**Education & Culture**

## Socrates

### Minerva – Socrates Project
### 117310-CP-2004-1-GR-MINERVA-M
### October 2004 – October 2006

In 1841 the innovation of cutting large slates transformed educational practices from individual to group experiences through the introduction of the chalkboard. Today the situation is quite similar: engineering students are relying on PC-based individual work. Technologically and pedagogically state of the art distance teaching programs aim, however, at collaborative work through asynchronous teaching, periodic meetings for maintaining a social dimension, and often Audio-Video and Data (AVD) communications. Current AVD systems force teachers to manipulate complex equipment while teaching and mostly exchange freeze-frames, as opposed to dynamic data, due to bandwidth and image quality limitations. To deploy AVD communications in engineering education at a large scale, new didactical approaches are required.

### AvdMerge

AVD-Merge proposes the development of new pedagogical frameworks, a knowledge base of organized expert and collective end user knowledge on best practices, technical advise, and didactical methodologies, and eLearning programs targeting teaching staff on the effective integration of AVD communication in the teaching process. The project results will benefit both teachers and students, who are the ultimate recipients of effective teaching. After project completion, the knowledge base will be partly sustained by a network of experts, teachers, and end users who will provide value-adding content through the provided services.

## Architecture

An overview of the proposed system architecture is presented in the figure below, which displays an AvdMerge Knowledge Management node. The figure displays the Knowledge Management Infrastructure, the information (content and knowledge) management middleware, the services provided to users, and the external content that is published through the system.
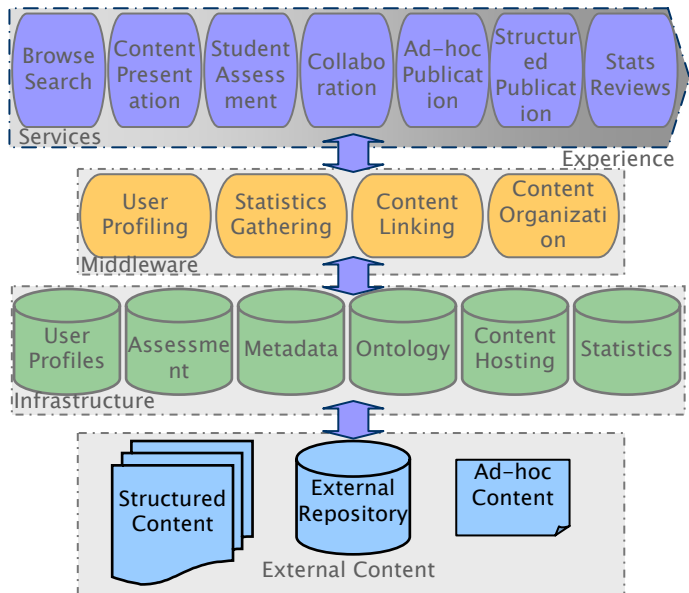


## Services for

❑ Information Consumers
❑ Information Producers
❑ Trainer Trainers
❑ Administrators

## Implementation

The system is implemented as a 3-tier web-based application. The back end (or server side) of the architecture is a commercial relational database (Oracle 8i) that serves as metadata and statistics storage. Metadata information is published on the web through a commercial Application Server (Oracle Application Server 9i). The middle tier is developed as servlets and JAVA classes. The front end (or client side) is developed as JSP applications.

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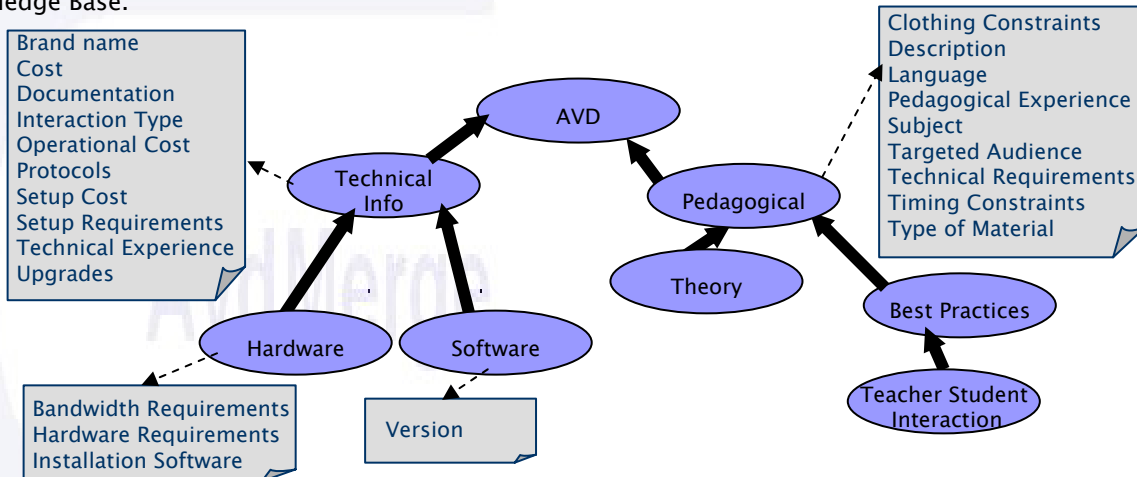
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## Ontology

The design of the AV/Data communication information space ontology is achieved through Protégé, an open source tool developed by Stanford University. The tool supports all functions required for the design of an ontology tree, its communication among project partners, and its display on the web. The consortium partners developed agents for the importing of the Protégé developed ontology into the AvdMerge system Knowledge Base.

Brand name
Cost
Documentation
Interaction Type
Operational Cost
Protocols
Setup Cost
Setup Requirements
Technical Experience
Upgrades

AVD

Technical Info

Pedagogical

Clothing Constraints
Description
Language
Pedagogical Experience
Subject
Targeted Audience
Technical Requirements
Timing Constraints
Type of Material

Theory

Hardware

Software

Best Practices

Bandwidth Requirements
Hardware Requirements
Installation Software

Version

Teacher Student Interaction

## AvdMerge Services Description

### Services for Information Consumers
- Novice users
  - (Guided) information browsing
  - Information discovery
  - User profile management
- User profile management
  - Additional for advanced users
  - Information publication
  - On-line collaboration (e.g. forums)

### Services for Information producers
- Structured information publishers
  - On-line structured content authoring
  - Identification of related material for linking purposes
- Ad-hoc, informal information
  - Simple interfaces for the publication / sharing of experiences, common practices, informal information
  - Forums

### Services for Trainer Trainers
- On-line educational content delivery
- Student assessment tools
- Multilingual interfaces
- Collaboration tools

### Services for Administrators
- Repository management
- Content management
- Statistics gathering and analysis

## Partners

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