Eindrapportage werkpakket 4
EML-standaardisatie
OTEC report series

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Eindrapportage werkpakket 4 EML-standaardisatie
Ik was daar in het bezige gezelschap van mensen, aangegord tot het verbouwen der samenleving, en ik zag hen doende, bouwmeesters, metselaars en timmerlieden, en boog het hoofd en zocht de fundamenten, nieuwsgierig en bezorgd; ik vond alleen mijn beide schoenen die daar eenzaam stonden ergens op aarde, ik vernam als wind het reppen van de vele voeten, geestdriftig naar de toekomst onderweg. Ik wou wel meegaan, ik geloofde ook in morgenstonden met vergulde monden en armen die een brug van liefde slaan; maar toen ik opkeek was het al te laat: ik had een ogenblik niet meegeleefd en reeds was ik een eeuwigheid ten achter.

Maurits Mok (1907-1989)
uit: Stormen en stilten (1956)
Inhoudsopgave

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Inleiding

In deze eindrapportage worden de resultaten beschreven van het project EML-standaardisatie, dat onderdeel is van het Development Programma van het OTEC.

Het project EML-standaardisatie heeft gedurende 1 april 2001 tot en met 31 december 2001 gelopen. De doelstellingen die centraal stonden gedurende het project, waren in het projectplan als volgt omschreven:

- EML onder de aandacht brengen bij de belangrijkste standaardisatie initiatieven en deze zo te beïnvloeden dat EML, of ideeën daaruit worden opgenomen in hun specificaties.
- Ervaring opdoen binnen standaardiseringsinitiatieven.

Om deze doelstellingen te bewerkstelligen, zijn tal van verschillende activiteiten verricht. Dit rapport beschrijft al deze activiteiten, met de bijbehorende producten en resultaten. In het projectplan van het werkpakket stond dat de volgende producten binnen het werkpakket gerealiseerd zouden worden:

- strategiebeschrijving voor omgaan met standaardiseringscomité’s
- documenten die in de IMS werkgroepen worden geproduceerd met onze participatie
- mapping van EML naar dtd’s van standaardiseringsinitiatieven (IMS, ADL/SCORM etc)
- onderhoud en beheer EML-website
- evaluatierapport.

Het projectteam van dit werkpakket bestond uit de volgende personen:

- Jocelyn Manderveld, projectleider
- Hans Hummel
- Rob Koper
- Peter Sloep
- Hubert Vogten
- Fred de Vries
- Adrian Rawlings (externe inhuur)
- Arjan Loeffen (externe inhuur).

Tijdens het lezen van deze eindrapportage zult u waarschijnlijk merken dat er veel meer producten en resultaten in dit werkpakket zijn opgeleverd, dan aanvankelijk bedacht en gepland. Het is ook onmogelijk om al deze producten en resultaten op te nemen in dit eindverslag. Er wordt op veel plaatsen in het verslag verwezen naar bestanden. Deze bestanden zijn terug te vinden en te bekijken op de R-drive, map OTEC, map Development. De map development is alleen toegankelijk voor OTEC-medewerkers. Deze bestanden zijn ook allemaal gebundeld in aparte OTEC-rapporten, te weten:

- Standaardisatie/ IMS 2001 OTEC 2002/15
- EML model of IMS Learning Design use cases OTEC 2001/17
- Prometeus 2001 OTEC 2002/16
- CEN/ISSS 2001 OTEC 2002/17
- EML and LMS related standards OTEC 2002/19
- Basic model of the model OTEC 2002/20
Deze eindrapportage heeft dan ook eigenlijk meer de vorm van een verantwoording over de verrichte werkzaamheden dan dat het de feitelijke producten presenteert.

Aangezien de werkzaamheden, de producten en de resultaten van dit werkpakket in het Engels zijn uitgevoerd, zal de rest van dit verslag ook verder geschreven worden in het Engels.

1. Strategy description

This chapter describes the OTEC strategy for participating in the various learning technology standardisation initiatives, including standardisation, consensus, requirements and specification bodies.

1.1 Introduction

Over the past years, the Open University of the Netherlands (OUNL) has spent a lot of effort developing a new, rich and flexible learning management systems (LMS). This effort has resulted in EML, Educational Modelling Language, and Edubox. EML is the specification on which Edubox has been built.

In the international field of learning technologies, there are many initiatives concerned with the development of specifications for LMS. These initiatives all have the same goal, that of developing specifications and requirements for LMS in order that they might become a standard. Many institutes, universities and companies (vendors of LMS) are participating in these international initiatives in order to influence these initiatives with their own developed specifications and gather consensus about specifications and requirements.

EML is a semantic information model and binding, describing the content and process within a 'unit of learning' from a pedagogical perspective in order to support reuse and interoperability. It is also a unique specification because it describes the complete educational process, including the roles and didactical premises of a unit of study.

It is important for the OUNL that it acquires prominence in the field of learning technology and development of LMS. The OUNL is an innovation centre for higher education of the Netherlands and is the most active partner in the Digital University of the Netherlands. Therefore, it is important that EML is promoted in these initiatives for the development of specifications, requirements and consensus about LMS. To increase the impact and use of EML and Edubox, both nationally and internationally, the ideas and concepts of EML must be adopted by the specification and standardisation initiatives.

This is why the OTEC Development Programme has a project to organise the work related to international specification in the field of learning technologies. One of the objectives is to make EML more widely known and introduce the background concepts of EML into the scope of the international specification and standardisation bodies. The following bodies on learning technologies are considered:

- ISO SC36
- AICC
- IMS
- ADL/SCORM
- IEEE LTSC (Learning Technologies Standards Committee)
- CEN/ISSS Learning Technology Workshop (European)
- Prometeus, (European)
- NEN (Dutch)
- Surf/SIX (Dutch).
This document describes the strategy for participating in these standardisation initiatives, and states our priorities and how we participate, etc. The following is based on discussions held by the project team: Jocelyn Manderveld (project leader), Fred de Vries, Arjan Loeffen, Hubert Vogten, Adrian Rawlings, Hans Hummel and Rob Koper. In the following sections we describe the evolving consensus of the project team.

1.2 In which standardisation, specification and consensus bodies should we participate?

Active participation in all the standardisation bodies would require considerable effort, amounting to several full-time jobs; this is not a realistic option. We must, therefore, consider which bodies will be the most effective for succeeding with our aims. How do we measure success?

Several success criteria are proposed:

- EML is accepted as it is by the standardisation, consensus and specification bodies
- Possibility for a linear transformation from EML to all the other specifications and standards
- The background concepts of EML are adopted by the specification and standards bodies
- Convince builders and vendors of LMS to build their tools on EML specification.

Who are the players in all the different standardisation, specification and consensus bodies? We conclude that five different parties are involved:

- Research and Development groups of different institutes and universities, e.g. OKI, CLEO, Fifth Framework, OTEC.
- Users of LMS
- Vendors of LMS
- Brokers
- Publishers

Our goal is to participate in bodies where different parties are involved. Vendors must be involved because one of the success criteria is that vendors adopt EML as the specification for building their tools.
1.3 What topics to these bodies address?

The diagram above shows the relationship between the various standardisation bodies. Standardisation bodies, such as IEEE or ISO, consider detailed matters such as metadata for learning objects. EML, however, has a much larger scope; it describes the modelling of the whole educational process.

In summary, this means that we want to participate in standardisation bodies that:

1. address larger topics, and  
2. where different parties are involved, especially vendors, and  
3. where we are most likely to find success, because they (e.g.) adopt EML at the outset, or they have working groups that discuss instructional design issues, or there is funding for new projects.

The table below summarises the value of each of the standardisation and specification bodies.

<table>
<thead>
<tr>
<th>Bodies</th>
<th>Topics</th>
<th>Parties</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO SC36</td>
<td>Address no topics at all</td>
<td>Many parties involved</td>
<td>Not so big, because this is the official standardisation committee and EML must first be adopted by other committees before it can brought in ISO</td>
</tr>
<tr>
<td>IEEE/LTSC</td>
<td>Address only small topics</td>
<td>Many parties involved</td>
<td>Not so big, more technical topics than educational topics</td>
</tr>
<tr>
<td>CEN/ISSS</td>
<td>Address smaller topics</td>
<td>Lack of vendors. Mostly R&amp;D institutes and universities</td>
<td>Yes, because they adopted EML from the start. EML becomes a chapter in their work plan. There are also good possibilities of extra funding.</td>
</tr>
<tr>
<td>Association</td>
<td>Topics</td>
<td>Parties Involved</td>
<td>Related Information</td>
</tr>
<tr>
<td>-------------</td>
<td>--------</td>
<td>-----------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>IMS</td>
<td>Broad range of topics, which are also large</td>
<td>Many parties involved, especially vendors</td>
<td>Yes. One of the working groups is concerned with learning design and instruction.</td>
</tr>
<tr>
<td>Prometeus</td>
<td>Broad range of topics, which are also large</td>
<td>Many parties involved. Lack of vendors</td>
<td>Yes. Relevant to get extra funding for projects. We probably will have the chair for one of the SIGs. Rob Koper is also a member of the Steering Committee.</td>
</tr>
<tr>
<td>ADL</td>
<td>Smaller range of topics</td>
<td>Many parties involved</td>
<td>Not so big. ADL is more technically oriented. This is also the reason why we have problems of sending people to them</td>
</tr>
<tr>
<td>AICC</td>
<td>Broad range of topics</td>
<td>Many parties involved</td>
<td>Not so big. It was and is for a long time very quiet around AICC. They did not develop any specifications last year</td>
</tr>
<tr>
<td>NEN</td>
<td>Still discussing if they want to have topics about learning technologies</td>
<td>Only users of LMS and institutes and universities for higher education</td>
<td>Not so big, but it is important for us to keep in touch, because they are the official body in the Netherlands to put EML up for standardisation by the ISO</td>
</tr>
<tr>
<td>Surf/SIX</td>
<td>Small range of topics</td>
<td>Only users of LMS and institutes and universities for higher education</td>
<td>Not so big, but it is important for us to keep in touch, because representatives of institutes of higher education and university of the Netherlands are participating in this body.</td>
</tr>
</tbody>
</table>

### 1.4 Conclusion

The conclusion is that we should participate in the following bodies:
- CEN/ISSS
- IMS
- Prometeus
- NEN/Surf SIX.
2 Participation in standards and specification bodies

Based upon the strategy description we decided that we should participate in a variety of national and international standards and specification bodies. In order to do this work effectively and to divide the workload (and to reduce the travel load per person) we assigned a couple of persons per specification body. This resulted in the following division:

- IMS: Jocelyn Manderveld and Rob Koper
- CEN/ISSS: Adrian Rawlings, Peter Sloep, Jocelyn Manderveld, Rob Koper
- Prometeus: Hans Hummel, Fred de Vries, Rob Koper
- NEN/Surf/SIX: Peter Sloep

Hubert Vogten had a supporting task. He commented several reports, provided advice on technical documents, helped with writing specifications etc. Arjan Loeffen also helped with writing specifications and made preparations for the different standards and specification bodies.

With this team of people we tried to attend as many meetings of the various bodies as possible. Attendance of every meeting resulted in a written report, with all the topics discussed during the meeting, contacts with other people etc.

The high travel load, and the intensity of the work that needed to be done, resulted in a project management style which can be typed as 'Individual Coaching'. Individual and coaching appointments were made on a 'frequent' basis. Despite the fact that team members did not meet each other frequently, there was a lot of team spirit. Every team member had a clear picture of the goal he needed to accomplish: 'Put EML in the picture and make other people, standards bodies sensitive to EML, so that they adopt the ideas of EML'.

The work load in this work package was also huge. We were very dependant on the planning and deadlines of the various standards and specification bodies. They decided when a deadline needed to be achieved. We managed to reach all the deadlines, but this could only be done by team members spending more time on this work package than was estimated in the work package description. In total there were 1931 hours budgeted. The project management was estimated on 0.6 FTE, but 0.8 FTE was necessary to do the job. One of the project members became ill, and there was no replacement for this person. Also the importance of the 'Digitale Universiteit' resulted in one of the project members not able spend the budgeted hours. This resulted in extra work load for the other project members. Another difficulty was the quality factor of the personnel involved. This work package has specific needs of expertise, such as fluent English and willingness to travel, and this made it even more difficult to find suitably qualified personnel.

Despite all these problems, we succeeded in accomplishing our goals very well. In the next chapters, all the activities and results per standardisation and specification body are described.
3.1 Introduction

IMS is a consortium of companies and universities which aims at the development of joint specifications for electronic learning environments, the so called ‘Learning Management Systems’ or ‘Learning Content Management Systems’ (LMS or LCMS). IMS started as an initiative of Educause in the USA, about four years ago. All the major companies working on LMSs are so-called ‘contributing members’. There are 51 contributing members at this moment, among which are larger companies (Microsoft, IBM, Oracle, Blackboard, WebCT, Cisco, etc.) and a number of universities and networks. This group ‘owns’ IMS. The OUNL is – through the Development Programme of OTEC – one of the contributing members of IMS, with Rob Koper as a technical board member. Besides the 51 contributing members, a large number of organisations have joined IMS as so-called developer members. The OUNL (Development Programme of OTEC) has been a developer member for about three years, and subsequently became a contributing member in 2001. The task of the developer members is to contribute to specification development, but they have no representative on the board and therefore no voting rights. For more information see: http://www.imsproject.org.

The IMS organisation develops specifications in different working groups according to a strict work plan. One of the working groups is called ‘Learning Design’ (LD) and started at the beginning of 2001. It is the most ambitious group of IMS thus far, developing specifications in the field of instructional design, performance improvement, competency modelling, etcetera. The group started its activities under the umbrella of the concept of ‘instructional design’, but nowadays it uses the more generic term ‘learning design’ to include non-instructional learning events like performance support. It tries to integrate existing, more general, generic IMS specifications like metadata, learner information, competencies, question and test interoperability and content packaging.

The most prominent members of the Learning Design group are: Cisco, Pennstate University, WebCT, University of Pittsburgh, Digital Think, NetG, University of Alberta, Cetis, Click2Learn, EDNA (Australia), and OUNL.

One of its aims is to specify a containing framework for these specifications and for learning design in general. Our input to this effort is EML. We have positioned EML (or parts of it) as the containing framework for the IMS specifications. This is technically, as well as ‘politically’, a difficult agenda. It entails convincing all the major companies that they should build software on this specification. For the OUNL, there is an enormous advantage when this effort is successful. Besides the prestigious effects it will have, we will benefit from the possibility that major companies will invest in the building of systems compatible with our ideas, providing a strong infrastructural basis for the digital university. This effort will have effect however for at least after several years after the specifications are adopted (it takes time to build the systems). There are also numerous new development questions coming from this effort, which will align the efforts of the Development Programme with the demands of the educational industry worldwide.
3.2 Meetings and Reports

In 2001 we attended three IMS Learning Design meetings (Pittsburgh, Boston and Ottawa) and one IMS open meeting in Madrid. Last October there should have been a meeting in London, but this one was cancelled due to September 11th. A conference call with the complete LD-group replaced this meeting. We did not attend the San Francisco meeting in November, but we participated by telephone.

Participation at IMS Meetings and the appointments made during the meetings has always resulted in discussion and a vast amount of 'homework'. Preparation for meetings always required discussing and devising the strategy.

In the next paragraphs, the meetings are described including the strategy followed and the results of the meeting. After reading this paragraphs you will have a chronological view of all the processes, tactics etc. that went on in the IMS Learning Design Group and the IMS organisation.

3.3 The Pittsburgh Meeting

The first meeting of the group took place in Texas in January 2001. The chairs of the group were chosen, (Chuck Barritt of Cisco and Katy Campbell of University of Alberta, representing Industry Canada) and the first ideas of developing a learning design specification were discussed.

The first IMS meeting attended by the OUNL was the Learning Design Group Meeting in Pittsburgh in March 2001. During this meeting, the agenda of the LD group was to work on the scope document of the group. At that moment the group was not aware of EML nor its existence. So our first goal was to ‘claim’ some time on the agenda to present EML. Hans Hummel and Adrian Rawlings attended the meeting and presented EML.

The EML presentation was well received by LD members, and kept it in mind in order to write the scope document. The file Pittsburgh ‘report_v2.doc’ gives a detailed description of the meeting.

After the meeting the group needed to write the scope document version 1.0. Our task was to write the Overview, Stakeholders and Objectives of the scope document. Because the group was not clear in its goals and why a learning design specification was needed, the scope document was not well written and very vague. By this time, we didn’t also have enough influence to add more information about EML into the scope document. The file ‘Ldscope1.doc’ presents the scope document 1.0. The document went up for voting by the technical board members, but got turned down based upon the arguments stated above.

3.4 The Boston Meeting

The Boston Meeting took place in May 2001, and was a very important meeting for us as OUNL. The Learning Design group had to face the problem that their scope document had been turned down by the technical board members, and the fact that continuation of the group was only guaranteed when a scope document got approved. So the question was how to continue? Rob Koper and Jocelyn Manderveld went to this meeting.
During the Boston meeting, EML was presented again, but this time in more detail. We even made a course in EML to show people that EML is a metamodel for instructional design and that it captures all pedagogical models. The members of the group became more sensitive for EML as a possible solution for the Learning Design Specification. During this meeting it was agreed that:

- EML would be the containing framework for the IMS Learning Design group. The members of the group accepted the work done as an appropriate starting point. Don’t redo the work done, use it to jump start the specifications of the LD group.
- EML must be adapted in certain ways to fulfil the requirements of the LD group.
- The scope document must be adjusted, and references to EML website to be added. Examples of EML tagged units of study must be provided (in English) on the website and we will provide a document in English with the pedagogical background of EML (models, meta-model).

The file ‘Meeting report IMS Boston 2.doc’ gives a detailed report about this meeting.

As of this moment, the OUNL was in a strong position in the Learning Design Group. Members saw, and still see, us a reliable partner that has done good work in the field of learning design specifications.

After the Boston meeting we worked on an article ‘Modelling units of study form a pedagogical perspective: The pedagogical metamodel behind EML’ (see file ‘ped-metamodel.pdf’) and the scope document.

As the deadline came closer and closer for submission of the scope document 2.0 to the technical board members, members of the LD group became nervous. They were not able to write the scope document. A week before the deadline, we decided that we should write the scope document with the help of CETIS. We wrote a new version of the scope document, with an explicit reference to EML and the OUNL. We presented this new version of the document to the chairs of the group with a statement that if we wanted to go ahead with the group, this was the solution and that must be agreed upon the document now, otherwise the Learning Design group would cease to exist. The chairs presented the document to the other group members and they agreed upon the chosen direction. The Learning Design Scope document 2.0 was ready to send in to the technical board (see file ‘IMSLD-scope 2.pdf’) for voting.

3.5 The Ottawa meeting

During the Ottawa meeting (August 2001) the IMS technical board members had to vote on the scope document. As a group we lobbied for our scope document, and eventually we knew that the scope document would get approved. The focus of the Ottawa meeting was to discuss the process and the activities to undertake in order to deliver the learning design specification in the agreed time period. Rob Koper and Jocelyn Manderveld attended this meeting.

The chair of Learning Design Group is not a very strong chair and meetings don’t have a very strict agenda. During the Ottawa meeting an IMS service officer (who works for the IMS organisation, and supports working groups with the specification development. These persons ought to be ‘neutral’), took over the chair of the meeting. He strongly argued that other initiatives comparable to EML must also be considered as a solution for the learning design specification. This was not stated in the scope
document. From our point of view, this issue was completely out of scope, but some group members agreed with him and wanted other initiatives to be taken into account. This particular initiative was the CLEO project (Customized learning Experiences Online), which is a collaborative effort with the Advanced Distributed Learning (ADL) initiative, the Open University (UK), and IBM/Lotus Mindspan.

The Learning Design group needed to decide which solution, EML or CLEO, would be best. To make this decision the group decided that use cases describing a learning experience should be written by all the members of the group. The LD group was divided in four sub-groups:

1. Academics: Pennstate, University of Alberta, CETIS, University of Pittsburgh, EDNA and OUNL
2. Vendors: WebCT and Blackboard
3. Publishers: Guinti publishers

These use cases had to be modelled to the Cleo model and the EML model. The timeline was very aggressive, and all this work needed to be done in three weeks. For all the appointments made during this meeting see the Ottawa report (file 'Meeting report Ottawa.doc').

We had the chair of the academics group and we provided the group with a template for the use case description. We also described a use case on competency based learning (see file 'compentencyusecase.doc').

All the different use cases were modelled in EML (see report/file 'IMS-use-cases intern gebruik.doc'). We had a strong point for the group that it is possible to model a variety of different use cases in EML. The CLEO project did not succeed in modelling all the use cases to the CLEO model.

### 3.6 Conference Call

The results of the modelling of the use cases, and the conclusions to be drawn, were supposed to be discussed during a meeting in London. In the meantime the tragic events of September 11th took place. Most members of the group were forbidden from flying and some Americans became very reserved towards Europeans. This was a difficult period for the LD Group. The London meeting was cancelled, but we had a couple of conference calls (Rob Koper, Jocelyn Manderveld and Hubert Vogten).

During these calls, the results of the use cases modelled in EML and CLEO were discussed. The group had to decide if it should go ahead with EML or CLEO. Members in the group were not able to decide on this, and gave us the assignment to see if the CLEO model could be adjusted into EML (for those who have a DTD viewer see file 'cleoeml.dtd'). Several proposals of a learning design specification based upon EML, but with extensions to CLEO and the other IMS specifications, were made by different members of the Learning Design group. These proposals were heavily discussed in the mail forum. By the time of the planned San Francisco meeting, there were so many proposals that members could no longer see the pros and cons of the different proposals.
3.7 The San Francisco meeting

The goal of the San Francisco (November 2001) meeting was to decide which proposal would be best for the learning design specification. We could not attend the meeting, but we called in for several times during the meeting (Rob Koper, Jocelyn Manderveld and Hubert Vogten).

We sensed that the atmosphere within the group during this meeting was not good. People were arguing about pros and cons of the different proposals, and a split was closer than ever. We had the feeling that we needed to do something immediately. The risk that EML was not about to be adopted as the learning design specification was at that moment rather big. We had much to lose. We decided that we needed to provide a solution for the group that would put an end to all the discussion and arguing, and which would provide a positive stimulus to the group. We wrote a proposal for an integrated approach for the learning design specification which took into account all the concerns of the group members. (see file 'EML in CP.doc').

This proposal was immediately accepted by the group, and it brought the group back together. This is what everybody wanted, and that is exactly where they wanted to spend effort and time.

Since that moment, the group has been working very hard on the first version of specification. This work is mostly done by us and by a member of CETIS. By the end of the year we reached version 0.0.3 of the specification (see file 'ims_ld_info_v0p0p3.doc').

3.8 Strategy and conclusions

The strategy that we followed throughout the participation in IMS was effective; we knew exactly what to do and when to do it. The OUNL evolved from being a rather unknown IMS member to a very prominent member. One of the effects of our participation in IMS is that our activities are known to a large number of organizations in the field of learning technologies and e-learning.

A difficulty still remains, that most activities regarding the specification of learning technologies and interesting projects between IMS members take place in the USA. Most IMS members see each other between meetings and several of them also have shared projects. We miss out on a lot of informal chats and other interesting news, which could be of use to us.

With all the results we accomplished this year within IMS, we showed that the OUNL is a good and reliable partner for the specification of learning technologies. We are acknowledged for our expertise and as an innovative party. What is noticeable is that most IMS members at first had a distant attitude towards us, and that this is completely reversed.
4 CEN/ISSS

4.1 Introduction

CEN (Comité Européen de Normalisation) is a legal association and a regional partner of ISO, with which it has a standing protocol. CEN/ISSS (Information Society Standardization System, http://www.cenorm.be/issss/) is the body within CEN that tries to contribute to the success of the Information Society in Europe.

CEN's members are the national standardization bodies. CEN issues both European standards and harmonization documents. Standards are related to European legislation, and conformity to a standard is binding and member states are obliged to adapt local regulations in order to make them compliant with the standard issued or withdraw them.

The standardization bodies of the European Union's member states, the European commission itself and international stakeholder organizations may all submit a specification to a CEN Technical Committee (TC). Technical committees represent all parties with a stake in a particular standard. A proposal will only be adopted and acquire the status of a European norm if over 71% of the votes are in favour.

The European Council has been concerned with the slowness of these procedures, particularly in the light of the pace at which societal change occurs. The CEN Workshop Agreement (CWA) is an attempt to fill this space. Workshop Agreements are developed by a CEN Workshop, to which again all interested parties may contribute. A working agreement, however, does not have the status of a European Standard.

The CEN Learning Technologies Workshop (CEN/ISSS/WS-LT) started March 25 1999. The OUNL participates in CEN/ISSS-WS-LT, because CEN is the official standardisation body in Europe. The objective of the workshop is to encourage the effective development and use of relevant and appropriate standards for learning technologies for Europe.

The workshop works on a variety of topics as Quality assurance, Educational Copyright Licence Conditions, Translation of LOM into various European Languages etc. Our goal was that the workshop programme got extended with the topic EMLs.

4.2 Leuven meeting in April 2001

The CEN/ISSS/WS-LT meetings can be characterised as project progression meetings. The meetings always have a strict agenda where the progress of the various topics of the work programme are discussed. During the Leuven meeting, the possibility of a topic concerning EMLs was discussed (Rob Koper, Peter Sloep and Adrian Rawlings attended this meeting). Workshop members agreed on the fact that it would be interesting to have a topic EML added to the work programme. Several members of the workshop stressed that EMLs are an important topic, because several institutes are dealing with this topic. During the meeting, it was agreed that there would be a
project proposal written on an EML survey, which researches the various EMLs in Europe, and which would have a CEN workshop agreement on EMLs as a deliverable.

Outside the meeting we agreed with the Open University (UK) and UNED (ES), that the three of us were the appropriate institutes to work in this project. We wrote the project proposal and sent it in to the chair of the workshop. (see file ‘Proposal CEN-EML Vdef.doc’).

By sending and writing this proposal it was not a certainty that we would get the lead on this project and the money involved. The project proposal was sent to the CEN/ISSS/WS-LT community. Interested people or institutes could respond and sign in for the project. Of course, this is what we did together with the UK and UNED (see file ‘EML proposal final 21-06.doc’). We only had to wait for the decision which parties got the project.

By the end of June it was announced the EML survey was lead by the OUNL together with the UNED and OU.

4.3 Brussels meeting July 2001

During the Brussels meeting the EML survey was an official topic on the work programme. The project aims, goals and the activities to be undertaken were presented by Adrian Rawlings (see file CENEMLSurvey.ppt). The first phase of the project concerned an inventory of the different EMLs in Europe. It was agreed that before the next CEN meeting, an international workshop/conference should be arranged to discuss and present the various EMLs. The other goal of this conference was also to get as many parties involved in the project, in order to get as many support as possible for the workshop agreement.

A detailed report of the Brussels meeting is available in the file ‘CEN02-03-07.doc’.

4.4 The Turin meeting October 2001

Prior to the regular CEN/ISSS/WS-LT meeting we organised a workshop for the EML survey. The project team wanted to have a picture of all the various EMLs in Europe. In August we invited many people who had an interest in the field of specifying learning technologies and institutes who developed an EML (see file ‘mailing list.doc’ to see all the invited persons and organisations for the workshop).

The workshop itself was a huge success. The agenda presented interesting topics (see file ‘EML-survey Turin workshop.xls’). There were many participants who were interested in the subject to be addressed (see file ‘Turin participants.xls’, to see who participated). Rob Koper chaired the day and gave a presentation on educational modelling languages in general. Jocelyn Manderveld presented the OUNL EML (see files 'KoperEMLS.ppt' and 'Manderveld OUNL-EML.ppt'). All the results of the workshop including the presentations of all the participants can be downloaded of the website: http://www.ni.din.de/sixcms/list.php3?page=test&rubrik_id=422.

The results of the workshop also provided a good basis for the first deliverable of the EML survey project, namely a description and analyses of the various EMLs within Europe. It also committed a variety of different parties to the project. These parties
also wanted that their ideas of an EML were taken into account. For a more detailed report of the Turin meeting, please see file ‘Turin workshop report.doc’.

4.5 The Berlin meeting in November

The next step in the EML survey project was consensus building. All the different EMLs needed to be harmonised and categorised. The goal of the project is to reach a workshop agreement on EMLs, so a definition and a general model of an EML needs to be provided. The agenda of the Berlin meeting had this as a topic, to come to an accepted definition of an EML, and an information model (see file ‘agendaberlin.doc’).

There were not many participants at this meeting, but we proposed an information model for an EML (see file ‘cen-basic-eml-model.gif’). This model was discussed extensively by the different participants of the group. By the end year 2001, the discussions were still not settled. In 2002, we will see the definite information model and eventually the CEN workshop agreement.

In the meantime an e-brochure was provided by the CEN/ISSS-WS-LT management. We wrote the part on EML (see file ‘ebrochure1.pdf’). We also needed to deliver the first deliverables to the CEN management by the end of the year. One deliverable was a report describing a survey of Educational Modelling Languages (see file ‘EML-survey e.doc’). The second deliverable was a report on comparing different EML frameworks (see file ‘EML comparison framework.doc’).

4.6 Strategy and conclusions

Our goal and strategic plan for participating in CEN/ISSS-WS-LT was that EML should become a topic on the work plan of the workshop. We succeeded in this and we even succeeded in the fact that we are responsible for the management of the project. However, the progress made in the EML survey project is rather slow. Consensus building is most important in this project. People need to agree on the chosen directions, definitions etc. Most people who are participating in the project, also participate in other specification initiatives e.g. IMS. Progress with specification development seems to go much faster in IMS, so people tend to give more attention to other initiatives. On the other hand, you always meet the same people in different initiatives, and this is very useful. In the CEN project we only discuss minor issues. Nevertheless, the various members agree on the fact that EMLs are important and that the OUNL’s EML is well designed. This is very useful in our lobby for IMS.

It is very good for the image of the OUNL that an official standards body addresses and acknowledges the topic EML and that this is chaired by the OUNL.
5 Prometeus

5.1 Introduction

Prometeus is a community of experts, ‘building a common approach to e-learning in Europe’ and is open to all. It was launched in March 1999 under the sponsorship of the European Commission to encourage effective use, take-up and R&D in the field of technology-enabled learning.

The previous years of Prometeus can be characterized as ‘oriented’ and not very result driven (‘results have been rather thin on the ground’), with participation mainly from scientific R&D institutes. From 2001, renewed efforts were made to strike a balance between research and the actual use of learning technologies. OTEC now participates in, and focuses on, Prometeus primarily as a pre-standardisation network to support transfer projects of the R&D programme on learning technologies, and secondarily as an outlet of the innovative mission of both OTEC and OUNL. Prometeus does seem to fulfil an important need, since the number of members attending a Prometeus event has grown from about 30 (4th event) to over 100 (6th, most recent, event).

Prometeus is lead by a Steering Committee, which comprises 20 members elected every two years by the members of Prometeus. In February 2001, Rob Koper was elected to the Steering Committee (SC) (6th place) and now represents the OUNL, currently the only represented institution from the Netherlands. A project officer from the EC attends SC meetings (not public).

Actual work is carried out in ten (public) Special Interest Groups (we choose to focus on SIG Pedagogies) and, as a virtual community, through the Prometeus web service (supported from October 2000 - October 2002 by the Prometeus Support Service). All discussions, documents, minutes and presentations of the events can be found at www.prometeus.org.

5.2 Meetings en reports

In 2001, the 5th event (Stuttgart, 7-9 June, 2001) and 6th event (Mallorca, 18-20 November, 2001) were attended by Fred de Vries, Rob Koper, and Hans Hummel.

Input during the Stuttgart meeting:
- Hans gave a short presentation of OUNL’s position and exchanged some ideas behind EML during a round table discussion;
- Hans and Fred made first contributions to the scoping activities of SIGs Pedagogies and (unfortunately to a much lesser degree) Design;
- Fred gave a short presentation and exchanged some ideas behind the Tech Watch website;
- Some valuable contacts were made during the informal parts of the programme, some of which appear promising (e.g. University of Helsinki, European Committee, …); and
- Occasional demonstrations of the Jazz course were given.
Outputs of Stuttgart meeting:
An informal report of this event for internal use was drawn up by Fred de Vries and Hans Hummel (see file 'Stuttgart_final.doc').

During this meeting the initial plan was set to draw up a collaborative project plan with the UK OU, later to become the CPA8 project 'Personalisation: the self-directed learner'.

We attended the Open Consultation leading up to the Sixth Framework programme. A meeting on October 3rd was attended by Rob Koper and Eric Kluijfhout.

Agreement on a working plan and model for SIG Pedagogies

Input during the Mallorca meeting:
- Preceding the meeting, a web discussion in SIG Pedagogies (more or less according to the working plan drawn up after Stuttgart) was carried out with active input from Hans who also submitted a mini position paper (see later); and
- Based on these web discussions Hans was asked to present the ideas behind EML during an expert meeting on virtual learning communities; the presentation was well received and led to new contacts and interests.

Outputs of Mallorca meeting:
An elaborate report on the expert discussion and our input is available on the Prometeus web (report of David Griffiths, see file 'SIG_Ped_LC_final.pdf') with recommendations for the EC. This document might also lead to a semi-scientific publication.

An informal report of this event for internal use was drawn up by Rob Koper and Hans Hummel (see file 'Mallorca report_def.doc').

It was agreed that a plan will be drawn up by Eifel (Serge Ravet) with input from Hans for the organisation of a European conference on EML and learning technologies in France (probably September 2002).

University of Helsinki – Arts Dpt (Jukka Orava) has said to draw up a project plan for collaboration in a transfer project using EML, and

Informal agreements with the EC Project Officer (Marco Marsella) on using EML as the *lingua franca* of Prometeus.

Rolf Lindner (chair SIG Design) now wants to collaborate with the OUNL rather desperately; Prometeus work is now more closely linked with CEN/ISSS study. Lots of still vague intentions to work together, invitations for presentations on conferences, requests for more information, etc (some still to be explored further).

5.3 News from Steering committee

Rob participated in the SC meeting where agreements could be achieved on measures to further assure Prometeus’ self-sustainability and marketing efforts after the ending of the PSS contract.

The basic problems discussed on Mallorca are:
- Steering committee has too many members (21), increasing the contribution of the different European countries, but at the same time hindering its ability to make decisions.
- Steering committee has no director for day-to-day operational decisions. PSS needs a lot of practical things to decide upon.
- There are lots of differences in meeting cultures. Specifically, the Italian chair gets a lot of criticism for her way of working from the Northern representatives.
- Some more pragmatic SC members carried out informal preparation for SC on Tuesday morning. Concrete decisions could finally be taken, leaving a generally good feeling after all. The major decision was that the SC only works towards strategic plans and decisions. The PSS has the operational responsibility (and has to report about actions taken afterwards).

5.4 SIG Pedagogies

Broad discussions in SIG Pedagogies could eventually be focused more towards our own agenda. As outcomes and actions finally could be mentioned:
- Possibility of taking EML as a reference point (interface) to different repositories which already are available (content brokering).
- As problems are often caused by governments, we have to make an inventory and report this to them.
- Systemic failures in education → recommendations to the EC.
- Learning should be from experience (informal learning), guidelines for moderators of communities, should also serve as input to EML.
- Use cases from different members to EML models.
- Define manageable objects, attract vendors and corporate industry (again, since they got lost).
- Project management support and follow up is important. 'We are like a car on a cold morning'. Maybe we should not set our ambitions too high?
- Outcomes of the expert discussions (probably NOT of the regular SIG meetings) were valued as suitable for external publication, e.g. in Times Educational Supplement or Educational Scientist. David Griffiths (appointed editor) and Oleg Liber will take up this; I have said I would give input when needed. Marketing workgroup (lead by Miles Ellis) should take this and other possibilities into account in relation to disseminating strategy.

5.5 Prometeus Newsletter (PSS)

A report on the round table discussion is available in Prometeus newsletter no. 8, pages 2-4 (see file ‘Prometeus_Newsletter8.pdf’).
An article on e-learning laboratories (based on an interview with Rob) and an article on ‘The Netherlands in focus’ (based on texts from Adrian and Hans) in Prometeus newsletter no. 12 (see file ‘Prometeus_Newsletter12.pdf’, pages 2-5 and 10-11 gave a lot of exposure to the OUNL view on innovating education.
A report of the Mallorca event and our input also is available in the Prometeus newsletter nr 13, pages 2-7 (see file ‘Prometeus_Newsletter13.pdf’).

5.6 Mini position paper

Prior to the Mallorca meeting, Hans submitted a mini position paper to further determine the influence, conditions and benefits of learning technology in relation to
changing pedagogies, e.g. roles of the learner, teacher, learning material, and learning community). ‘Since Prometeus is not aiming to look into changing pedagogies or new technologies but always in relation with each other, our main interest should be educational technology, enabling technologies and (standardised) containing frameworks for e-learning. More precisely, we should provide requirements for specifications for e-learning frameworks (as we agreed upon earlier as a main objective)’. For the complete document see file ‘Mini-positionpaperLC.doc’.

5.7 Presentation

Mallorca presentation ‘The language of flexible learning. Pedagogy or technology: paradox or partnership?’ can also be found on the Prometeus site (http://www.prometeus.org/index.cfm?PID=250).

5.8 Outlook and trend watching

It is becoming more and more clear which are the partners of interest for collaborative working project: like UK OU (Lefrere), University of Helsinki (Orava), and others. Also which members are only passive attendees.

5.9 Strategy and conclusions

Last year some positive observations (and beyond our expectations) could be made. We seem to have achieved a more focused agenda and our exposure during both meetings was pretty good and there has been some good publicity. No one could not have missed our presence. In both formal and informal discussions there was good general acceptance of EML, about which people came asking us questions and enquiring about possible collaborations, presentations, and even a conference on EML. The IMS and CEN progress is spreading pretty fast and putting the spotlight on our work. Prometeus does work as a network of networks! The presentation that Hans gave during the expert meeting on learning communities on Mallorca was well received. The way forward to promote our ideas and interests seems to be by staying present in SIG Pedagogies (by far the most active, committed and promising), and by establishing forms of collaboration in line with EC policy, especially through the SC. Finally, keep the appropriate distance if it comes to collaboration with the IDEALS approach as supported by Rolf Lindner.
6 NEN/Surf SIX

6.1 Surf SIX

SIX stands for the Studygroup IMS and XML, one of the study and workgroups initiated by Surf Educatie. In 2001, an all-day meeting was held on December 6th (as part of the Surf Onderwijsdagen preconference).

The lack of activity in 2001 marks the group's search for its identity. Plans developed in 2000 to start groups that should produce concrete products (software, specifications) in a variety of learning technology standardization related areas, have all come to nothing through lack of commitment of the participants. On the other hand, the group has been successful in establishing a platform for social networking on learning technology standardization, software integration, etc. in the Netherlands.

The group therefore has recently decided to limit its ambitions and organize biannual meetings (one in fall concurrent with the Surf Onderwijsdagen, one in spring) that serve that exchange information and keep each other informed. Far-reaching ambitions regarding the specification of Dutch learning technology standards are to be relegated to the technical committee learning technology of the Dutch Standards Organization, NEN, if and when it comes into being. This committee is about to be formed provided the necessary funds will be found.

6.2 NEN

Two meetings on the needs and scope of a NEN TC LT were held last year (May 17th and September 19th). During the first meeting a presentation on EML and Edubox was given (see Appendix 1 for presentation or file '010517NEN.ppt'). If the TC will come into existence, the prospect of proposing a purely Dutch EML standardization process arises. This was discussed in a meeting at the OUNL on December 3rd. As this route does not seem to lead to quick success and other matters (work for IMS and CEN/ISSS) are more pressing, this avenue has not been pursued any further and in all likelihood will not be pursued in 2002 by the Development Programme. Possibly, a similar initiative will come out of the Digital University's Electronic Learning Environment Programme. If so, careful coordination of this initiative with the Development Programme's activities in the various standardization bodies is required.

The NEN TC will probably also address another standardization issue that arises in the DU Electronic Learning Environment Programme: a standard LOM subset, a translation of the set in Dutch, and standard ways of filling in the various field where applicable. These will in all likelihood not be something of interest to the Development Programme.

In the course of the discussions on the erection of a NEN TC, contacts were made with the ministry of education, which apparently shows an interest in LT standardization. A meeting was foreseen in January 2002 (contact person at the ministry: Peter Baak). Parenthetically, the ministry of economic affairs has already shown an interest by commissioning a preliminary study from NEN on the viability of a NEN TC; the study came out in favour of establishing a TC.
In line with the standing arrangement on NEN and SIX, no formal reports came out of the NEN and SIX related activities.
7 EML-Website

7.1 Introduction

The EML website (http://eml.ou.nl) was introduced to the public on December 15th, 2000. The primary goal of the website was to provide interested people the possibility to download EML. The scope and function of the EML website changed during the last year. These changes are described in the next paragraphs.

7.2 New scope and function

In first instance, the EML website provided the possibility to download EML. In order to do this, people needed to subscribe themselves and the numbers continued to grow steadily throughout the year. Because we had all the email addresses of these people and we knew that they were interested in EML, we had the idea of providing this community with a newsletter. The scope of the newsletter is to inform people about EML, the latest news about standardisation efforts and initiatives and news about the Development Programme.

To write the newsletter an editorial board was formed (Fred de Vries, Hans Hummel, Adrian Rawlings and Jocelyn Manderveld). Also a formal procedure for the acceptance of the news items was installed. By the end of June the first EML newsletter was sent out to the subscribers of the EML website. Every six weeks an EML newsletter was send out. To see all the newsletter items written last year, go to http://eml.ou.nl/forum/news/.

The exposure of the newsletters was enormous. Thanks to the topics addressed in the news items, many learning technology sites refer to our site. The number of subscribers of the site increased even more and currently more than 1,300 people are registered on the EML website.

Because the increasing number of subscribers and more ‘traffic’ on the site, the maintenance of the website had to be changed. The EML website was hosted by OTEC, so we also had to arrange technical maintenance of the site. This became too time consuming, and the server did not support the website. During the year the hosting of the website was handed over to OD-IT.

A last change related to the website is the claim of new domain names for the website. The focus of the website and the news items changed during the year also more to topics and items related to learning technologies. The Development Programme is also concerned with broader issues of learning technology development, so we decided to claim new domain names for the website. EML will not be longer the focus of the website, but learning technology specifications are. The address http://eml.ou.nl still works but the following domain names are also claimed:

- www.learningtechnologies.nl
- www.learning-technologies.nl
- www.learning-technologies.org
The names knowledge-technologies.org/nl and knowledgetechnologies.nl are claimed because the European Committee speaks about knowledge technologies instead of learning technologies in the definition of the Sixth Framework. These new domain names are already working! Eventually we need to make a choice of which name will be the new address of the website.

7.3 Conclusions

Providing the news service to the subscribers of the EML website has resulted in an increase of the number of subscribers. The newsletters also contributed to a positive exposure of the OUNL as an innovative party in the development of solutions for E-learning. It has also supported our standardisation efforts of EML. Several news items described institutes/companies that are using EML, the progress within the standardisation bodies, and descriptions of courses developed in EML were provided. These items have shown people and companies that we are not developing something which was of use only to the OUNL, but one that will be of use to other companies and institutes.

The focus of the EML-website changed slightly during the year. The primary focus was still EML, but other issues of the Development Programme were also addressed. Eventually, the goal is that the website does not focus primarily on EML, but on the development and design of learning technologies and the dissemination of the results of the Development Programme of the OUNL. These new domain names already support the new direction of the website.
8 Other related activities

8.1 Introduction

Participating within the different standards and specifications bodies meant not only discussing when to do what, but we also needed to have a clear focus how far we could go in adjusting EML. The ultimate goal was that EML should be accepted without a change. This goal, however, would not be very realistic. As long as the core of EML became accepted and the ideas and concepts behind EML, we were more than satisfied. To help us with our debates as to how far we should go in adjusting EML, what we define as the core of EML, two large activities took place. These activities were supporting activities and the results of these were very useful for participating in the standards and specification bodies.

8.2 UML class diagrams for EML

This report describes the UML (Unified Modelling Language) classes that represent the core structures of EML. These models are designed by Arjan Loeffen. Some intense discussions with other people involved in this work package took place to come to the design of these models. The thoughts and ideas represented in these models helped us very much in defining the models used in the different standards and specification bodies. If you read this report, you will see that there are a lot of questions that still need to be answered. The discussions are not settled yet, when other priorities came into the picture (people involved in designing these models had a lot of work to do for Perot). Basically, this report is a draft report, which helped us very much in our ideas how to put EML forward in the different standardisation bodies. A final status of the report will probably not be reached, because already demonstrated its use (See file ‘EML-basic-model.doc’).

8.3 EML and related standards

This report describes the various learning technology specifications that are currently available, or under development, and how they relate to EML. We receive a lot of questions about the relationship of EML to other specifications and how EML maps to those. This report gives answers on these questions. The most important specifications are described in this report, when EML could be mapped to a specification the mapping is provided. (See file ‘EML-and-related-standards.doc’).
9 Conclusions, lessons learned and directions for the future

As the poem at the beginning of this report states, we have attended many meetings and conferences last year and often had the feeling that we missed many things! Besides this, we saw many places of the world, spoke to very interesting people and, on our home front, had to spend many weekends and nights alone. So what did we achieve? And what did we learn from this? The next two paragraphs will answer these questions.

9.1 Conclusions

The work package description stated two goals:

1. Put EML forward in the most important standardisation and specification bodies and to influence them in such a way that EML, or ideas or parts of EML, become accepted;
2. Gather experience in participating in standards and specification bodies.

We accomplished the goals as described in the work package and delivered all the products. However, more important is the fact that we influenced standardisation and specification bodies in such a way that EML, and the ideas behind EML, are accepted by several bodies.

We can also conclude that, based upon the strategy description, we made the right decision to participate in IMS, Prometeus, CEN/ISSS and NEN/Surf-SIX. Reading the results described in this report of the various initiatives, one must conclude that the OUNL and EML reached important results at a European and international Level.

The image of the OUNL as an innovative university with a development programme that designs and develops learning technologies is now known to a large number of organizations in the field of learning technologies and e-learning. The OUNL is acknowledged for its expertise, at a national, European and international level.

Despite the intense work and travel load, and not having enough resources for this project, the project team managed to accomplish all the described goals. The supporting activities as the EML website and the reports on UML models and EML and related standards really helped us to achieve all the described results and goals.

Overall, we must conclude that we did indeed gather a lot of experience in participating with standards and specification bodies, but we also influenced them in such a way that the OUNL and EML is acknowledged by these parties! Work package 4 of the Development Programme was a huge success!

9.2 Lessons learned

Despite the successful results of the work package, there are always lessons to be learned, and we learned several in the past year.
• We noticed that our activities in the various initiatives created a lot of spin-offs. Various questions for submitting European project proposals came to us. A lot of people, institutes and companies contacted us for extra information, and some even invited us to participate in various initiatives. Work package 3 of the Development Programme ‘Partnership programme’ deals with these kind of questions. We had to communicate a lot between the two work packages and direct all the spin-offs to work package 3. But, when you have contact with people and institutes, they usually contact the person they first spoke to rather than the person who is responsible for dealing with these contacts. We spend a lot of time in dealing with all these several contacts, although we did not have the time for this. Maybe it is wise that work package 3 and 4 work more closely together.

• Most meetings, especially IMS – meetings, are held in the United States, and this means for us that it costs us a lot of time attending this meetings (travelling, adjusting to new time zones etc..). Usually the CEN and Prometeus meetings are held in the same months as the IMS meetings, and this has meant that the travel load is huge, usually with a meeting every three weeks. Basically, you can say that you leave the OUNL to do your work abroad, but all the regular activities and other projects continue at the OUNL. Coming back from these meetings always resulted in a lot of ‘homework’. Basically, you had no time for other activities. If you want to do this job well - attending the meetings, lobbying, producing documents, networking, etc. - it is a fulltime job. The suggestion would be that participating in a standardisation or specification body (working in work package 4), means that the resources need to be planned in for at least 0,8 of their time. This means that the project team consists of a small number of people who actually do the work.

• It is difficult to find people who are willing to do this kind of work and who have the required expertise. Not many people want to travel this much, and work evenings (IMS weekly meetings are Wednesday night late in the evening) and weekends. Last year we did the work with a small group of people. We all experienced to huge work and travel load.

• In order to participate effectively in the different initiatives a lot of lobbying is needed. You need to have the right contacts to gather information and news about other companies and institutes and their approach towards the various initiatives. Within Europe we have our network and contacts, but within in USA it is very difficult to gather information. For effective lobbying within IMS, you could suggest that the OUNL should have a representative living in the USA, participating in several networks and projects. This could also mean that we could extend our activities towards the IEEE-LTSC and ADL.

9.3 Directions for the future

The OUNL puts a lot of effort (time and money) in participating in the different standardisation and specification bodies. One could ask why the OUNL participates in the various bodies. Is this important for the OUNL and should we continue?

The R&D-programme on learning technologies of the OUNL focuses on the development, test and dissemination of innovative new learning technology specifications. The OUNL has set the strategic course, to be a frontrunner in educational innovation and e-learning. One of the instruments in attaining this course is a strong involvement in the learning technology development. As one could see
from all the activities undertaken by this project, the worldwide publicity around EML, strengthened the image of the OUNL as a serious party in this field.

All the initiatives and activities started last year must be continued, especially the work within IMS. The Learning Design specification based on EML, is not only important for the OUNL, but also for Perot-Systems. Perot systems is building the new Edubox based on EML. OUNL and Perot together will ‘sell’ the system to other companies and institutes. At this moment the Edubox system is the only system which is able to play EML (so also only system which is able to play the IMS Learning Design specification). For selling an LMS it is very important that they are compliant to the worldwide accepted learning technology specifications, otherwise it is very difficult to acquire a position on the LMS-market. So the IMS Learning Design Specification is essential for the OUNL and Perot to acquire a position on the worldwide market of LMS.

Another goal of the OUNL is to acquire extra funds by participating in European projects. The European standardisation and specification initiatives are for the must part funded by the European Committee. The European Committee describes in the Sixth Framework an important focus on developing new and innovative learning technologies and the standardisation of those. By participating in the European standards bodies and the results booked there, the OUNL is acknowledged for their well designed and developed learning technology specifications. This resulted in the fact that several different parties contacted us to participate in European projects (some projects got funding by the EC) and the OUNL was asked to provide advise by writing the Sixth Framework Programme (more information can be found in 2001 year report Work package 3: Stimulating the widespread use of EML). Also a lot spin-offs were generated, for instance the Valkenburg group (see work package 3). One can conclude that participation in the European standards bodies adheres to the strategic mission of the OUNL.

The work done by work package 4 not only contributes to the mission of the OUNL, but also to the goals and objectives of the R&D programme on Learning Technologies. In the objective of the R&D-programme one can read that not only developing new learning technology specifications is a goal, but also to dissemination of those. Of course dissemination of the learning technologies can be accomplished by writing scientific publication, but we want to go further than that. Internationally accepted learning technology standards have the characteristic of a patent. As a R&D programme we want that the developed specs are used, tested and acknowledged by other parties. This is done by the various bodies. Participating in those bodies, and booking good results, provides some accreditation of the R&D programme.

For all the reasons stated above the directions for the future should be a continuation off all the activities. These activities are not only important for the R&D-programme, but contribute also to the strategic mission of the OUNL.