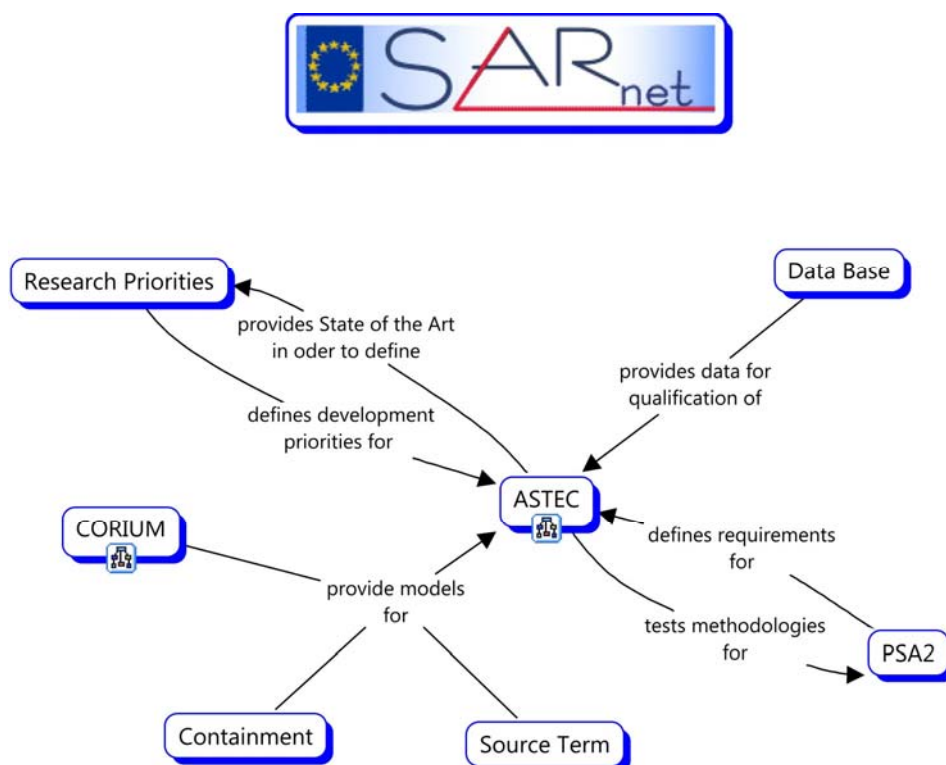


Fig. 2: The main concepts of the SARNET project and their interrelations

In the figure, the relations between the main aspects of the project are made visible. If resources are associated to the concepts, they are shown as an icon on the base line of the concept's contour. Resources may be of any kind, e.g. text, Office-Documents such as Excel, Word, Powerpoint, pdf-files, images, video clips and other. In figure one, the icon on ASTEC and CORIUM indicates that there is an attached resource, in this case another concept map below with more information on the subject.

Clicking on one of these icons leads to the specific concept maps for this topic (figures 3 and 4). Looking in more detail at figure 3, the main structure of the ASTEC topic in the SARNET project is quickly made out: it consists of three main subtopics (RAB, USTIA, PHYMA). The relations of the subtopics to the main ASTEC topic are described in the text of the relations. Each subtopic shows the main activities, which may lead to underlying maps with more information (e.g. the reactor types under RAB). However, other resources may be associated with a concept; these resources are listed whenever the icon on the concept's outline is clicked. When an item in the list is clicked, it will be opened in its tool (e.g. Acrobat Reader for pdf's).

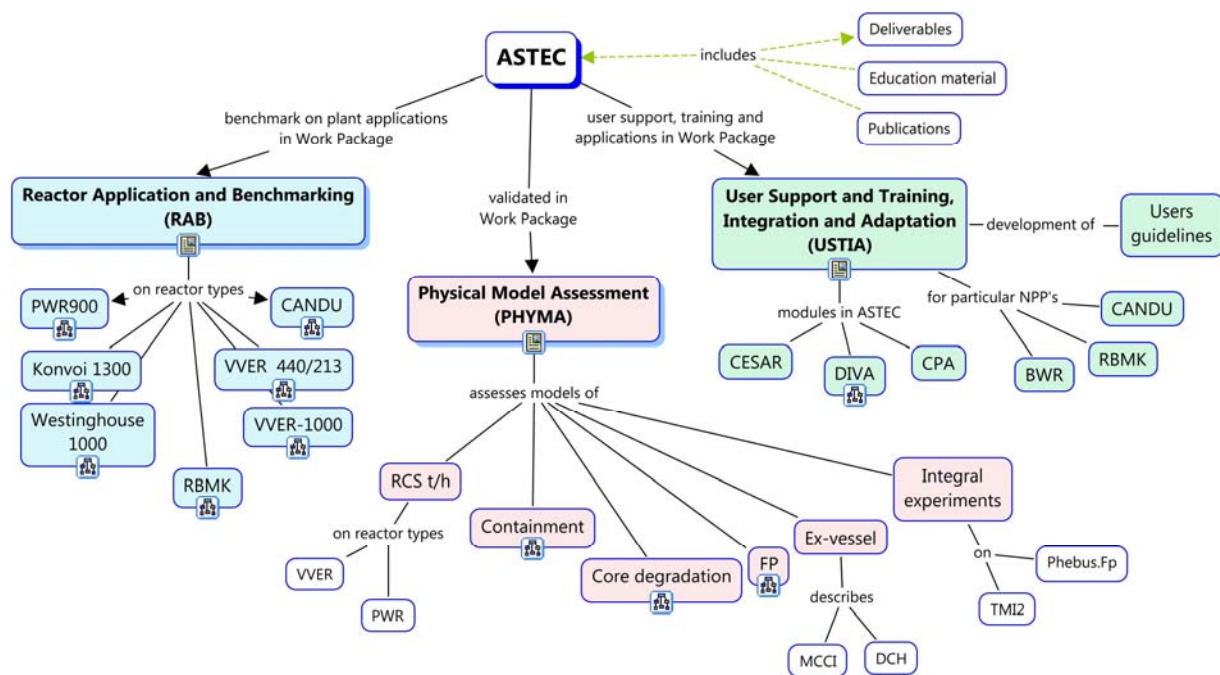


Fig 3: The ASTEC First Level Concept Map

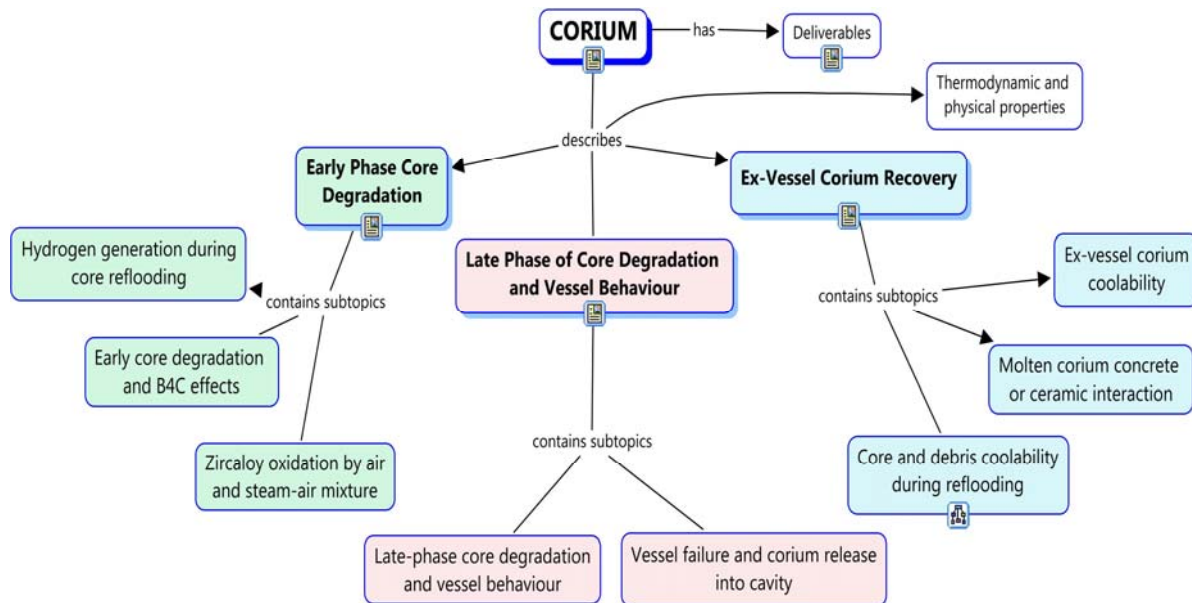


Fig. 4: The CORIUM First Level Concept Map

The task of building the maps has been performed by the work package leaders, with support from the ACT administrators, consisting mainly in a short introduction into the capabilities and the handling of the CMapTools. In order to complete the mapping, the other topics will be mapped in near future. The completed maps may be exported into html, and published on the ACT (or in future possibly on the public web site). The maps then will provide simultaneously an immediate overview of the relevant concepts in each topic, and a navigation help to support users in retrieving information of interest.

G. THE PUBLIC WEB SITE

The web site is the point of reference for the broad public for information on the activities in SARNET (<http://www.sar-net.org>). The review of the SARNET project by the Commission indicated that more emphasis should be put on the public web site, particularly in view of spreading the knowledge about the project and its main achievements. With these remarks in mind, the initial layout of the site has been redesigned in the beginning of this year in order to provide a cleaner and more informative home page. Towards the end of the project, increased efforts will be placed on publishing important information, in particular the results obtained in project, on the public web site.

The site follows a layout which is well established. On the top, it provides a menu bar linking to the organisation of the SARNET Networks, announcement of events (such as this one, ERMSAR 2007), a list of partner organizations, reference documents, links and contact information. The menu on the left of a page leads to subchapters, e.g. the scope, activities, expected results, and societal impact of the project. The design was realized by a content

management system, which also offers a connector to the Sharepoint Portal, in order to facilitate managing and transporting documents from the ACT to the public web site.

E. CONCLUSIONS

The ACT as a document and information management as well as a collaboration platform for the SARNET partners is in continuous and stable utilization. The work needed to keep the platform in good shape for reliable operation throughout the project's lifetime and further on, such as maintenance and user support, has been shortly described. The efforts for providing an overview of the most important project activities and results, particularly after the project has finished, and thereby also enhancing navigation have resulted in concept maps which have been presented as first drafts.