



Brussels, 1 October 1998
DG III/B2/AL/B3

M/280-EN

**Standardisation mandate addressed to CEN, CENELEC and ETSI in the field of
information and telecommunication technologies**

1. Title

Standardisation mandate to CEN, CENELEC and ETSI in the domain of "Learning and Training Technologies & Educational Multimedia Software".

2. Rationale

2.1 Introduction

Our society is undergoing a process of rapid change. The driver of this revolution is the growing use of information and communication technologies, the so-called Information Society. The consequence is that Europe runs the risk of a profound mismatch between the needs of society and the knowledge and experience of the current workforce. There are doubts about the capability of the education and training systems to generate the required intellectual and behavioural, as well as professional, competencies and aptitudes.

"Today the creation and dissemination of knowledge is of paramount importance. The Learning Society is now a reality. Information and Communication technologies (ICT) is having a profound impact on the way we live - including the way we learn."

ICT therefore has an essential role to play in European education where it can improve individual performance, enhance equality of opportunity and help combat social exclusion.¹

In addition it is largely accepted that:

Europe's education and training systems must draw upon the potential of new multimedia tools, thus giving citizens and pupils the skills they need to live and work in the information society. This also concerns people already on the job market through life-long learning. ICT has to be integrated into both public and private education and training systems, otherwise Europe will lack the most important factor sustaining competitiveness²

2.2 The European political environment

The White Paper on Education and Training “ Toward the Learning Society” emphasises the need to create, accumulate and validate knowledge in “knowledge resources centres”, to develop quality standards in education and training, to open up new methods of recognising and ascertaining skills beyond paper qualification; it highlights also the fact that “*education and training must draw on the new information and communication technologies and harness their full potential*”³.

The “ Educational Multimedia Task Force” promoted jointly by DG III, DG XII, DG XIII and DG XXII is launching some 40 projects to support the development of educational software from the applied research stage to the setting up of mechanisms to enhance and validate educational software and facilitate their dissemination. As part of them, the EUN project, comprising most Ministries of Education from Member States of the European Union will set up “a Network of school networks” throughout Europe. In the EU, schools are being connected to Internet with the objectives to communicate across borders not only with other schools but also with other sectors of society.

To reap the benefits of all these projects, a number of standardisation items must be tackled without delay.

The Information Society Forum has recently recommended that a particular industrial effort should be made in order to strengthen the EU industry commitment toward the research, development and commercialisation of these promising multimedia education and training technologies, and has furthermore advised about the need of simultaneously promoting standardisation in this field, so as to enable the emergence of a coherent market for seamless access to inter-operable education and training services.

3. Standardisation for education and training technologies

¹ European Round Table report “Investing in Knowledge” February 1997

² Recommendations adopted at the 9th of January 1997 meeting in Berlin

³ Towards the Learning Society p 32

The lack of standards is perceived as a major inhibitor to a large scale deployment of educational technologies, meeting the strong cost constraints faced by this sector. A wide range of standards ranging from those relating to the application platforms to be used, to those to be specified at the level of administrative records keeping, is needed. Although comprehensive standards addressing all the facets of education and training are probably today out of reach, targeted standards could prove extremely valuable and might be the pre-requisite for the effective implementation of new trans-European services for life-long learning. Examples of issues for standardisation are:

reusability of content and methods:High quality multimedia learning materials are expensive to produce. The possibility to exchange and reuse learning objects over Internet can therefore leverage the development and take-up of common learning components and systems. It will bring economies of scale needed to build affordable educational products. This raises a number of technical and methodological issues such as platform independent inter-operable applications, pedagogical material indexing, etc. For example, on the content side, it may cover simple elements such as text and images up to libraries of mathematical models for simulation purposes.

Multilinguality:Education is based on the mother language of the student. This should not prevent cross-border co-operation, especially if a multicultural environment is to be fostered. It is therefore of paramount importance to harmonise the approach to multilingual learning contents and services.

Compatibility and interoperability:In schools and training centres, a wide range of incompatible “legacy” equipment will continue to co-exist. Upward compatibility is a must, but also to some extent downward compatibility is required. Long lasting architecture based software solutions should be designed allowing upgrade ability of new developments on top of existing solutions. This approach should take into account or even be determined wherever necessary by industry standards evolution.

Assessment and learner model:The advanced concept of a “personal skills card” is a standardisation exercise in its own right, it is intimately linked with a number of interrelated concepts such as learner modelling, domain modelling and assessment.

4. Standardisation to stimulate innovation in education and training

It has been widely acknowledged that ICT should be market driven. However in the education world it is also acknowledged that the lack of standards create great difficulties, institutions are caught in proprietary solutions and experience severe difficulties in their attempts to work for a global and changing community. There is an inherent contradiction between the supply of proprietary solutions which is basically to offer advanced functionality and the mission of the institutions which is to offer wide access to overall learning services.

A comprehensive standardisation activity should help building consensus between education authorities and industry and therefore create new business opportunities in Europe.

5. The European and the international context

The European standardisation process, especially through the open workshop model has the potential to stimulate the industry and the education and training institutions involvement on the international standardisation arena. Currently, IEEE is sponsoring the development of a series of standards for computer based learning under the label P1484. In view of building of multimedia courseware, training information, services and tools on an individual component basis.

6. R&D projects involvement in pre-standardisation processes

Several European Commission DELTA projects funded under the 3rd Framework Programme had already worked on pre-standardisation activities. The most significant project was entitled CTA (Common Training Architecture). The project had taken a long term view of the requirements of the key players and had identified a framework for future work in this area but it focused essentially on training and not education specific issues. Several other projects contributed to developing and integrating components of this training architecture, namely MATHESIS to the Common User Interface and OSCAR to the Common Information Space; all these projects contributed to the “reference model”. These remarkable achievements are still valid and applicable so far.

Other important standardisation activities are currently carried out by several projects in the TELEMATICS APPLICATIONS programme (under the 4th Framework Programme.): ARIADNE is contributing to the definition of educational metadata while COAST and SERVIVE are contributing to computer simulation architecture for education. Several other projects have contributed to the definition of best practices in a wide range of learning environment. In the near future further research will be undertaken in the field of indexing pedagogical data, of structuring interactive multimedia contents, and on a range of standard procedures related to instructional management

It is the intention to continue this important work and to devote a substantial part of the resources from Key Action n° III (“Multimedia Content and Tools”) under the 5th Framework Programme to RTD efforts aimed at fostering the demonstration and deployment of multimedia systems and services for education and training.

7. Purpose of the mandate

7.1 description of the mandated work

The objective for this mandate is to initiate standardisation initiatives in support of the further development of the European “Learning Society”. Future European standardisation activities should therefore be undertaken in close co-operation with the European Education and Training constituencies. Future standardisation initiatives in the field of education and learning should foster the development of new technologies while taking into account the cultural diversity and the curricula of various European countries. In preparation of the future European standardisation work in this field, efficient working methods are to be established with the view to include all relevant players

Taking into account the global dimension of the Information Society, international liaison and co-operation with international standardisation organisations as well as with international industry for a consortia should be established

CEN, CENELEC and ETSI are invited to identify the needs for European standardisation initiatives in response to the policy papers: “White paper: Towards the learning Society” and the report of the task force : Educational Software and

multimedia. The standardization organizations shall undertake an evaluation and assessment of existing and developing standardisation and related activities at European and international level, both in formal standardisation bodies and industry consortia with a view to identify “gaps” and need for additional standardisation initiatives such as standards, specifications, agreements, workshops and MOU’s. On the basis of this analysis, an indicative workprogramme should be developed. The common workprogramme will be presented to the Commission who will seek SOGITS’ advice before taking any decision on the execution of the tasks referred to in the workprogramme.

8. Execution of the mandate

8.1 CEN/CENELEC/ETSI shall present to the Commission, within 3 months of the date of acceptance of this mandate, a report setting out the arrangements they have made for the preparation of the tasks described in 7.1

8.2 Within 12 months of acceptance of this mandate CEN/CENELEC/ETSI shall jointly present to the Commission the studies and reports identifying future standardisation requirements in support of the development of the European “Learning Society”.