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Knowledge Enabled Engineering- Knowledge Lifecycle Approach

Christian Johansson, Andreas Larsson & Tobias Larsson

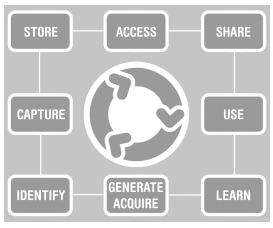
Avd. för Funktionell Produktutveckling, Luleå tekniska universitet
Christian.Johansson@ltu.se

VIVACE[1] is an EC-funded integrated project that addresses aeronautics´ vision for the year 2020[2]. More specifically VIVACE intends to achieve cost reduction and time reduction in new aircraft development. VIVACE consists of three sub-projects where the two first extracts problems from aircraft and engine industries respectively. The third sub-project collects these problems and develops advanced capabilities (methods, tools, guidelines, etc.).

The 'Knowledge Enabled Engineering' (KEE) work package in sub-project three focuses issues on concerns associated with knowledge within an extended enterprise. This includes both Knowledge Based Engineering (KBE) issues, but also more general questions about engineering knowledge. The work starts in analysing requirements from use cases via finding existing solutions to conducting tests in the form of pilots. Finally the knowledge acquired is disseminated to both the aeronautics community and also to a wider audience in Europe and the rest of the world.

One result from the work in KEE is the Knowledge Lifecycle (see figure 37). This is a method for matching requirements found in use cases to knowledge activities. The circular arrow shows that the process is not sequential by stating a start and end, the idea is that you can start anywhere in the Knowledge Lifecycle. Below follows a more detailed description of the phases.

Knowledge in an organisation can be codified and put in its knowledge base in varying formats (hypertext documents, email, multimedia, database elements, etc.) Seeking access to information and knowledge from various sources (computer, colleagues, documents, libraries) in the organisation. Both tacit and explicit knowledge can be shared from one individual to another. Barriers include competition, knowledge of value, different disciplines and languages, what to share and who to share with. What knowledge should be used and what should not be used? Users can retrieve knowledge in the organisational memory and re-use it whenever they need. This is both an individual and organisational process. There is a feedback loop for learning. Creating new knowledge (within the organisation) to provide new skills, ideas and improved organizational processes and competencies. Acquiring knowledge from outside the organisation through the engagement of experts, access to documented knowledge and the participation in knowledge-related events and process. Visualising the organisation´s knowledge assets; these are, for example, an employee´s skills, networks of experts, organisational competencies, but also more explicit knowledge sources such as data and documents. Documenting or codifying the knowledge that has been identified or created. This can include reports, white papers, databases, posters, internal publications and other mediums.



Figur 37: *The knowledge Lifecycle.*

[1]VIVACE Project Public Website, www.vivaceproject.com, visited 2007-02-28

[2]Advisory Council for Aeronautics Research in Europe (ACARE): Strategic Research Agenda, www.acare4europe.com, visited 2007-02-28