

The IDEALS MTS Arriving on Schedule

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The IDEALS MTS is the durably visible result of the IDEALS project (ET1012) realized in the Telematics Applications Program of the EU from January 1996 to June 1998. The results of this project consisted of:

- a platform for computer-supported learning, education, and training
- a suite of courseware
- a set of documentations

The project was carried out by a large, cross-European consortium in which the Graphics Interactive Systems Group of the Darmstadt University of Technology (TUD-GRIS) has been one of the partners and has been involved in both the implementation of the platform and the development of the courseware.

At the end of the project, the software sources of the platform remained at the disposal (for non-commercial use only) of those four partners who carried out its

implementation (Fraunhofer IGD, TUD-GRIS and ZGDV, Germany, and IST, Portugal).

The platform software and the courseware have been further advanced at TUD-GRIS to the present time (resulting in the current MTS version 2.3.3) while the Fraunhofer IGD and the ZGDV re-implemented parts of the system towards an MTS version 3.

Here, the story of the IDEALS MTS with its current version 2.3.3 is told in light of the international initiatives in the field of IT-supported learning, education, and training.

Constitutive features of the IDEALS MTS are:

- consequent support of open learning, teaching, and production communities by
 - providing consequently modular courseware
 - providing appropriate courseware layers for teachers, instructors, and knowledge experts alike

- providing consequent integration of metadata for all courseware layers
- providing URI-based and retrieval-task based courseware linkages
- providing courseware lifecycle management including quality assurance
- providing consequent client-server based system interoperation
- providing multi-provider capability with interoperable courseware subdomains
- thorough support of the learning loop by
 - providing pedagogical strategy specification in courseware format
 - providing automatic and context-based learner assessment
 - through competency-based learner histories
 - through competency-based courseware metadata.

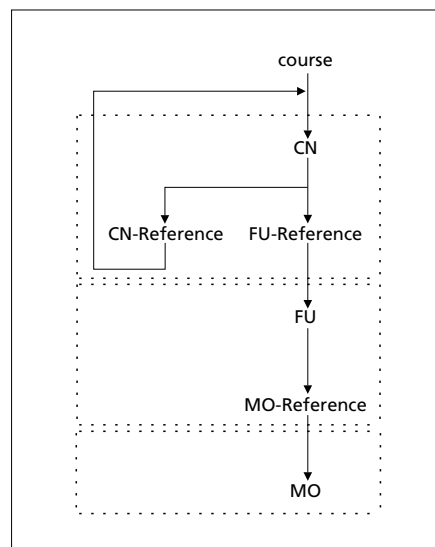
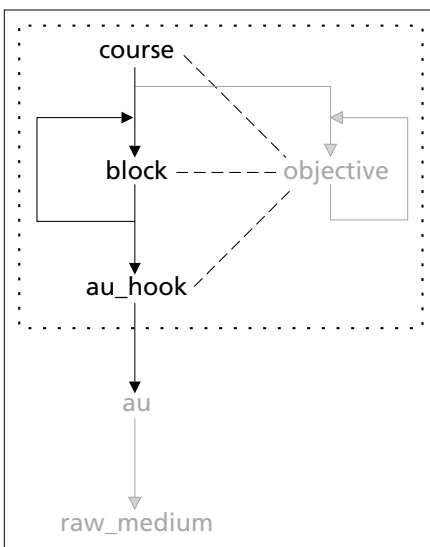


Figure 1: SCORM 1.0 (left) versus IDEALS MTS (right) Courseware Material Layers

The IDEALS MTS has not been picked up by a larger user community yet. One of the suspected reasons for this is that it might be ahead of its time. What is the current state of the art concerning the involved technology?

Looking at the recent international initiatives that aim at the standardization of IT-supported learning, education, and training, it becomes obvious that the concept of the IDEALS MTS is in line with and has been anticipating them. It appears that the IDEALS MTS has arrived too early to be widely recognized and understood.

The most interesting initiatives regarding standardization of IT-supported learning, education, and training are currently domi-

nated by the US. There is a very strong stress on making these new technologies work soon and on a large scale. The US Department of Defense is particularly active in this field, as it has the same needs for corporate training as a huge industrial undertaking. It is not surprising that the most application-oriented initiatives arise from here.

There are two closely cooperating initiatives to be referred to in this application-centered field:

- AICC (Aviation Industry CBT Committee, founded in 1988 by an international group of airplane manufacturers, aviation trainers (military, commercial, and civilian), government/regulatory agencies, computer software vendors, and CBT courseware developers)
- ADL (Advanced Distributed Learning, founded in 1997 by the Department of Defense and the White House Office of Science and Technology Policy).

The current (year 2000) outcome of these two initiatives is the SCORM (Sharable Courseware Object Reference Model), specifying a format for courseware that aims at courseware interchange among different Learning Management Systems (LMS). In this model, the courseware material layers of the IDEALS MTS (Course Nodes/Function Units/Material Objects) are identically found (Blocks/Assignable Units/Raw Media).

The architectures are different insofar as the blocks of the SCORM 1.0 currently do not allow much learner guidance while the CNs (Course Nodes) of the MTS are specifying learner guidance as scripts (that are interpreted at session time). Further, the SCORM

1.0 ties up the modules of a complete course, while the MTS provides adaptive traversals of the courseware domain. While the SCORM 1.0 uses course-internal identifiers for referencing, the MTS uses URI-type references for all modules of all layers and moreover also allows referencing on a retrieval-task basis.

The next two referenced initiatives are focusing instead on specification and standardization in the field of IT-supported learning, education, and training and are intending to facilitate the harmonization and interoperation of learning environments:

- IMS Global Learning Consortium (Instructional Management Systems, founded 1997 as consortium of government organizations, over 1,600 colleges and universities, and 150 corporations)
- IEEE LTSC (Learning Technology Standards Committee, founded in December 1996).

The current (year 2000) outcome of these two initiatives are drafts of several specifications regarding the learning technology system architecture in general, and learning object metadata, learner modeling, content packaging, and many other topics specifically. Some of the drafts are currently near to ballot.

In the meetings of these initiatives, the strategy of stepping forward in this field is discussed. It is very encouraging to see that the consequently modular courseware model of the IDEALS MTS and the competency-based concept of learner histories are on the task list of these initiatives.

It appears that the IDEALS MTS has really been ahead of the international state of the art. But

this has changed recently! It is now the right time to overcome implementation-specific drawbacks of the MTS, to go Open Source, and to synchronize in detail with the international specifications and upcoming standards in this field. This is currently done by the GRIS group through active participation in the related international initiatives and communities, like the IEEE LTSC, the ISO/IEC JTC1 SC36 (Information Technology for Learning, Education, and Training), of the European PROMETEUS initiative (PROMoting Multimedia access to Education and Training in European Society) and the CEN/ISSS WS-LT (Learning Technologies Workshop).

References:

- R. Lindner et al.: Deliverable D8.1 »Description of the Courseware Subdomain for Computer Graphics Fundamentals including a Courseware Style Guide and the User Guide for Courseware Design« (<http://www.igd.fhg.de/~lindner/D-8.1/D8-1-upg.zip>), 30 Jun 1997
- Philip Dodds, Editor: » Sharable Courseware Object Reference Model SCORM, Version 1.0« (http://www.adlnet.org/Scorm/docs/SCORM_2.zip), 31 Jan 2000

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