

Towards a European Schoolnet



www.eun.org

EUN - European Multimedia Schoolnet

Proposal number: 2142
To Educational Multimedia Joint Call 1997

EUN - European Multimedia SchoolNet

Proposal number: 2142

Pls. Use the same acronym, full title and proposal number as in the pre-proposal. The number to be used is the number appearing in the Acknowledgement of Receipt of the pre-proposal and in the E3 form.

Part A

Administrative / Financial Forms

1. PART A: ADMINISTRATIVE / FINANCIAL FORMS

Joint call educational multimedia

Form A: Overview of EUN Proposal

A.1 - Summary Information on the Proposal

Proposal Number	Acronym – Title
2142	EUN - European Multimedia SchoolNet

Programmes involved			
IT	yes ...	no ...	Socrates yes x no ...
TAP - ET	yes x	no ...	LdV yes ... no ...
TSER	yes ...	no ...	TEN yes x no ...

Summary description and anticipated results

The proposal "European Multimedia Schoolnet" has been initiated and designed to respond the concerns and priorities reflected in the Commission's Action Plan "*Learning in the Information Society*" in order to contribute to the implementation of this Plan. The aim of the project is to establish a European school information network – the European Schoolnet – as a multimedia and communication platform at the services to schools in Europe and as a framework for collaboration at a European level among national educational authorities, universities and industry to develop ICT in schools as regards content, pedagogical approaches and technology.

The project is designed to be an open network of networks. As such, it will present an excellent opportunity for a large-scale, co-ordinated effort towards transnational co-operation in the development of appropriate technology and its use, and making a significant contribution to the development of curricula and the training of teachers through the exchange of examples of good practice and other dissemination activities.

The project will combine R&D activities in the Telematics Programme with pedagogical innovation and teacher training generated in SOCRATES to create an environment conducive to exploration of new teaching and learning opportunities offered by ICT. The European Schoolnet project will involve extensive demonstration carried out within the framework of TEN-Telecom.

It will establish a common platform for *national/regional networks* associated with national educational authorities as well as for *specialised European networks* run by public or private partners or by public-private partnerships. The partnership brings together, among others, ministries of education, national school administrations and existing school networks to ensure that it is solidly based in national environments and evolving European frameworks for school development.

Major Validation sites

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Institution/ Organisations	City/Town + Postal Code	Region	Country
IDEKE	Athens, GR 15125	GR-3	GR
Lunds Universitet, Nordic Netcom Centre	Lund, S-22100		SE
BBC Education	London, W12 7TS		UK
Sema Group	Madrid 280 37		ES
BDP	Florence, 50122		IT
Umeå Universitet	Umeå, S-901 87		SE
Schulen ans Netz	Bonn, 53227		DE
The European Network of Innovative Schools	Network of some 500 schools to be set up in the project.	Will act as a test-bed in demonstration activities	

Other Characteristics of the Proposal:

- **Users involved:**
The proposal will involve a large number of users from the educational sector; pupils, teachers, teacher educators, school leaders. The project will establish a European Network of Innovative Schools, some 500 schools which will act as a support structure, first and foremost, in demonstration activities.
- **Technologies and/or approach used:**
The project will establish an open access Internet-based platform offering easy access to a multitude of tools and services specifically aimed at promoting the use of ICT in education, including fora for transnational co-operation.
- **Expected benefits for the citizens:**
The project will support the deployment and enhanced use of multimedia and ICT in education. Thereby pupils will receive high quality education using new technology and pedagogy, ensuring that they are appropriately prepared for working life.
- **Expected benefits for the users of the application:**
Users of the EUN be given tools to explore the educational value and benefits offered by new technologies. It will bring to their teaching and learning a new dimension, stimulating not only information retrieval but also collaboration across borders in virtual environments.
- **Expected benefits for the European Industries:**
As the EUN will provide contact points for interactive exchange of information and experiences between educational users and organisations, European industry may benefit from increased awareness of the market and user needs they address.
- **Contribution to EU-policies:**
The project adheres closely to the objectives of the Action Plan *Learning in the information society*, in aiming to support the deployment of ICT in education and training and preserving the cultural and linguistic diversity of Europe.
- **Major characteristics of the validation sites:**
The major validation sites are involved in the project as co-ordinators of R&D work packages. This group will be complemented with a special user group, the Network of Innovative Schools, that will consist of 500 schools with adequate equipment and an interest in exploring new educational territory.
- **Cross-programme integration aspects (up to 3 lines):**
The project will integrate a number of advanced services and tools produced within the Telematics Programme with new pedagogy and methods of teacher training within Socrates. The system will be demonstrated within the framework of a TEN-Telecom feasibility study.

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Co-ordinator:

Name of Institution/Organisation	City + Postal Code	Region	Country
<i>Ministry of Education and Science</i>	<i>10333 STOCKHOLM</i>		<i>SE</i>

Contact person from the Co-ordinator:

Title, First Name, Name	<i>Mr Ulf W Lundin</i>	Address:	<i>Permanent Representation of Sweden</i>
Tel:	<i>+32 2 289 5701</i>	Fax:	<i>+32 2 289 5699</i>
E-mail 1:	<i>ulf.lundin@mailbox.swipnet.se</i>	E-mail 2:	

Other Contractors:

Contractors Code	Name of Institution/Organisation	City + Postal Code	Region	Country
<i>C 2</i>	<i>Bundesministerium für Unterricht und Kulturelle Angelegenheiten</i>	<i>A-1010 Wien</i>		<i>AT</i>
<i>C 3</i>	<i>Ministère de l'Education</i>	<i>B-1000 Brussels</i>		<i>BE</i>
<i>C 4</i>	<i>Schulen ans Netz</i>	<i>D-53227 Bonn</i>		<i>DE</i>
<i>C 5</i>	<i>Undervisningsministeriet</i>	<i>DK-1220 Copenhagen</i>		<i>DK</i>
<i>C 6</i>	<i>Ministère de l'Education Nationale, de l'enseignement superieur et de la recherche</i>	<i>F-75357 Paris SP</i>		<i>FR</i>
<i>C 7</i>	<i>Ministerie van de Vlaamse Gemeenschap</i>	<i>B-1010</i>		<i>BE</i>
<i>C 8</i>	<i>Institute Diarkous Katarsis kai Ekpedefsis</i>	<i>GR-10963 Athens</i>		<i>GR</i>
<i>C 9</i>	<i>Icelandic Educational Network, Ismennt</i>	<i>IS-105 Reykjavik</i>		<i>IS</i>
<i>C 10</i>	<i>Department of Education</i>	<i>Dublin 1</i>		<i>IE</i>
<i>C 11</i>	<i>Bibliotec di Documentazione Pedagogica</i>	<i>IT-50122 Firenze</i>		<i>IT</i>
<i>C 12</i>	<i>Ministry of Education and Vocational Training</i>	<i>L-2926 Luxemburg</i>		<i>LU</i>
<i>C 13</i>	<i>Ministerie van Onderwijs, Cultuur en Wetenschappen</i>	<i>NL-2700 LZ Zoetermeer</i>		<i>NL</i>
<i>C 14</i>	<i>Det Kongelige Kirke-, Utdnnings- og Forskningsdepartementet</i>	<i>N-0032 Oslo</i>		<i>NO</i>
<i>C 15</i>	<i>Departamento de Avaliação, Prospectiva e Planeamento</i>	<i>P-1350 Lisboa</i>		<i>PT</i>
<i>C16</i>	<i>Programa de Nuevas Tecnologías de la Información y de la Comunicación</i>	<i>E-28027 Madrid</i>		<i>ES</i>
<i>C 17</i>	<i>Bundesamt für Bildung und Wissenschaft</i>	<i>CH-3001 Bern</i>		<i>CH</i>

A.2 - Budget Summary Information

Proposal Number	Acronym – Title
2142	EUN – European Multimedia SchoolNet

Human Resources Summary (Person-month)

Total Resources of funded ¹ Contractors	2 103 175
Total Resources of funded Associated Contractors	1 797 424
Total Resources of funded Subcontractors	0
Subtotal Resources of funded Participants	3 890 599
Total Resources of non-funded ² Contractors	0
Total Resources of non-funded Associated Contractors	0
Total Resources of non-funded Subcontractors	0
Total Resources of Sponsoring Partners	0

Cost Summary in ECU

Parti- cants Code	Person - month 4	1. Personnel costs	2. Equipme nt costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumabl es and Computing	6. Other significant Specific Project Cost	7. Over-heads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contri- bution ECU
C1	316	2,092,000	0	700,000	75,000	150,000	385,000	523,000	3,925,000	50%		1,962,500
A.1				50,000					50,000	50%		25,000
A.2		56,400						14,100	70,500	50%		35,250
A.3		108,400						27,100	135,500	50%		67,750
A.4		48,800						12,200	61,000	50%		30,500
A.5		48,800						12,200	61,000	50%		30,500
A.6		68,800						17,200	86,000	50%		43,000
A.7	18.5	185,000	15,000		14,000				214,000	50%		107,000
A.8	12.5	62,500	15,000		14,000			18,300	109,800		100%	109,800
A.9	9	76,500	7,000		14,000			19,500	117,000		100%	117,000
A.10	56	98,000	90,000		8,000	8,000		12,000	216,000	50%		108,000
A.11	20	20,000	80,000		8,000	2,000		2,000	112,000	50%		56,000
A.12	20	20,000	80,000		8,000	2,000		2,000	112,000	50%		56,000
A.13		230,000						57,500	287,500	50%		143,750

¹ Within the funding arrangements of this contract

² Accepted participants, not qualified for EU/EEA funding agreements

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A.14		24,000						6,000	30,000		100%	30,000
A.15		16,000						4,000	20,000		50%	10,000
A.16		24,000						6,000	30,000	30%		15,000
A.17		139,600						34,900	174,500	50%		87,250
A.18		69,800						17,450	87,250	50%		43,625
A.19	33	266,000	2,500		3,750	3,900	3,750	63,000	342,900		50%	171,450
A.20	21	154,000						38,500	192,500	50%		96,250
A.21	21	154,000						38,500	192,500		50%	96,250
A.22	3	257,667	2,500		3,750	3,900	3,750	7,583	69,150		50%	34,575
A.23	3	24,000	2,500		3,750	3,900	3,750	2,500	40,400		50%	20,200
A.24	10	67,500				11,000	13,298	67,500	159,298		50%	79,649
A.25	2				7,125				7,125		50%	3,563
A.26	2				7,125				7,125		50%	3,563
A.27	2				7,125				7,125		50%	3,563
A.28	2				7,125				7,125		50%	3,563
A.29	2				7,125				7,125		50%	3,563
A.30	2				7,125				7,125		50%	3,563
A.31	17	71,000			8,000	5,500		15,250	99,750		100%	99,750
A.32	10	23,667						5,083	28,750		100%	28,750
A.33	10	23,667						5,083	28,750		100%	28,750
Sub total 1	592	4,220,101	294,500	750,000	203,000	190,200	409,548	1,028,449	7,095,798			3,754,924
C.2		85,800						21,450	107,250	50%		53,625
Sub total 2	0	85,800	0	0	0	0	0	21,450	107,250	50%	0%	53,625
C.3		16,000						4,000	20,000	50%		10,000
Sub-total 3	0	16,000	0	0	0	0	0	4,000	20,000	50%	0%	10,000
C.4	8	106,640	5,000	7,500	7,800	7,500		19,660	154,100	50%		77,050
Sub total 4	8	106,640	5,000	7,500	7,800	7,500	0	19,660	154,100	50%	0%	77,050
Total	600	4,428,541	299,500	757,500	210,800	197,700	409,548	1,073,559	7,377,148			3,895,599

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Total estimated allowable costs (ECU) (to art 3.1. in contract)	7,377,148
EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)	53%
EU Contribution (ECU) (to art. 3.2. in contract)	3,895,599
Estimated contribution from Sponsoring Partners (ECU)	0

A.3 - Participants List

Proposal Number	Acronym – Title
2142	EUN - European Multimedia SchoolNet

Participants Code	Participant's Institution/Organisation (full legal name)	Participant's - Short Name	Country + Postal Code.
C 1	Swedish Ministry of Education and Science	SMES	SE
A 1	Context	Context	
A 2	Institute of Continuing Education and Training	IDEKE	GR 15125
A 3	Pliriforiki Technogosa LTD	PLT	GR 15125
A 4	Academie Poitiers	AP	FR
A 5	Academie Toulouse	AT	FR
A 6	CITU – Centre for information Technology in Education	CITU	SE 22100
A 7	Technical Knowledge Centre & Library of Denmark	DTV	D 2800
A 8	Nordic Netcom Centre – Lunds Universitet	NNC	SE 22100
A 9	Humboldt-Universität zu Berlin	UBER	DE 10099
A 10	British Broadcasting Corporation	BBC	UK
A 11	Radio Telefis Eireann	RTE	IR Dublin 4
A 12	Swedish Educational Broadcasting Company	UR	SE 11395
A 13	Sema Group Sociedad Anonima Espanola,	Sema Group sae	ES 28037
A 14	Hochschule für Musik und darstellende Kunst in Graz	HMK	AT
A 15	Escuela de la Musica de Talavera	EMT	ES
A 16	ANAYA Multimedia	AM	ES
A 17	Biblioteca Documentazione Pedagogica	BDP	IT TI51
A 18	Lambrakis Foundation	LRF	GR 10561
A 19	Umeå Universitet	UMU	SE 90187
A 20	UNI-C, The Danish Computing Centre for Research & Education	UNI-C	DK 8200
A 21	Universidade de Coimbra	FCTUC	PT 3000
A 22	University College of Education	Ismennt	IS

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Proposal Number	Acronym – Title
2142	EUN - European Multimedia SchoolNet

Participants Code	Participant's Institution/Organisation (full legal name)	Participant's - Short Name	Country + Postal Code.
A 23	Salzburg University	SU	AT
A 24	De Montfort University	DMU	UK MK 41 9EA
A 25	University of Ghent	RUG	B 9000
A 26	Universidad de Satiago de Compostela	USC	ES 15704
A 27	Vrije Universiteit Brussel	VUB	B 1050
A 28	University of Bremen	UoB	DE
A 29	Oslo College, Faculty of Teacher Training	FTT	NO
A 30	Welsh Joint Education Committee	WJEC	UK LF5 2YOC
A 31	Keele University	KU	UK ST5 5BG
A 32	Universita de Padova	UDP	IT 35100
A 33	Universidade de Lisboa	UL	PT 1700
C 2	Bundesministerium für Unterricht und Kulturelle Angelegenheiten		See contractors list
C 3	Ministère de l'Éducation		
C 4	Schulen ans Netz		
C 5	Undervisningsministeriet		
C 6	Ministère de l'Éducation Nationale, de l'enseignement supérieur et de la recherche		
C 7	Ministerie van de Vlaamse Gemeenschap		
C 8	Institute Diarkous Katarsis kai Ekpedefs		
C 9	Icelandic Educational Network, Ismennt		
C 10	Department of Education		
C 11	Bibliotec di Documentazione Pedagogica		
C 12	Ministry of Education and Vocational Training		
C 13	Ministerie van Onderwijs, Cultuur en Wetenschappen		
C 14	Det Kongelige Kirke-, Utdnnings- og Forskningsdepartementet		
C 15	Departamento de Avaliação, Prospectiva e Planeamento		
C16	Programa de Nuevas Tecnologías de la Información y de la Comunicación		

Number of Participants

Number of Contractors (including Co-ordinator)	16
Number of Associated Contractors	33
Number of Subcontractors	0
Number of Sponsoring Partners	0
Total Number of Participants	49

Programmes	Information Technologies (ESP)	Telematics Applications (TAP - ET)	Targeted Socio-Economic Research (TSER)	TEN-Telecom (TEN)	SOCRATES (SOC)	Leonardo da Vinci (LdV)
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Part B

Project description

PART B: PROPOSAL DESCRIPTION

General Proposal Description



1. Objectives of the project

1.1 Background

The European Schoolnet project is a Member States initiative to contribute to the implementation of the Action Plan "Learning in the Information Society". In Council resolution of 6 May 1996 on educational software and multimedia in education and training, the Commission was called upon to encourage "pilot projects using among other things national networks in order to link educational and training institutions in different Member States". At the request of the European Council meeting in Florence in June 1996 and as a follow-up to the Council resolution, in October last year the Commission presented its Action Plan.

Bearing in mind that the implementation and the deployment of electronic networks of schools in Europe is one key area of the Action Plan and taking into consideration the request by the Council for a pilot project involving national school networks, Ms. Ylva Johansson, Swedish Minister for School and Adult Education, in her closing address to the European conference "Towards a electronic network for schools" on 17 December 1997 proposed to Member States to contribute to the implementation of the Action Plan by taking a joint initiative to establish a European school information network to promote contacts and co-operation among schools in Europe.

At the invitation of Minister Johansson, representatives of all Member States and a number of EEA countries met in Brussels on 14 January and 26 February to discuss the initiative further. The result of the discussions were summarised in an Interim Report "Towards a European Schoolnet" which was presented to the Informal Education Council in Amsterdam 2-3 March 1997. The Education Ministers welcomed the report and

encourage the initiative to be developed further.

To define the key issues for the further work, two expert groups with representatives of the Member States and two EEA countries have been established and the outcome of their work will be two framework documents regarding the content and technical approach of a European Schoolnet.

On the basis of the expert reports and the discussions which have taken place at meetings of senior officials from Member States and EEA countries on 29 April and 3-4 June, a report will be prepared and presented by Minister Ylva Johansson at the Education Council meeting on 26 June.

The development of the European Schoolnet initiative has taken place in parallel to other important initiatives as regards school networks and ICT in education, some of which have been submitted within the framework of the Educational Multimedia Joint Call as well. The further development of the European Schoolnet will take this into consideration and will try to develop synergies and complementarity to other initiatives.

An important element of the Action Plan concerns the development of private-public partnerships. This is also a key issue as regards the European Schoolnet. Close co-operation will be established with the European Education Partnership (EEP) initiative which involves key industrial actors and the meeting organised by the Commission on 11-12 September 1997 on private-public partnerships will be a great interest to the European Schoolnet.

1.2 Objective of the Project

General objective

To establish a European school information network – the European Schoolnet
- as a multimedia and communications *platform* as well as a *framework* for

- collaboration between schools in Europe,
- high-quality information services with a pedagogical content and representing a European added-value,
- co-operation at a European level among national education authorities, universities and industry to develop ICT in schools as regards content, pedagogical approaches and technology and
- professional development of teachers, in particular concerning the use of ICT in teaching and learning.

The proposal is designed to respond to some of the major policy concerns of the European Union and its Member States – concerns which are relevant also for other countries of the European Economic Area and for the countries of Central and Eastern Europe.

Foremost among them are:

- developing *Citizen's Europe* for which the strengthening of the European dimension in education and training is essential,
- furthering *quality education* and training at all levels,
- preserving the *cultural and linguistic diversity* of Europe,
- using the potential of new information and communications technologies (ICT) to raise the *social well-being* of the citizens of Europe and
- strengthening the *industrial and economic competitiveness* of Europe and creating employment.

As reflected in a number of key documents¹ and in resolutions from the Council and the Parliament related to these documents, it is important to use the potential and opportunities offered by new information and communications technologies to meet these concerns. This proposal is based on this belief and the project proposed – the European Schoolnet – aims at promoting and developing the use of ICT by schools in Europe.

The proposal for a European Schoolnet therefore reflects the priorities and concerns of the Commission's action plan "*Learning in the Information Society*", the report of the Study group on education and training "*Accomplishing Europe through education and training*", the Council resolution of 6 May 1996 on *educational software and multimedia in education and training* and the Parliament resolution of 13 March 1997 on *the Information Society, culture and education*. It also takes into consideration the experiences gained in Member States as regards school information networks, in particular at national and regional level.

The European Schoolnet project is designed to establish a **network of networks** for mutual support and for the development and delivery of tools and pedagogical information services with a European added value. It will present an excellent opportunity for a large-scale, co-ordinated effort towards transnational co-operation in the development of appropriate technology and its use, and making a significant contribution to the development of curricula and the training of teachers through the exchange of examples of good practice and other dissemination activities.

It will establish a **common platform** for *national/regional networks* associated with national educational authorities as well as for *specialised European networks* run by public or private partners or by public-private partnerships. The high-level support in Member States for establishing a European Schoolnet as reflected in the reaction of the Informal Education Council to the Interim report presented by Minister Ylva Johansson, and the character of the EUN partnership bringing together, among others, ministries of education, national school administrations and existing school networks ensure that it is solidly based in official **national environments** for school development and that its contributions will reflect their needs and priorities. In this

¹ The White Paper "*Growth, competitiveness and employment*",
The Report "*Europe and the global information society – Recommendations to the European Council*",
The Communication "*Europe's way to the Information Society: an action plan*" (COM (94) 0347),
The Communication "*Europe at the forefront of the global information society. Rolling action plan*" (COM (96) 606),
The Communication "*The implications of the information society for European Union policies – Preparing the next steps*" (COM (96) 0395),
The Green Paper "*Living and working in the Information Society: People first*",
The White Paper "*Teaching and learning – Towards the learning society*",
The Final Report of the Task Force for Educational Software and Multimedia,
The Communication "*Learning in the Information Society – Action plan for a European education initiative*" (COM (96) 471)
The Report "*Accomplishing Europe through education and training*"

way, it will also provide a common instrument for **enhancing the quality of education and promoting the deployment of ICT and Euro-ISDN in education.**

1.2.1 Operational objectives

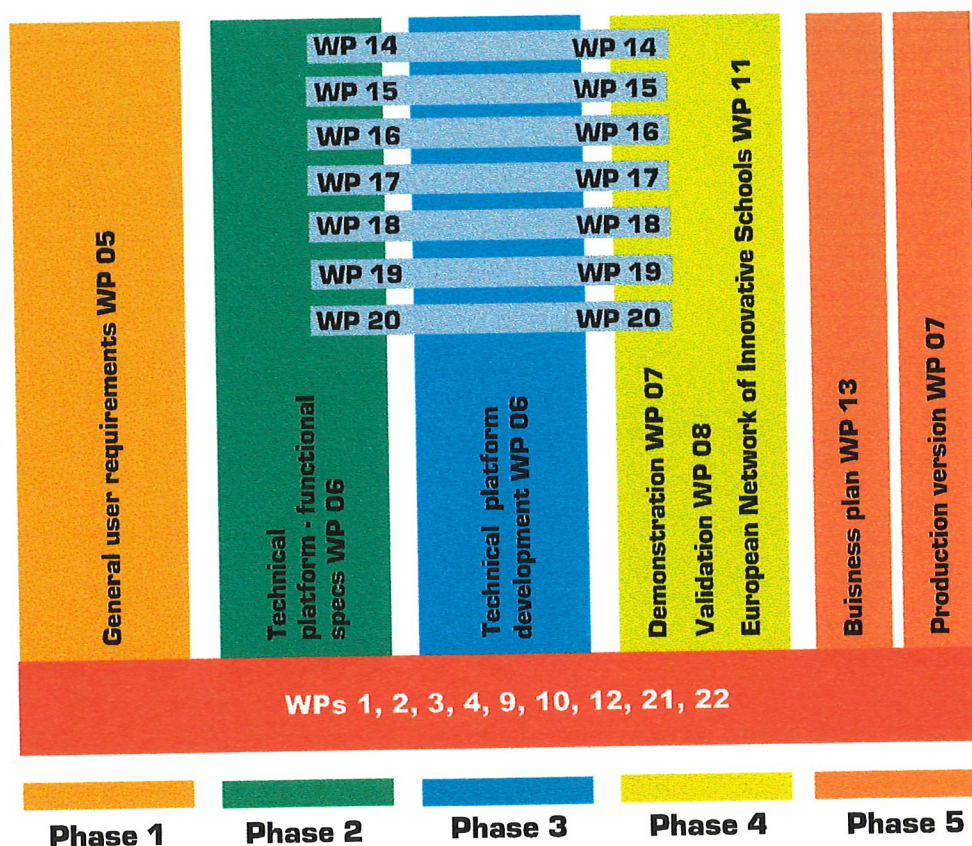
In the process of meeting the overall objective, the project will set out to achieve a number of operative objectives:

- To develop and set up a model platform offering pupils and teachers access to high quality information and services of European interest.
- To develop and validate a number of multimedia tools and services in the field of education and training, supporting the establishment on the EUN Internet platform of Classroom Library and Multimedia Lab spaces for schools, together with a European Virtual Teacher College for professional development of teachers.
- To develop innovative pedagogical guidelines supporting the introduction and use of ICT in education and training, based on research and validation activities, to be published and disseminated in electronic format.
- To establish a network of 500 innovative schools to act as a test-bed, providers of good examples and animators of the EUN, supporting other European schools wishing to employ ICT in education and training.
- To establish the conditions for making the EUN a self-sustaining service - critical success factors, financial implications, present and future market situation - through the realisation of a feasibility study which includes demonstration and development of a business plan.

1.3 Phase of the Project

The project will enter the five-stage project life-cycle model at the first stage. Some preliminary activities will have been carried out, among other thing work by expert groups to define key issues for the establishment of a European Schoolnet and the setting up of an experimental server in conjunction with Netd@ys Europe in October 1997. Some of the work packages will draw on the results of previous efforts carried out by the partner in question.

The project is divided into 22 different work packages. The first four work packages and numbers 09, 10 and 12 are concerned with project administration/control and general project support. WPs 21 and 22 will underpin other project activities by providing pedagogical and organisational knowledge and guidelines. The remaining work packages (WPs) fit the five stage model as follows:



1.4 Reference list

Some of the work relevant to the European Schoolnet project which has been carried out by some of its partners and the result of which will be used in the appropriate work packages are:

- "Towards a European Schoolnet", Interim report presented by the Swedish Minister of Schools and Adult Education, Mrs Ylva Johansson, to the Informal Education Council in Amsterdam
- EUN experimental platform [URL: [http:// www.eun.org](http://www.eun.org)]
- ALAS (ESPRIT-PASO PC249)
- TRENDS (Telematics for Education and Training ET 1024)
- DESIRE [URL: <http://www.nic.surfnet.nl/surfnet/projects/desire/>] (Telematics for Research RE 1004)
- EUROPAGATE [URL: <http://europagate.dtv.dk/>]
- UNIVERSE [URL: <http://www.dtv.dk/universe/>]
- Nordic Web Index project [URL: <http://nwi.dtv.dk/>]
- Nordic Metadata project [URL: <http://linnea.helsinki.fi/meta>]

1.5 Demonstration

The project will enter the demonstration phase as the EUN demonstrator to be constructed in WP 07 is finalised and verified. The main task in preparing the demonstrator will be to integrate the tools and applications produced in WPs 14-20 with the technical platform from WP 06 and to decide evaluation methods to be used. This process will naturally involve both application and platform developers as well as partners dealing with pedagogical issues in WPs 21-22.

The establishment of conditions and plans for validating this comprehensive project and all of its individual components will take place in a special WP (WP08). Considering the complex and comprehensive nature of this project and its components it is necessary to coordinate and develop these activities within the framework of a structured plan. This WP will design the test settings and scenarios that in the most fruitful way possible support the demonstration of the system and all its aspects in different educational, pedagogical, cultural and linguistic settings.

The demonstration will be launched in a three-stage process.

- The establishment of a European Network of Innovative Schools (ENIS) and the provision of an ENIS toolbox
- The launching of the EUN demonstrator
- The realisation of a number of pilot projects in schools as demonstration activities.

The first task, and this is an essential one, is to help prepare the teacher user group which will have an important role to play. It is vital that the teachers are convinced of the advantages and know how to make use of the tools provided. It is the teacher who is going to introduce the EUN into their classrooms and instruct the pupils on how to use it for educational gains. He/she must obviously be dedicated to exploring the possibilities offered by new technologies.

Considering the importance of this user group, the project will thus set up the European Network of Innovative Schools, which basically consists of pupils and teachers. This network will be set up in WP 11, where the selection of schools for participation will be based on criteria which are to be developed as an initial project activity. This WP will provide participants in the network with a specially designed ENIS toolbox, consisting of both technical and non-technical tools. The purpose is to support teachers and school organisations in managing the changes required, and to offer support for demonstration activities to be carried out.

Secondly, a number of introduction and demonstration sessions will be planned and held at selected sites (e.g. exhibitions, conferences, schools, etc.) throughout Europe, with participation from project partners presenting and exhibiting the demonstrator. At these occasions the preliminary opinion of users will be surveyed and taken into account. One of the objectives is to ensure that instructions for use provided are adequate.

Thirdly, a large number of pilot projects involving ENIS schools will be carried out. In its final phase of development this network, which initially will consist of 5 schools from each country, will include 500 schools from all European countries. The orientation and content of their projects is to be chosen by the pupils and teachers themselves, in order to ensure local commitment and to leave room for the establishment of new transnational partnerships.

Demonstration projects must, however, conform to the overall objectives of the activity, namely to test one or more aspects of the EUN system with a view to providing input for enhancement. For this purpose, there will be an ENIS management team, to ensure the proper working of the network, offer support and to bring the network to fulfil its demonstration mission.

User experiences will be collected via surveys, questionnaires and case studies both in paper and electronic formats. The project will also collect and analyse feedback via electronic forums set up on the EUN platform. Important aspects to investigate and analyse are, for instance, user friendliness, user acceptance, system services preferences, usefulness, contribution to improving learning as experienced by the end-users. The EUN Project Office will coordinate activities to compile the data and prepare a demonstration report, which will be used to establish and carry out enhancements needed to the system.

1.6 Dependencies

1.6.1 Related European and National Projects

There exist in Europe a large number of school networks and new are being developed almost every day. They range from small local and regional networks, sometimes of an experimental nature to large national school networks or European-wide networks focused on particular themes or topics.

The core partners of the European Schoolnet initiative are responsible for some of the main national and regional school networks, while others are preparing the establishment of such networks.

The EUN project is designed to create a network of networks, primarily consisting of existing national and regional school networks. It will thus link closely to practically all such initiatives launched in the Member States at present and aims at establishing links to those which will be developed. . As a consequence of these links to national schoolnets the EUN will also link to any initiative in the Member State published on or realised by way of such schoolnets.

1.6.2 Co-operation and Co-ordination

The EUN will seek co-operation with related projects, as it is in the very nature of this network to strive for collaboration with other initiatives and efforts in the educational sector in the process of establishing an all-embracing and competitive platform for providing Internet services with a European added value. The project therefor clearly states that the integration of additional projects/partners to the EUN is seen by the consortium not only as a positive effect, but rather as a prerequisite for further development of the network into a sustainable force. In fact, the project includes a special WP (WP04) for establishing opportunities and forms for cooperation and creation of synergistic effects together with other projects. It will take a particular interest in developing co-operation and synergies with other European-wide school networks presented within the framework of the Call.

1.6.3 Ensurance of timely availability

Actions to ensure timely availability of external results – including knowledge and experience – could be divided into several strands.

The first concerns one of the tasks of the European SchoolNet Technical Support Network (ETN). Apart from its task of handling the overall technical operation of the schoolnet it will also set up a technology observatory, complementing its internal responsibility with external functions. In this function the EUN TechNet will keep a constant watch with a view to collecting and providing access to information on issues of general relevance for school networks in Europe and to make it generally available on the EUN. This aspect of the EUN TechNet will thus serve as a centre for up-to-date information.

The second concerns the peer evaluation group which will be set up in WP 09. The peer evaluators will be European experts in their respective fields. Thus, in the process of performing peer evaluations of work carried out within the EUN project, they will provide a forum for exchange of experience and valuable

information on state of the art in several matters.

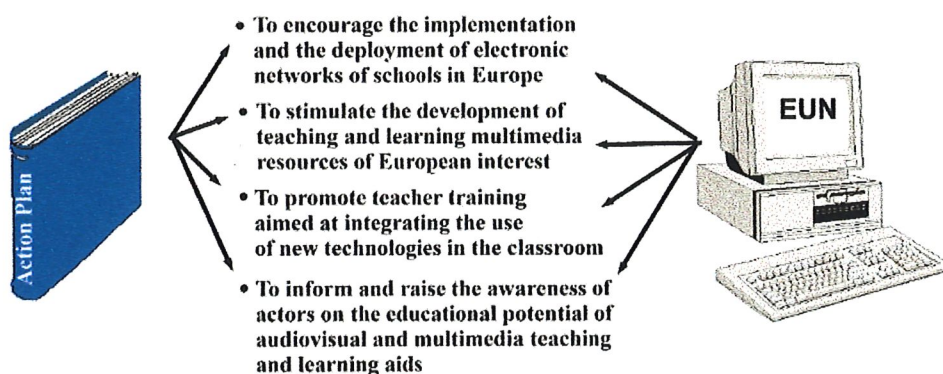
The third involves the activities in WP 04 Cooperation and Synergy, where the EUN will seek out and investigate opportunities for cooperation with other related projects and partners in the educational fields of interest covered by the EUN. The activities will, e.g. include the organisation of technical and content-oriented seminars which could attract participants with on-going or new projects that could be integrated to enhance the value of the EUN system both in the short and long term.

2. Rationale of the project

2.1 Meeting the overall objectives of the Educational Multimedia Joint Call

As stated in the Common Workplan for the Call, its aim is to fulfil the objectives of the Action Plan "Learning in the Information Society"

As stated elsewhere in this report, the European Schoolnet project is specifically designed to contribute towards the implementation of the Action Plan and to respond to the concerns reflected therein. Consequently, the project presented is focused on the same areas of action as the Action Plan and it will strive to achieve the same goals.



First and foremost the EUN project will build on existing national and regional school networks in Europe to implement a Pan-European, open access network of networks which will

- demonstrate the potential of Internet-based school information networks and which will
- stimulate the growth of such networks by establishing a framework for the development of content, pedagogical approaches and technology as regards ICT in education.

By bringing together national/regional networks and specialised European networks, it will also provide schools with access to a wide range of pedagogical services and a large number of opportunities for collaborative work.

In addition to building the infrastructure for a European Schoolnet, the project will develop a number of multimedia tools aimed at both pupils and teachers, where user-friendliness will be a major objective, in order to ensure widespread acceptance and to make a substantial contribution towards the popularisation of multimedia and ICT in education.

Specific tasks within the EUN project will devote their efforts to the production and promotion of training materials and tools for teachers regarding the use of ICT in education. This aspect of the project also includes activities aiming to develop pedagogical innovation and investigate conditions for organisational change in schools. Thereby providing school organisations, school leaders and teachers with much needed support for mastering the profound reorganisation of learning and teaching processes anticipated as a result of the introduction of new technologies and the evolution of the information society.

2.2 How the project will meet the objectives of the specific tasks

The EUN project will meet the objectives of the Telematics Applications Programme (Tasks 1.8 and 2.1) in the areas of Advanced multimedia experiments for schools and Support tools for and applications for personal learning environments. This will be done by the establishing and validating a number of new on-line and off-line multimedia services and applications which are brought together and integrated into an experimental network – the EUN. The project sets out to equip pupils and teachers with tools suited to their specific needs in the teaching and learning situation. The resulting network will provide schools with access to information and communication tools in a manner which is designed to support the implementation of ICT in education.

The EUN will incorporate multimedia authoring tools (WP14), search engine (WP15), audio and video database (WP16), interactive training based on sound (WP17), interactive virtual library (WP18), and intuitive adaptive virtual work environment (WP19). Work within the project will involve both R&D and integration aspects to put in place a set of tools, tested and validated by a large number of users in realistic settings and situations. These activities will take into consideration the development of new pedagogical frameworks for teaching and learning and validate them in demonstrations, thus ensuring that the outcomes of TAP work packages will meet the needs of end users in an efficient, cost-effective and – to education – fruitful telematic/virtual environments.

SOCRATES objectives for task SOCR 6 will be met through the establishment of an open access space for educational institutions. The EUN will offer educational establishments and relevant user groups access to information, electronic fora for institutions interested in open and distance learning. The EUN network will generate, through the provision of meeting-places and forums for direct contact and exchange of experience between users - primarily pupils and teachers but also teacher educators, school leaders and other key actors – transnational cooperation. Objectives of SOCR 3 will be met through the development of innovative pedagogy for learning, teacher training and management of organisational change in educational institutions. This will take place within WPs 20-22, where the project will identify, implement and disseminate new pedagogical approaches to both pre and in-service training of teachers. The activities will also include the production of guidelines for school organisations, including school managers, to implement multimedia and new technologies in the management of their institutions and their curricula.

TEN Telecom objectives for task TEN1 will be met in the realisation of a feasibility study including market analysis, integration and full-scale demonstration within WPs 5-13. The study will investigate all aspects that could have an impact on the effective deployment of the overall EUN system in the future. This work will take into consideration, inter alia, financial implications, user acceptance and market situation. It will also examine opportunities for integrating new communication technology such as EURO-ISDN for promoting enhanced use of educational multimedia resources.

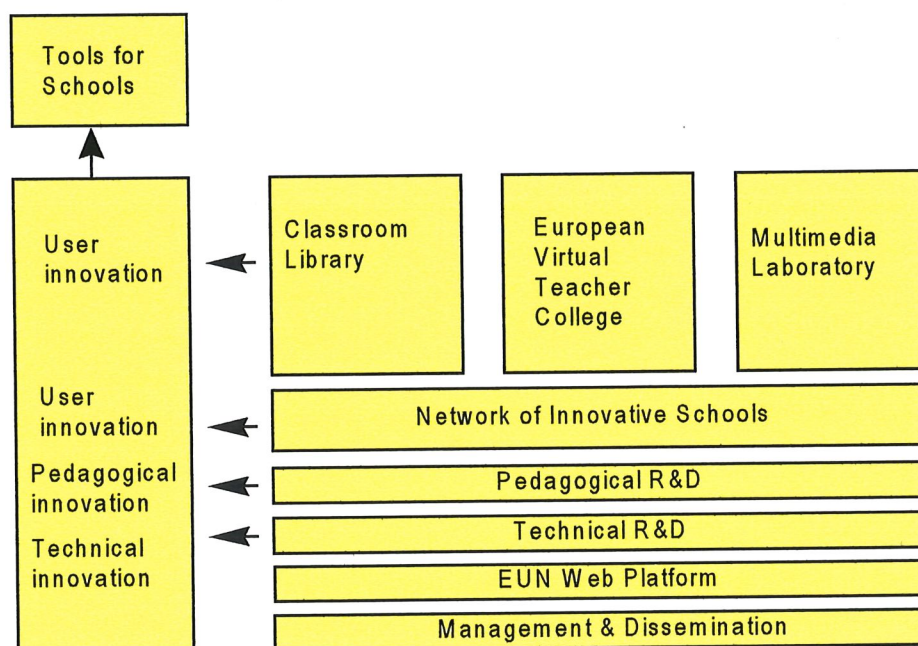
2.3 Project's strategic approach

2.3.1 Interface for Innovation Model

By its very nature, the European Schoolnet is focused on **innovation and the dissemination of good practice**. Its purpose to contribute to the development of the use of ICT in school education will oblige it to consider how existing tools could be better adapted to the needs of schools and under what conditions new technologies could be successfully introduced into teaching and learning. In this way, it will constitute an **interface for innovation**.

However, it is important that the European Schoolnet takes a full part of the responsibility also for developing innovation as regards ICT in school education - innovations which could be of a technical nature but which more often will concern the innovative use and adaptation of existing tools and technology. The network will

be in a position to do this since there are elements of its structure which will have innovation and development as one of their particular focuses. Such areas within the EUN framework are illustrated in the table below, which thus also illustrates the general approach of the project.



2.3.2 European Network of Innovative Schools

As part of the EUN structure, a **European Network of Innovative Schools** will be established to create a common framework for carrying out pilot projects aimed at the development of ICT in school education. Its purpose is to establish a European context for projects on different aspects of ICT involving schools which have the proper equipment and previous experience of ICT. The network should be looked upon as a support structure for other parts of the EUN framework to provide a breeding and testing ground for new ideas and developments.

2.3.3 European Virtual Teacher College

A **European Virtual Teacher College (EVTC)** for professional development, evaluation and research will be established as part of the EUN framework. The purpose of such a college would be to provide an experimental laboratory and a professional development centre. Within it, new products would be developed for teachers in training as well as teachers who are updating and reskilling in the areas of ICT. Also, it would be a space in which teachers and teacher educators engage in observation, reflection and discussion about improving schools and the quality of teaching.

2.3.4 Research and development

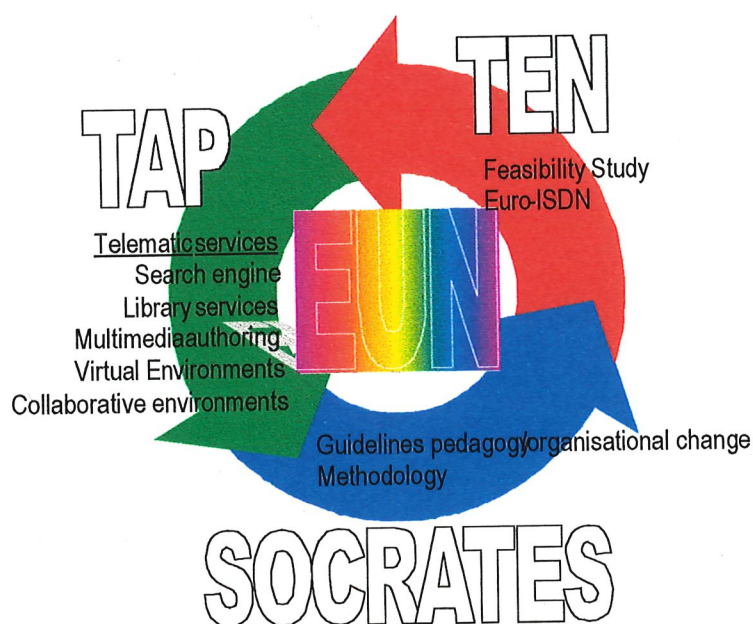
A strong R&D component - both technical and pedagogical - is important to ensure that the network can contribute to the accumulation of new knowledge and to validate the experiences gained by schools in using the network and from the pilot projects run by e.g. the Network of Innovative Schools. It is therefore important to emphasise the relations between teachers (practitioners) and researchers both within the field of ICT and in education.

A number of important technical issues must be addressed as part of EUN R&D activities. Some of them specific to the development and operation of the web platform, while others are of a more general nature relevant to a European school network infrastructure. There is a common need among the different school information networks in the Member States to keep abreast of the technological development and as far as possible to be a partner to it.

Several of the activities outlined in this proposal require active cooperation between teachers and researchers. The European Virtual Teacher College as well as the European Network of Innovative Schools are based on teachers as action researchers and on the development of new forms of contacts and relations between teachers (and pupils), teacher educators and researchers.

2.4 Synergies between programmes

By combining development of technical services within the framework of the Telematics Applications Programme with development of methodology and establishment of pedagogical guidelines within SOCRATES the project aims at ensuring greater user acceptance through the support for changing and redirecting offered to end-users in their daily activities in schools. One of the problems we have seen in the wake of the emergence of the information society is that people feel estranged from the technology which is supposed to help them. Technology which should not only help them to fulfil their tasks but also to find new, more effective and interesting ways to carry them out. This certainly proves the case for an all-embracing initiative – covering both technology and pedagogy - in the area of the EUN project. It is the firm conviction of the project consortium and its expertise that the technological aspects of the EUN would find it much more difficult to gain ground without pedagogical activities to support teachers and pupils in their teaching and learning processes, as well as the reorganisation and change process in schools.



The project will combine work within TAP and SOCRATES and integrate it into a consistent EUN platform that will be established and validated within the framework of TEN-Telecom. TEN-Telecom resources will also be used to test possibilities of using Euro-ISDN and carry out a feasibility study as regards the full deployment of the EUN. This study will provide background material, e.g. in the form of a business plan, for a decision on how to make the EUN a viable, self-sustaining service in the 21st century.

The EUN will use an existing infrastructure – the Internet – as the basic medium for communication. Existing school networks will also be used in the sense that they will be interconnected via the European SchoolNet,

taking advantage of and drawing on the content and technology of these networks to create an added value and synergistic effects.

In the light of the competition from the Internet as such, it has been considered of vital importance that the EUN can offer users access to a number of worthwhile services, all gathered on an attractively designed platform. It must provide all of the basic services requested by school users, as well as a number of services for specific user groups such as teachers for instance. The EUN must be able to compete in all fields: performance, attractiveness, performance, supply of services and worthwhile information/material, to survive and develop into a driving force for extended use of ICT in schools. The combination of services will thus increase user acceptance and, ultimately, market acceptance of the EUN.

Through the establishment of a common platform for all European schoolnets, where resources could be pooled with a view to increasing competitiveness, the interest in materials and services originating in individual schoolnets will increase. It will, undoubtedly, facilitate the process of putting the EUN platform on the Internet map and give it a firm footing in the general consciousness of the educational community. Through transnational cooperation dissemination activities could be coordinated and they will certainly receive more attention on a European scale.

3 European Added Value

3.1 European added-value

3.1.1 European added-value of carrying out the project within a European framework

There are a number of key areas for the promotion and development of ICT in schools which seem appropriate for joint action in order to supplement and strengthen national, regional and local developments. Some of these areas concern the development of technology and ICT tools; others the training of teachers to understand and to manage the tools and to develop knowledge of methodology, pedagogy and the conditions under which they can be successfully used. A third area is the development of the Internet and multimedia services for educational purposes. A fourth is the identification of technological developments and mutual support for developing national networks. Finally, there is, of course, the area of promoting European co-operation among schools and strengthening the European dimension in education. Thus the EUN, as a network of networks, is a natural expansion on a transnational level. It should be seen as part of an open European information network infrastructure for schools along with local, regional and national networks; an infrastructure offering support to the work of schools at these different levels. There are thus large-scale synergies to be drawn from linking existing and planned national, regional and local initiatives in school organisations.

3.1.2 Contribution to improving the competitiveness of European industry

The EUN will provide a common platform for European actors in education and industry for information services and the development of ICT in education. The project is a vehicle for communications with private companies and public authorities on the development of ICT for schools. In this context the project can create an interactive drive so that schools can benefit from keeping in touch with the latest developments in the industrial production of multimedia tools and services, European educational industry can take advantage of direct feedback from end-users

3.1.3 Contribution to improving learning and training systems in Europe

A strong case could be made in favour of a common European effort by Member States in this field, as reflected in the Council Resolution on educational MM software. The more networks are developed at regional and national levels, the stronger the case for a network of networks at a European level. Access to international data networks will expand the school environment far beyond its physical limits and national boundaries. With the EUN, schools will have easy access to a common integrated platform which links them together, making a multitude of tools and services available and facilitating communication and joint project working. New opportunities created by ICT will be made available to education in general and more fully exploited by schools.

In order to achieve the aim of improving European education, the EUN will make these new technologies understandable and acceptable to teachers and those responsible for education. They will learn to organise teaching and learning in such a way that ICT becomes a natural working tool in all subjects. Pupils will find motivation to carry out their own pursuit of knowledge and new methods of language teaching and learning will be developed.

The unique feature of the EUN as a network of networks should ensure that it will be solidly based in official national environments for school development and that its contributions will reflect their needs and priorities. In this way it will provide a common instrument for enhancing the quality of education. It will provide schools with a comprehensive entry point to the world of Internet services ensuring easy access to general support as regards the Internet and its use in schools. The outcome of the project will serve as an example to disseminate to schools all over Europe.

3.1.4 Links and root within relevant national actions

The EUN has its roots firmly in the context of European education and national initiatives. Through the interconnection of a large number of national school networks and the involvement of national authorities and administrations, links and opportunities for synergistic effects will include almost any action and policy on the national level. The coordination and taking advantage of national actions is in fact one of the cornerstones upon which the construction of the EUN rests. For references, see section 1.6.1.

3.1.5 Contribution to preservation of cultural and linguistic diversity

Since a large number of European countries will participate in the EUN project and one of the basic ideas is to link national information sources, the network will truly be able to reflect the richness and diversity of European culture. Hence, the network is able to pursue its role as a platform and meeting place for bringing teachers, pupils, researchers and educational decision-makers from different countries together for practical cooperation and the exchange of ideas and experience. The plans for establishment of the EUN as an information network infrastructure emphasises that the key role must be played by the national/regional networks. It is on this level that the definition is given to the cultural, social and institutional framework in which local school development takes place.

3.2. Contribution to EU policy objectives for Education, Training and Employment

The proposal adheres closely to relevant EU policies in this field, notably expressed in the Action Plan "Learning in the information society" (further references, see section 1.2). It follows from what has been mentioned above that an important contribution to the development of European school education in general will be made, as the project activities will lead to wider acceptance in schools of modern technology and multimedia based learning and teaching.

The project aims at encouraging widespread application of multimedia pedagogical practices and forming of a critical mass of users, products and educational multimedia services. The EUN will bring a European dimension to education of young people with its tools of the information society whilst enhancing cultural and linguistic diversity.

Even though it is not an explicit objective of the EUN to cater to the needs of disabled and disadvantaged pupils, the techniques and pedagogy developed will naturally contribute to creating better conditions for their full and active participation in all kinds of education and improving the quality of life of these groups. With the help of ICT disabled students will not suffer as much from physical immobility in their quest for knowledge and worthwhile experiences, direct communication with pupils in other countries, videoconferencing and virtual field trips will make them part of the European exchange schemes, if not to the full extent, at least in a way never experienced before. As regards disadvantaged pupils, tired of school and with low study motivation, new means and methods - such as project and self-learning, knowledge-seeking, etc - of acquiring knowledge could instil in them a sense of curiosity and accomplishment which ultimately could make their education worthwhile.

The EUN promotes a sound development of the economic life in the entire Community as we enter the information society. Economic and social concord and solidarity amongst member states will be strengthened. In fact, the EUN could be regarded as a coherence project, and not only in the educational sense. It also creates conditions for giving pupils throughout the Union more equal opportunities of receiving a diversified education of high quality and thereby a better preparation for their careers and working life.

4 User needs addressed

In an information-laden society, schools will no longer have a monopoly of information and knowledge and their social task will change accordingly. Young people will find information and knowledge everywhere making use of the opportunities offered by new technologies. A fundamental justification for integrating information network services into the daily life of schools can be expressed in very simple terms: the task of the school is to prepare young people for life and these network services are already part of the social and working life environment which young people will have to face. In addition, these networks provide teachers and pupils with access to a whole new range of tools and opportunities.

For some time now, there has been a general basic need for a logical information network for the school society in Europe. An infra structure providing schools with a well structured network for information services, educational services, a tool for trans European communication and cooperation and providing close contact with front-line information technology. The EUN project offers such a network with access to a number of highly specialized sections with aims to meet the needs of different users in the school.

The users of the EUN can be found at different levels of the school system. It will be an important goal for the project to create a profile of each separate part area of the EUN based on an analysis of user needs.

Schools need to embrace the progress of ICT and are faced with the challenges of new virtual spaces for co-operation and learning. Hence, the EUN should give support, guidance, advice and also offer general network applications and downloadable demo software in helping schools to find and take advantage of user-friendly, high quality, cost-effective solutions. The EUN will give access to educational material, new methods and tools for learning and up-to-date technical tools.

Teachers can not be expected to keep up with the handling of new hardware, new multimedia software or finding quality information and learning resources in the Internet without extensive, continuous support. We know from experiences during the last ten years that the rapid change and development of technology has quickly made investments in efforts and methods for the training of teachers obsolete. The Virtual Teacher College will offer a common space for continuous teacher support and training. There will be an European added value in the sharing of results from research and development. The development and exposure of new multimedia products in the Multimedia Laboratory environment of the EUN will address the users need to follow and compare such products on the market. The Classroom Library part of the EUN will offer links to quality information sites with a variety of educational materials.

School leaders need a lot of support to be able to manage the changes required in school organisations, following on the rapid changes in the information society. There is a need for frequent renewals of curricula. School leaders will be given access to forums for open discussions and sharing of experiences about the curriculum development work and good examples on the transformation of schools into learning organisations. In these forums school leaders will be able to learn and contribute to problem solving in matters concerning the management of change in schools. The variety of models offered from different countries implies an added European value to the EUN.

Pupils need guidance and support - more than ever before - to be able to understand and handle the often unstructured multitude of learning opportunities to be found in network information resources. Pupils are should be prepared for lifelong learning in schools, but there is a risk that information overload and loss of references instead could create anxiety and total confusion.

The EUN will offer a well structured learning environment where specially designed tools, such as an EUN Quality Web Index, Contact and Link Galleries, Partnership Databases, etc, will give overview and access to information sites addressing pupils needs. The EUN will offer meeting-places for pupils and give supporting information to those who wish to study or practice in other EU countries.

At present there is great diversity in how and to what extent ICT is used in the schools of different countries of the European Union. This state of affairs constitutes a major quality problem, as the result is that a number of European pupils will leave school as "IT illiterates". In this light the development of the information society could result in the emergence of large ranks of school-leavers destined to play in a second division of the labour market. This project addresses this issue as it links national networks, thereby effecting a sharing of resources and experiences, as well as dissemination of knowledge from countries which are more advanced in this field. In this respect the project could be considered as a "coherence project", equalising differences between countries and counteracting new social divides.

User involvement will be initiated at the very start of the project as one of the first activities is a European/National formative user requirements analysis. The project will also establish a support structure for the project - a special user group called the European Network of Innovative Schools (ENIS). Its members will be teachers and pupils from a large number of reasonably well equipped schools (but also less technically experienced schools in order to ensure that a representative sample is used) with previous experience of ICT utilisation. Further user involvement is also achieved through the establishment of the European Virtual Teacher College that will provide links between research and practice, between teachers and teacher educators and also involves ENIS. These groups will be a driving force in establishing the orientation of the project and what needs should be satisfied within each work package, first and foremost in their role as main participants in validation/demonstration activities.

Validation will take place in three steps. The first step includes the technical verification of services, tools and pedagogical practices to be done by designers and developers, in cooperation with a select number of ENIS schools. Initially verification work will analyse, with the help of commonly used tools and methods, that the objects fulfil the demands as expressed in the user requirements analysis performed in WP 05 and the technical specifications in WP 06. Aspects to be considered are, e.g. critical success factors, reliability, robustness, ergonomics, user friendliness and performance.

Verification will take place first with the individual parts of the system, within the specific technical or pedagogical development work packages, and later with the system as a whole when the system components are integrated into an EUN platform demonstrator. The exact criteria which must be fulfilled before bringing the project outcome to the full demonstration phase will be established in a special work package (WP08), which will also define conditions and settings for the validation testing. The ensuing demonstration will take place with a large population of schools from all EU countries. The ENIS network in its entirety will be involved in this activity, together with a number of teacher training colleges. Appropriate methods for communicating user feedback in these stages to the project partners will be devised in the course of the project.

5 Exploitation of results and/or market orientation

This project includes as its main partners a large number of Ministries of Education, National School Administrations and National School Networks associated with major teacher and teacher training organisations as well as key industrial players. The conditions for efficient dissemination in the specific questions raised by the EUN project are therefor ensured since the primary target group which stands to benefit from the results is, in many cases, directly connected to these authorities/-organisations.

Dissemination activities planned include the establishment of web pages with bulletin boards and electronic forums for the exchange of knowledge and experience, national and transnational workshops and seminars. The project will, naturally also make the best use of the regular information channels of the partners, e.g. existing newsletters, school conferences and education/training activities on ICT issues for, for instance, headteachers and teacher educators.

The project will initiate a transfer of experience on several levels. Within the project, countries having reached a higher level of ICT competence will transfer knowledge to countries less developed in this respect. There will also be an intense exchange of experiences between partners and users within the project, where appropriate models and methods for communicating user feedback will be established. Since much of this exchange is expected to take place via the Internet, non-project parties will be able to take part in many discussions on topics related to ICT and education. Finally, the project will also seek co-operation with other European projects, with a view to establishing mutual interests and to find out whether work already carried out could contribute towards minimising project costs.

Considering the present composition, it is safe to say that the consortium is well acquainted with the market concerned. From the school community the consortium includes authorities, public administrations, universities, teacher training colleges and schools. By including multimedia and software producers, telecom and service operators, the market awareness is supplemented with vital feedback and knowledge from the commercial side. The project will also, as part of TEN-Telecom activities, complement the user requirements analysis with an analysis of the market at present and in the near future.

There are legal implications associated with the full exploitation of results in that the application and deployment of large information banks give rise to copyright and IPR problems. It is imperative that the materials and tools produced - plus, of course materials to be produced and distributed via the European SchoolNet - are made generally accessible to all interested schools at favourable rates. Therefore the project proposes to devote efforts to the preparation of guidelines in this area to be used by schools wishing to incorporate material published on the SchoolNet in their teaching or production of multimedia based courseware. WP03 will be devoted to copyright and IPR issues.

5.1 Financial plan

The main responsibility for the project rests with ministries of education or national school networks. All of these contractual partners will, together, guarantee the project's financial capacity. All companies and educational organisations and universities involved in the project are large organisations with such financial resources, that they can take part in the project and provide the financial resources required to realise the project. Each partner will be responsible for attaining the financial objectives set.

5.2 Sustainability plan

The basis incentive for realising this project is that it should support the establishment of a European network for schools. This proposal forms part of this ambition and will constitute the foundation for future activities. The currently planned consortium composition with ministries/national partners, serves as a guarantee for future development of the EUN system after the completion of this project.

Today, there is a strong awareness among the member states of the European Union that it is necessary to develop knowledge and competence on ICT. Furthermore, the new pedagogy which is developed in Europe could be improved and strengthened through the utilisation of new technologies. In this context it is vital that European pupils come into contact with ICT at an early stage. Europe is already lagging behind the USA in this field, and there is a risk that Europe will fall seriously behind if the level of awareness and interest in ICT is not raised.

In this situation the EUN will work both as a driving force and a source of inspiration for development. The groundwork has been made for the establishment of a common European platform, which could put us in top position in the world when it comes to ICT use in education. Therefore it will be, possible to guarantee the interest and resources available for the survival of the EUN. Through this project the EUN and other initiatives will become a spearhead for the development of pedagogy and ICT in the schools in Europe.

Another important aspect of this project is the fact that a number of large industrial partners are involved. This creates opportunities for European industry to take active part in or follow the developments. There will be a great need among, first and foremost, educational multimedia producers for structural changes. Through this project the EUN offers industry a chance to develop knowledge and competence in areas where international competition will increase. Europe could, and should, with its cultural heritage, take the lead in the development of educational multimedia.

Most of the project results will be open and freely available for use by European industry. In each work package with an industrial partner, special contracts assigning the rights to the material will be drawn up. The partner represented in the Steering Committee have no commercial interest in the project. Their participation is mainly to ensure that the products developed in the project are made freely available to the EUN and schools in Europe.

In the course of the project a business plan for the full deployment of the EUN will be prepared. This plan will have to consider that the Internet is subject to rapid and strong development. Each month a new technology changing the conditions radically is introduced. This means that the business plan will have to develop in tune with the technical development on the Internet. The project will therefore, in the demonstration phase, develop a business plan covering successful areas. In this way the project could safeguard that the results are put to the best possible use.

For the full deployment after the project duration, the project will need to establish partnerships with a number of industrial partners/sponsors. This activity will be carried out within a special WP, WP 12 – Development of Partnerships.

6 State of the art and innovation

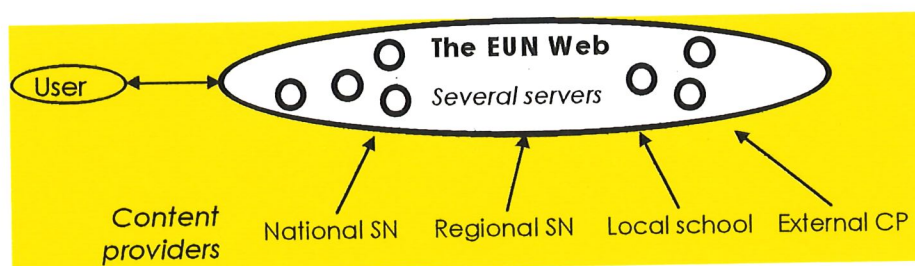
There are a number of national and regional networks operating in Europe. Internet and, in particular, WWW technologies have, in just a few years time, become a world-wide standard. New standards and applications are brought forward every month as the solution to all existing problems.

The EUN project will create a - long needed - logical common infra structure for European schools connecting the many schoolnet initiatives in Europe. It will bring a major European added value by offering general access to educational material, a general environment for communication and cooperation, access to the latest ICT tools for the support of learning and teaching and a virtual meeting place for researchers, educationalists, schools and the industries serving the school.

The EUN platform should be designed bearing in mind that it must co-operate with and support the national and regional networks as well as - in the initial phase - some schools without current access to local, regional or national networks.

The concept of a *meeting-place* is a significant innovative aspect of the EUN platform. It should be a meeting-place:

- for different cultures,
- for partners in international school projects,
- between the school and society outside school,
- between the different levels in the school system (pupils, teachers, school leaders, administrators, education researchers, etc),
- for schools and industry,
- between education and technology.



The EUN provides distributed services.

The EUN is by definition a logical structure for the collaboration of national content and service providers. One of its main purposes is to create an entry to and a coherent view of a multitude of services and information. It is a platform for distributed services, i.e., its content and services are primarily located on remote servers. Users enter the EUN via the central server and may then (transparently, via ordinary WWW links) enter services and fetch documents that are maintained at local/regional/national servers. This formulates requirements on the design and structure of the distributed services, in order to create a coherent and consistent EUN. Services and contents that are to be considered core EUN content must be co-ordinated (note: not controlled or maintained) by a group with overview of the EUN.

The innovative aspect of this is the creation of a new infrastructure for the effective distribution of services, results and co-operation in and between the European school systems.

The European Union should be a visible part in the EUN. The EUN could demonstrate the European added value showing what EU offers schools in Europe, e.g. by different education programmes (Comenius etc.), by the EUN network and other initiatives. The school partnership programmes offered in the EU context give support to a number of international pedagogical projects with well defined pedagogical aims and a structured content. One of the main goals with the EUN is to provide virtual meeting-places where schools can find partners for international projects and then be given maximum structured support in virtual environments to interact using the EUN.

The EUN relies upon the use of metadata in order to make its content accessible, organised and searchable. This is one of the corner-stones for the added-value of the EUN - to make the content and services of the national European schoolnets more accessible. It is not the goal to force all producers to use a common, multi-lingual, consistent metadata format for all services in the EUN. The main focus is to encourage content and service producers to include metadata in some form.

Since improved communication is a main goal, it is important to make sure that the core services of the EUN can be used by as many intended users as possible. This, must, however, not prevent the EUN from pushing new technology, e.g., examining the possibilities of EURO-ISDN. It is of vital importance to the EUN that it makes use of state-of-the-art and front-line technology if it wants to appeal to different groups of educational users with varying technical abilities and equipment.

Today, the commercial forces push development forward at a rapid pace, and therefore there is no need for this project to develop absolutely new specific tools - they will soon be available on the market. But the tools on the market must be adapted to the requirements and possibilities of schools. Using existing tools, adaptations and enhancements will be made. This project will set an innovative example for how standard applications could be adapted for use in schools, but will also define innovative pedagogical approaches on how these tools should be used in education.

The information services offered by the EUN will be based on the principles of distribution and decentralisation. This means that the initial stages of the project will use a centralised form of information access, but that the structure should be such that it could gradually be distributed to a multitude of access points in Europe. All long-term development efforts must adhere to the network approach, which means that the whole is a compound of a large number of smaller parts. The main innovative aspects of this project are:

- The creation of a new infrastructure for the effective distribution of services, results and co-operation in and between the European school systems.
- The EUN could demonstrate and support the European added value showing what EU offers schools in Europe, e.g. by different education programmes (Comenius etc.)
- The EUN provide virtual meeting-places where schools can find partners for international projects and then be given maximum structured support in virtual environments.
- Directory services for handling a distributed system of information and information access points. An aim is also to encourage content and service producers to include metadata in some form in order to foster the use of common standards and format when storing and retrieving digital information.
- Specially designed tools for information navigation. The term information navigation includes services and skills in finding information which is relevant and appropriate for the specific task at hand. This perspective also involves guidelines for quality and information assurance.

- An interactive multimedia archive, offering a set of services where schools can try and evaluate Internet based multimedia applications and tools designed for educational use. This project area will offer organisations targeting schools with their products access to a completely new medium offering new opportunities for interaction with end-users.

Another important area for this project is methods and models for using Internet and WWW technologies to create virtual learning environments. Today it is possible to use advanced multimedia applications, video conferences, live video seminars, databases with video and teaching material, etc. Here, we are still talking about a first generation of tools and the communication speed on the Internet impedes effective use of these technologies. However, the project believes that Internet communications will improve during the life-span of this project, making such use feasible in the next few years.

7 Technical approach

7.1 Standards and interoperability

The technical starting point of the project is that there are a number of existing schoolnets which should be interlinked in the most efficient manner possible in order to create a number of services with a European added value. The basis for the technical platform of the EUN, will as stated earlier, be IETF standards and recommendations. The technical support network and the activities in WP 6 will establish the server technology required, and in close consultation with the industrial partners a server or set of servers which is both powerful and flexible will be chosen.

The EUN will be a network of networks. Thus, the EUN platform should be designed bearing in mind that it must co-operate with and support the national and regional networks as well as - in the initial phase - some schools without current access to local, regional or national networks. It is important to create links - early in the process - to existing networks as well as directly to ongoing school projects representing good examples and perhaps possibilities for other schools to join in.

In the following sections the general features and the logical network structure of the EUN are described. The choice of sufficient technology will be made by experts to fulfill these needs. The separate specialized sections of the EUN platform will use front-line technology chosen or developed within the sub-projects as described in WPs 14-19.

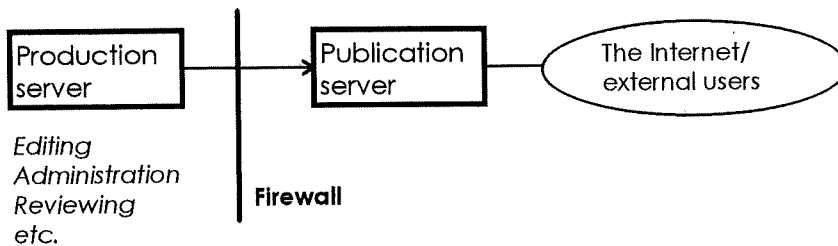
The state-of-the-art technology that will be used, together with a reasonable pricing policy (low-cost or free access to platform, individualized charge on application usage, etc.) are expected to henceforth raise the quality of anticipated educational services. The same technology (i.e. virtual world, Internet, multimedia, etc.) permits the dissemination of the expected educational innovations to every interested user or social group (i.e. each group could define its own training space, access to which could be provisional), and its adaptation to all cultures (i.e. multi-lingual user interfaces could be provided).

7.1.1 The basic infra structure

The central EUN server will in many situations act as the entry for users of the EUN. The EUN server must be able to operate 24 hours/day, 7days/week, all year. It must be able to provide a large number of users with information in a fast, reliable way.

This requires reliable hardware and software and a robust maintenance and monitoring organisation. It is possible to separate different main services and applications on different hardware, in order to create a more robust and fail-tolerant system. One possible set-up is to have a powerful (set of) computers operated as (from the users perspective) one WWW server. Another powerful (set of) computers may run large, demanding applications that produce services for the EUN.

The EUN server should consist of two sets of WWW servers: a public server for publication and an "internal" server for production. The production process for services to be put at the central server should involve the following steps: 1) receive new material, 2) put at internal server and discuss in editorial body, 3) integrate in system on production server, 4) publicise on the publication server.



Separated production and publication

The EUN should in all senses be prepared to secure maintenance, flexibility and growth. Some important aspects when selecting hardware and the software for it are of course speed, bandwidth and security. It is important to locate frequently used and bandwidth-intensive services at “good” places in the net, for example near the backbones. This recommendation can not be generalised or formulated in terms of current geography, since load and network capacity changes rapidly. Decisions about service location must be made at design-time, and in close co-operation with the expert group of the European Technical Support Network (ETN). In addition to good locations, each service must be designed and prepared so that its capacity may be expanded using multiple servers and mirror servers. Capacity expansion should result from user demand. Increased demands on capacity must be monitored, prepared for and handled by each individual service producer (in collaboration with the ETN).

Innovation must be a continuously ongoing process in the EUN. Hence, it will be necessary to have strong human and institutional links for co-operation at various levels to industrial innovation environments, to the US Internet II development environments and also to front-line Internet environments in the European research networks.

7.1.2 Security aspects

There are at least four different “types” of security to be aware of when designing the central EUN server: The degree of resources and technology required depends primarily on the desired level of security. Hence, each situation calls for a discussion where the ETN should be included.

7.1.3 System security - viruses

All externally produced software and contents that are to be integrated in the EUN should be checked for viruses; for protecting the EUN servers as well as the end-users.

7.1.4 External security

The EUN is most probably not a primary target for destructive attacks from the outside. However, there is always a risk that the EUN gets “negative publicity” if someone manages to manipulate the contents or use the server(s) for spreading stolen software and non-educational content. Hence, it is recommended that all servers in the EUN are at least located behind a firewall.

7.1.5 Transaction security - transaction payment, restricted services

Some services of the EUN might require identity/origin control, for example content producers who charge the EUN for providing their services to only the educational users of Europe. There are several approaches to this, primarily: a) login - require name and password for all users, b) IP-check - check the IP address of users. In the EUN perspective, both approaches have the drawback of generating a huge amount of administration (maintaining and checking identities). Furthermore, passwords may easily be spread and cracked, and IP-

checks are hard to handle when many users rely on “floating” addresses from modem connections.

It is recommended that this discussion is performed for each service requiring transaction security, and that the producer has the main responsibility for the technology required. Relevant EC policy documents regarding this matter should be consulted early on.

7.1.6 Information security - filtering, censoring

Editing (c.f. editorial work for a magazine/journal) the content of the EUN is crucial! This is in effect a procedure that filters the content of the net. However, some nations/regions/local organisations may want to filter information on the WWW/Internet even further. This must be the responsibility of each nation/region/local organisation; the EUN should not provide central filtering or censoring mechanisms for its users. The reason for this is twofold: a) different user groups and producers are likely to have different views on what is suitable and what is not - the EUN should not force everyone to conform, b) there are a large amount of legal issues that complicates this aspect - in some states, a filtering mechanism may in legal terms be equal to censoring, and hence illegal. Ethical issues will be an important part of the content co-ordinators of the EUN.

7.1.7 Mirror servers

In the future, it is probable that the EUN will get a huge amount of users, generating a vast number of “hits” for the EUN central server every day. It is possible that the server, or its connection to the Internet, will be bottle-neck. One approach to this problem is to use mirror servers, i.e., servers distributed over Europe (closer to the regional users) with exact copies of the main servers content. However, this requires a very fast and reliable mirroring mechanism (or the material will be out of sync for the users). Mirror usage should result from user demand.

7.1.8 Additional hardware

In addition to the basic hardware (and software) outlined above, the EUN central server may be used to host several other services to the users; these require additional hardware and software:

- Newsgroup servers
- Mailing list servers
- Reflectors for video conferencing, audio communication, etc. (Mbone, CU-SeeMe)

7.1.9 Software aspects

When selecting the software for the EUN server, the following aspects are of importance:

Security (see above).

The possibility to perform some administrative tasks remotely.

Some of the software needed may include:

- Server software, e.g., http (www), ftp, news, address repository applications.
- Metadata repository applications.
- Index and search facility production applications.
- File transfer software, from production to publication.
- Statistics (usage) software.

7.1.10 The Technical Support Network

The EUN Technical Support Network (ETN) will be responsible for the coordination of data formats, standards, protocols, etc. This network will also act as a reference and advisory group for the development of

the EUN. Each participating country will allocate personnel responsible for handling the contact with (or participating in) the ETN. The representatives should preferably be involved in each regional/national school net project, or similar organisations.

A basic idea of the project is to use existing Internet standards and standard hard and software. As there is a virtual jungle of applications and attempts at creating standards, the EUN fills an important function as a forum where schools, without the involvement of commercial forces, can obtain information on what line to take in the area of ICT development. The project will develop new virtual toolbox software, which will be independent of what kind of software the user has in the local environment. Most of these products will be developed in WP 19, Virtual workspace and tools for teachers.

Innovations in WP 14 will include the design and development of MultiLab, a multimedia toolbox that can serve as a low-cost platform for the development of multimedia educational applications, the integration in it of authoring tools (i.e. for multimedia content development, instructional management, student monitoring and assessment, etc.), and the development of technically and pedagogically innovative multimedia applications within the MultiLab that will serve as validation test-beds.

7.1.11 Platform maintenance

There are at least two different kinds of maintenance needed for the EUN server.

During the day-to-day operation, the EUN server requires a staff responsible for some of the maintenance and contact with content providers. This staff should include at least the following roles:

- Webmaster
- Content editors/publishers
- Provider helpdesk ("helping the helpers")
- These roles may be integrated or separated, depending on the priorities they are given. Their responsibilities may include, e.g.:
 - Receiving problem reports, user input, etc.
 - Contact with national/regional/local administrators.
 - Information propagation, content/service installation or updating, etc.
 - Statistics maintenance.

Being a computer system, the EUN server hardware and software requires a certain amount of long-term maintenance, e.g.:

- Hardware operation
- HW/SW update
- Backup maintenance

7.1.12 Helpdesk functions

Each service producer has the primary responsibility for helping and supporting the end-users. The EUN should provide (via the ETN) a central, internal helpdesk for the content producers and national/regional school nets ("helping the helpers"). It is possible that automated or semi-automated support systems and help-desks may be useful in the EUN. Such systems may be used to handle the first contact with the end-users, and to guide them to the right source of information or contact person.

7.1.13 Validation

The validation will include the construction of a demonstrator, where the tools and services developed in different WPs are combined into a model of the full-scale telematics service. Verification will then take place

with the “Network of Innovative Schools“ and the ”European Virtual Teacher College”. Users, i.e. pupils and teachers, will be involved in every stage of the process as extensive testing and demonstration are considered fundamental to the project.

8 Pedagogical approach

8.1 Sound pedagogical approach

One of the main goals of the EUN is to give support to teachers and pupils to enable them to create the frameworks where knowledge from external sources can be built and structured. Increasingly, the teachers role will be to guide the pupils in their pursuit of knowledge by providing information and designing the structured process which will allow this to take place. This is important since the school should continue to be a place also for the fostering of communicative and social skills and for the transfer of social and cultural values. In preparing young people for the information society, the school must make every effort to develop in the pupil problem solving skills and the ability to think critically. Two abilities which will be important in working life and society in general. This should certainly affect the way in which teaching and learning should be organised.

The innovative aspects of the EUN project are obvious: It provides schools with a new infrastructure which does not exist now – but which is necessary to allow teaching and learning with the help of ICT.

The shape of teacher training and support offered in the EUN will have to be influenced by this approach. The aims should be to make known to teachers the existence of new problems and opportunities; to make examples of solutions and good practice in the use of ICT; to make available materials and give support to the preparation of learning materials; and to engage and inform interested teachers in action research projects presented on the EUN platform. The EUN should represent a structured high quality space of the Internet where people can meet and interact with each other in problem solving and discussion and where they have links and access to quality information repositories relevant to their professional activities.

The EUN brings into the classroom a dimension of multicultural social interaction including exchanges of experience between people in different regions and in different countries in Europe. It brings into the classroom applied communication processes where natural practice of foreign language leaning can take place. It brings into the classroom links between schools and the world of work. Teachers and school leaders will have much to gain in their professional work when they are given opportunities for interaction with colleagues in other countries.

The EUN is designed to give comprehensive support to actors in pedagogical processes of relevance to international school cooperation. The content areas for the EUN-platform has been developed in a process which has involved expertise from all the Member States.

The areas of the platform will be:

- Meeting places
- Information and news services
- European Union and its member states
- Multimedia Laboratory (MML)
- European Virtual Teacher College (EVTC)
- Classroom Library
- Collaborative school projects
- Language learning centre
- Technical corner.

Many of these areas are described in the separate work packages. Educational services offered include guides for the introduction of ICT in schools (including pedagogical frameworks), training modules (for teachers),

common tools (for the production of low-cost multimedia, telematics services (database access, real-time communication, video, Euro-ISDN) and directories.

The project provides for training of trainers in several new ways: educational multimedia material for in-service training, the establishment of a European Virtual Teacher College offering access to training materials, meeting-places for teachers and a set of advanced tools, e.g. for video-lectures held by top forces in the field of education, as well as seminars and other dissemination activities aimed at the teacher community like the publication of handbooks and a professional electronic journal. The establishment of the European Virtual Teacher College as a service for continuing professional development could also work as a model for the introduction of similar services for other professions.

8.2 Relevance in terms of pedagogical innovation

ICT has changed the teaching and learning environment in schools and will do so even more in the years to come. Computers allow traditional tasks to be pursued in new ways which help pupils to understand their potential but also their limitations. It is, however, essential to recognise that ICT provides additional pedagogical tools to those already available but does not replace them. The role of the teacher will continue to be of paramount importance. Similarly, it must be emphasised that the use of ICT should be guided by the general aims and objectives of school education and constitute a further tool to their full realisation. The use of computers and related services in school must never become an end in itself.

The teacher is at the focal point in this process. Increasingly, his or her role will be to guide the pupils in their pursuit of knowledge through information and to design the structured process which will allow this to take place. In so doing, the teacher must ensure that there is a proper balance in the use of different tools available to schools. This is important since the school should continue to be a place also for the fostering of communicative and social skills and for the transfer of social and cultural values. In preparing young people for the Information society, the school must make every effort to develop in the pupil problem solving skills and the ability to think critically, both of which will be important in working life and society in general. This will, certainly, affect the way in which teaching and learning should be organised.

The emerging model of the teacher as a reflective practitioner and an action researcher thus comes into focus within this project, since it is in the planning of the daily encounter between teachers and pupils as well as during these encounters that decisions have to be made on choice of strategies and ways to use ICT in assisting and even shaping the learning process.

The establishment of ENIS serves, on the one hand, as an infrastructural measure to stimulate new pedagogical approaches, and on the other, as a vehicle for the exchange of experiences at a European level of the innovative pedagogical processes developed and tried. The support of the innovative schools also aims at paving the way for pedagogical innovation.

8.3 Pedagogical research

The pedagogical aspects of the project outcome will be validated by all the user groups the project addresses (i.e. teachers, trainers, students, people with special needs, self-training users, etc.). A two-phase procedure will be followed: during the project, introductory and demonstration sessions will be planned and held, under the supervision of project partners, at selected sites (i.e. exhibitions, schools, universities, training centres, etc.) throughout Europe. There the opinion of users will be surveyed (i.e. via questionnaires, interviews, inspection, records of preferred system facilities etc.), and the performance of students or trainees will be measured (i.e. via tests, performance indicators, records of learning trajectory, etc.); the platform itself will

serve as validation data collector. These data will be analyzed to give indicators of the product quality (sample indicators are nr. of correct test answers/nr. of total questions, percentage of navigation errors, percentage of

network use, interaction time/learning time, sequences of authoring actions, usage of resources, re-usability ratio, tutoring trajectories, etc.).

Large-scale validation and evaluation will take place in real-life learning situations as assessments of project activities involving the Network of Innovative Schools, i.e. teachers and pupils using the services offered by the EUN in close collaboration with a teacher education institution, and on the other in work carried out within the framework of SOCRATES.

The schedule of the project is designed in such a way that it also supports the measurement of qualitative indicators (such as retention of knowledge, repetition of errors, evolution of activity, degree of participation or involvement, etc.) for a two-month period towards the end of the project life-cycle. However, this period may, in fact, be extended indefinitely after the end of the project, since it will be possible to constantly evaluate most of these indicators when the platform will be made widely available and put to commercial use.

9 Consortium composition

To meet the demands of the project proposed, it is necessary to bring together and to rely upon a large number of actors. These actors must represent the very wide range of competencies necessary to develop and to establish a European Schoolnet which

- Meets the highest of standards as regards the technical platform and its operation,
- Offers tools and pedagogical services which are relevant for schools and develop their use of ICT,
- Provides a firm link to national policy development and to national/regional school networks.

The EUN Partnership, which will be further developed, for example in close co-operation with the EEP, telecom operators and multimedia and textbook publishers, provides the competencies necessary to accomplish the general and operational objectives of this proposal. Universities provide research capability in the various technical fields of the project. Teacher training colleges and the Thematic Network on Teacher Education in Europe (TNTEE) provide expertise in the fields of methodology, pedagogy and educational multimedia. The Network of Innovative Schools and the Virtual Teacher College will gather the important user groups, pupils, teachers and teacher educators, in the project context in demonstration activities organised as sub-projects of various types. Other categories coming from the school sector are educational organisations, such as thematic networks, and school computer networks supplementing/substituting national networks.

Industry is represented by telecom operators, with expertise and possibilities for supporting the project in telecommunication matters. This group also includes producers of educational multimedia, software and system providers, representing multimedia, programming and computer technology expertise. The Trade Union Committee on Education representing teacher organisations in Europe brings specialised knowledge in the fields of professional development and continuing learning.

The core of the Partnership is the EUN Consortium consisting of Ministries of Education and National School Agencies or National School Networks in Member States and EEA countries. This part of the partnership represents not only the necessary link to national education policy making and school development. It also ensures that the development of the project will be firmly integrated with national developments as regards ICT in schools and school networks. As Ministries of Education and/or National Agencies in many instances also are responsible for the actual operation of school networks and of Web sites, the Consortium also represents a considerable technical know-how with practical experiences of operating school networks.

The key task for the Consortium will be the overall management of the project and the feasibility study for the full deployment of a European Schoolnet. When necessary, it will draw upon the competencies of other parts of the Partnership for specific sub-tasks in these areas. Specific tasks like development of tools, multimedia services, R&D activities etc. as exemplified by WP 14-22 will be the responsibility of other partners with the specific competencies required.

10 Project Management

10.1 Management structures and arrangements

In order to accomplish its tasks, the European Schoolnet project has had to bring together an unusually large number of partners. This is particularly true of the project consortium, in which participating Member States and EEA countries are represented at a high level. The reason for this is that the project in order to succeed and to be a sustainable project need this involvement by the Member States and the EEA countries at the centre of the project. It is important that the project is firmly linked to national policies and initiatives as regards ICT in schools and that the project is considered as part of the set of instruments available to further quality education.

The size of the consortium and the large number of partners involved in the tasks to be performed calls for a well-defined management structure and a clear sharing of tasks and responsibilities. The approach opted for is to combine a decentralised approach as regards operational tasks to be performed in each of the work packages with strong central mechanism for establishing the framework for these tasks and the effective monitoring of the progress and adherence to established guidelines by these tasks.

The key features of the central management structure will be

- Steering Committee
- Project Management Board
- Project Office.

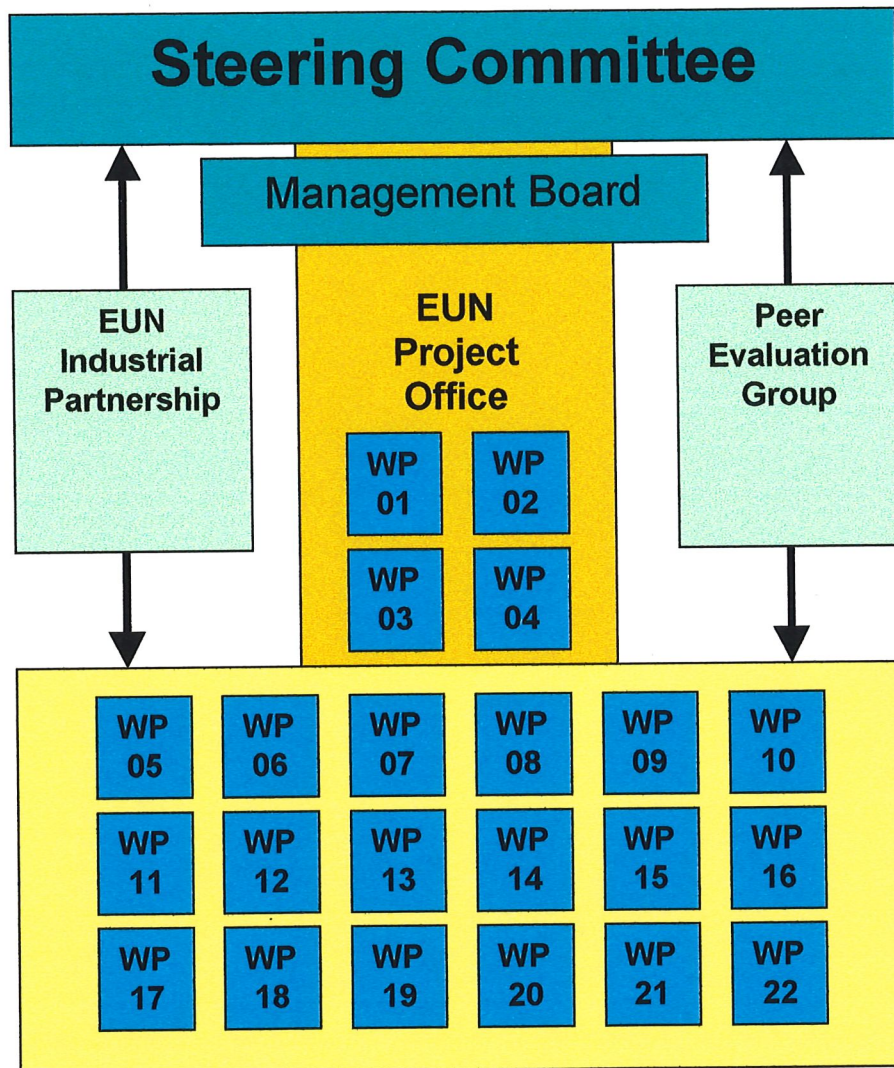
The *Steering Committee* will include one representative of each of the members of the Consortium, closely associated with tasks regarding school networks and school development. The task of the Steering Committee will be to ensure overall co-ordination of the project, to provide general guidelines for its operation and to monitor, at a general level, its development. In the last respect it will make extensive use of the peer monitoring and evaluation mechanism which is to be established.

A key task for the Committee will be to decide upon an annual work programme which will set the guidelines, time frames and priorities for the implementation and the development of the project.

To ensure a closer monitoring of the progress of the project, the Steering Committee will appoint a *Project Management Board* which will work on its behalf in close co-operation with the Project Office and act as its Board. In order to establish wider partnerships, for instance to related projects or to industrial partnership, it will be considered to invite representatives of such projects and bodies to be associated members of the Board or of the Steering Committee.

Under the authority of the Management Board, the *Project Office* will be responsible for the day-to-day operation of the general aspects of the project in close contact with contractors and sub-contractors for specific tasks and with the co-ordinators of each work package. It will have the necessary management and administrative resources to perform its task and will be headed by a *Project Manager*.

The management structure can be illustrated as follows:



The Project Manager will be responsible for the overall planning of the project, for elaborating the annual work plans defining the tasks to be done, time frames, success criteria and budgets in detail. Planning and the carrying-out of work within the individual work packages will then be the responsibility of the co-ordinators of each work package. These activities must, however, adhere to the overall work plans decided upon by the Steering Committee.

The project management will provide financial control of the work packages, whereas the board will handle overall financial management.

For the long-term development of the project and for its sustainability, it is important to develop close ties with industry. This is important not only for specific tasks included in this proposal but also for identifying opportunities for partnerships and for the development of services. To achieve this, an EUN Industrial Partnership will be established. This body will be consulted as regards the annual work plan and other key decisions and it will be invited to assist in the setting up of the EUN Project Office.

10.1.1 The Consortium and the competence to manage European project

All partners of the EUN project are, regarding their background and position, familiar with the European Union, its work and policies. The national representatives in the Steering Committee naturally possess knowledge of, and are experienced in, handling European projects of certain size.

The industrial partners and partners from universities and centres of higher education are chosen with regard to their competence in such matters as well as to their skill in other areas. Industrial partners such as the BBC (British Broadcasting Co-operation) UK, SEAM Group ES and others have solid experience of European projects. The educational organisations, e.g. CONTEXT and the universities participating in the EUN, have been co-operating in EU projects before and have thereby gathered experience.

All partners of the EUN have extensive knowledge of the conditions and prerequisites for the realisation of successful EU projects. This knowledge is of great value for the project management as administrative routines are to be developed.

10.1.2 Time scales and resources allocation

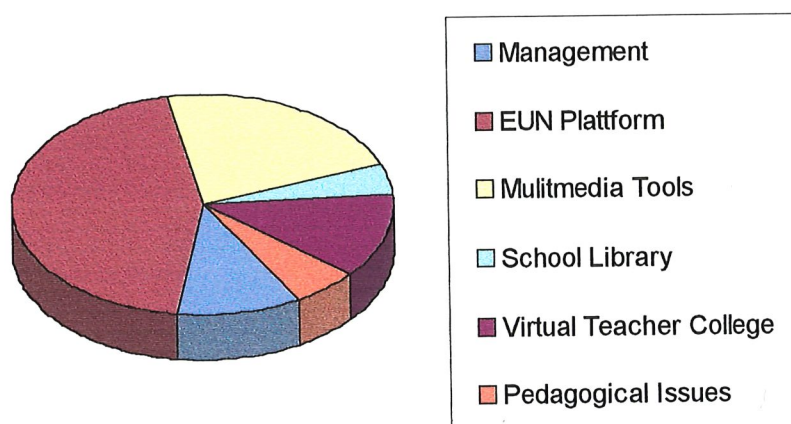
The expected duration of the project is two years. This has been considered reasonable since the project involves both development of pedagogy and of advanced services and products, which furthermore will be integrated into a pan-European system (a network of networks) and tested by a large school population throughout Europe.

The overall time scale can be illustrated by the following GANTT schedule:

		1998				1999			
		Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec
Setting up Project Office	WP01-04 WP09,10,12,21,22								
User Requirements	WP05								
Functional Specification	WP06 WP14-20								
Establishment of EUN platform	WP06 WP14-20								
Demonstration and Validation	WP07,08,11 WP14-20								
Business plan	WP13								
Production version	WP07								

The proposal offers substantial cost savings through its co-ordination of ICT development activities for schools and pooling of a number of resources and tools, and the implementation on a European scale of best practice and recommendations for establishment and utilisation of Internet based school networks.

The allocation of resources can be illustrated as follows:



10.1.3 Quality assurance and control mechanisms

One of the first tasks for the Project Office is to prepare detailed documents describing how the quality assurance and control mechanisms will work in the project. The basis of the quality work within the EUN will be ISO 9000. All documents regarding quality control will be handled and confirmed by the Steering Committee.

The project manager will be responsible for supervising that the partners adhere to guidelines given by the Steering Committee. The project manager is also responsible for the development of user requirements and functional specifications. These documents will manage the development work within the project. The project manager will continuously follow up and renew these documents. It is of importance that the partners adjust to the guidelines given in the functional specifications.

10.2 Project Internal Management

10.2.1 Internal communication and collaboration

The individual work package co-ordinators together with their teams will need to be in regular contact with the other work package teams. The EUN project will use the internet as a means of communication. For this purpose the project will provide tools for and initiate a number of video and WWW conferences and a project intranet to which all relevant parties will have access.

Electronic communication means will be extensively used not only as a project tool, but also as a testing ground for collaborative working across borders with the help of ICT, a major theme within the European SchoolNet. The project will also need to organise a number of conferences and workshops, the main purpose of which will be to co-ordinate activities across WPs and European Programme Tasks.

10.2.2 Decision procedure

Decisions of a general, strategic, overall financial and tactical nature will be made by the project Steering Committee. The Steering Committee will base its decisions on reports presented by the project manager, who will also act as executive in routine matters. Evaluations and action lists produced as a result of consultation with the sub-committees will also be taken into account.

As mentioned before, certain aspects of the work of the project will use a decentralised management approach where responsibilities will be delegated for certain tasks. In effect, this means that the projects could be carried out and managed locally within the framework of the overall project. The most important parameters of

control in the project will be the user requirements and the functional specifications. With starting point in these documents each WP will have to create its own functional specification managing the development work.

Each of these functional specifications will have to be approved of by the project manager.

10.2.3 Internal quality assurance

The project will devise a set of quality criteria to which all project outcomes should adhere. In the actual process of developing the European network, its services and materials, modern quality assurance methods will be used in an appropriate manner. To strengthen these activities all project outcomes will undergo a peer review (provided for in WP 09) prior to finalisation. The methods will also include extensive verification and demonstration activities with a large group of users from most Member States.

Project control will primarily be exercised by the project management, which collects and examines reports before compiling and communicating them to Brussels. Secondary control will, naturally, be the responsibility of the project board, which will receive information at regular intervals on the financial status of the project from the project manager. Should any irregularities be discovered, it is the responsibility of the project manager to inform the board and suggest a line of action.

10.2.4 Internal flow of documents, planning and reporting

Through the EUN Web platform a database Web application will be developed to handle all forms of documents and reports in need to be produced within the project both for internal communication and for the European Commission and other parties.

The database will contain all forms and financial statements that are to be submitted to the Commission. The internal reporting system of the project will also be handled via the database. The project manager will be able to follow the flow of documents through the database and the Web interface. There will also be a system of attestation/approval in the database. In this way it will be easier to exercise project control and at the same time the flow of paper is highly reduced.

All project partners will present, to the project manager, internal reports on the progress and costs of each work package on a bi-monthly basis and as required. These internal reports will form the basis for the project manager's bi-monthly reports to the project officer in Brussels. The internal reports will also be used for the purposes of internal audit and project control.

10.2.5 Deliverables handling

Deliverables should be submitted to the project management within one week of the delivery date defined in the project activity plan. Some of the deliverables will be server applications etc. based at the EUN platform or at other internet servers. All these applications should be accompanied there will be a complete systems documentation, manual and when needed instructions for installation. The project management shall receive the source code on CD-ROM.

The project management will forward the deliverables for peer review to the groups established in WP 09. To ensure timely delivery to Brussels it is naturally vital that the project management makes early agreements with the reviewers concerned so that the task could be completed within another week. When reviews have been provided, the WP co-ordinator concerned will be notified and given opportunity to add comments to the review or make alterations to the deliverable before it is sent to the Commission services. In the case of public deliverables, the quality of the work will be assessed not only from the point of view of content, but also presentation. In some cases this may involve linguistic processing.

10.3 Contract management

Contract management will be the responsibility of the co-ordinator, who, in co-operation with the project management team, will provide proper information to all partners of all contractual matters with the Commission. The partners, in return, are responsible to rapidly provide the co-ordinator with the information needed to complete the work. The working language will be English.

10.3.1 Contractual information to all partners

All general contractual information will be published on the EUN intranet. As there are many partners involved in the project a FAQ site and a computer conference will be set up.

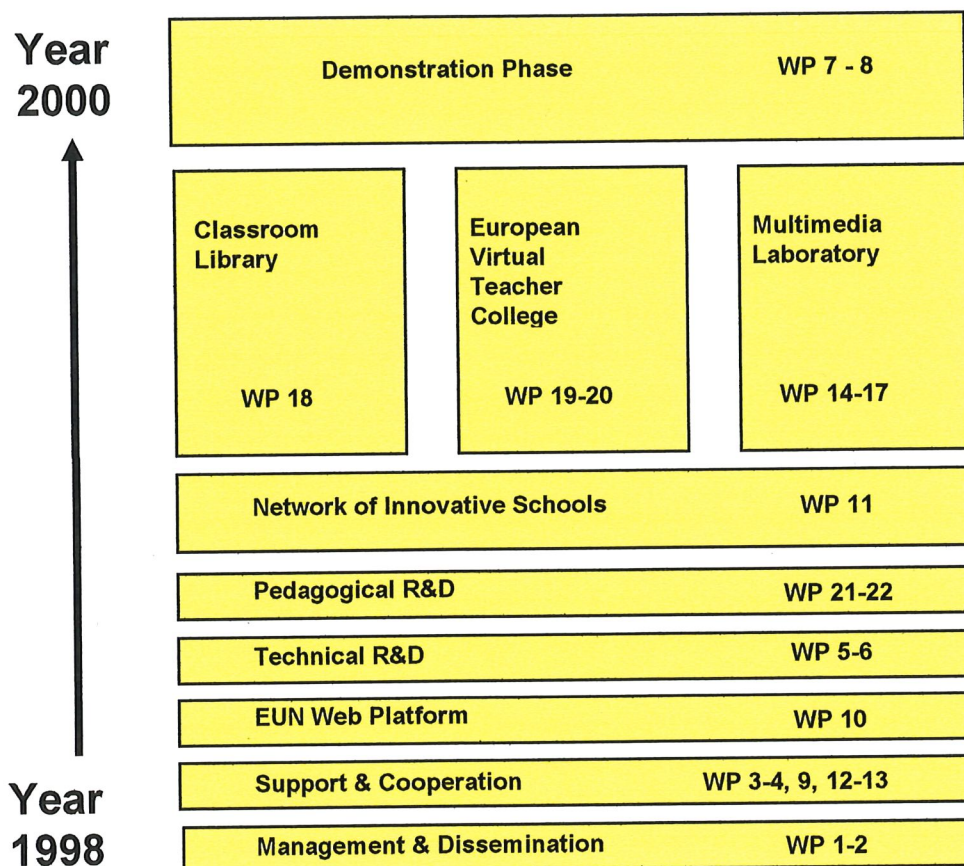
Regarding questions concerning individual partners the project management will discuss them directly with the partner concerned. When required, experts will participate in the discussions.

10.3.2 Contracting issues regarding exchange of results with third parties

Arrangements regarding exchange of results (i.e. IPR) or concertation with user groups and outside organisations will be handled by the project manager acting on behalf of the EUN Consortium. The exact procedures will be defined as part of the setting-up of the project.

11 Workpackage description

Overview Interface for Innovation Model and Work Packages



Part B: Proposal description

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Part B: Proposal description

[illegible]

WORK PACKAGE 01

Project Management

Partners involved: EUN Consortium

Tasks Addressed: SOCR 6

Objectives of the work package:

- To develop annual, overall project work plans and establish effective tools for project control and financial management.
- To define appropriate reporting procedures and documentation standards consistent with the European Commission requirements, that will be applied in the project.
- To establish project quality criteria
- To ensure that the project milestones and objectives are adhered to.

Description of the work

The main aim of this WP is to provide the best possible conditions for successful realisation of the project. The project co-ordinator will act on behalf of the project in appointing a project manager and an assistant, both of whom will work on a full-time basis. The primary duty of the project management team will then be to provide efficient administration, planning and internal control of the project.

One of the most important tasks of this WP will be to develop - in collaboration with the WP co-ordinators - annual, overall work plans, governing the work to be done within the project and the individual WPs. The work plans will be drafted by the project manager and put before the Project Steering Committee for approval. These plans will define tasks to be accomplished, objectives, success criteria, target dates and budgets. They will also be used for evaluation and quality assurance purposes. In this context this WP will - in collaboration with WP 09 Peer Monitoring and Evaluation - also take part in the preparation of evaluation plans for each WP and each phase of the project.

The project manager will be responsible for co-ordination of activities within the different WPs, for production of bi-monthly, annual and final project reports to Brussels, as well as for providing overall financial control, both for individual work packages and the overall project. In this context, the WP will also analyse how efficient and effective the work in the different work packages are with regard to outcomes and given budgets.

In co-operation with WP02 the project management will define appropriate documentation standards and reporting procedures, taking into account the requirements of the European Commission. All project partners will present, to the project manager, internal reports on the progress and costs of each work package on a bi-monthly basis and as required. These internal reports will form the basis for the project manager's bi-monthly reports to the project officer in Brussels. The internal reports will also be used for the purposes of internal audit and project control.

This WP will be responsible for establishing, in collaboration with the WP partners, in detail the quality criteria to which all project outputs and activities should conform. The project manager will also monitor that project milestones are adhered to and that deadlines are met.

External contacts in WPs 4 and 12 together with communication with the Commission services will mainly be the responsibility of the project manager and the co-ordinator. These persons could, however, delegate tasks to other suitable partners.

Deliverables:

D01.1 Documentation standards

Document establishing the standards to be used for different kinds of material produced within the project, e.g. deliverables. Also serves the purpose of supporting the authors of such material.

D01.2 Work Plan 1998

The overall activity planning for the entire project in 1998 as decided by the Project Steering Committee

D01.2 Work Plan 1999

The overall activity planning for the entire project in 1999 as decided by the Project Steering Committee

WORK PACKAGE 02

General Dissemination

Partners involved: EUN Consortium, CONTEXT (NL)

Tasks Addressed: SOCR 6

Objectives of the work package

- To establish efficient internal/external communication links
- To develop an appropriate information and dissemination strategy
- To produce support materials for partners
- To arrange workshops and conferences

Description of the work

The overall aim of the dissemination activities is to establish efficient communication links both within the project as well as between the project and external groups. The WP will, however, not only be concerned with promotion of the project to relevant parties, but will also retrieve and disseminate information which could be of importance to the development and evaluation of the project.

The WP will devise an information and dissemination strategy for the entire project. This strategy should take into account not only the need for informing the final end-users of the EUN, i.e. pupils and teachers, but also politicians, parents, companies, organisations and the media. The focus will be on the effective dissemination of experiences and good practice or project activities regarding ICT use in schools and their general applicability to education and training contexts. This will, for instance, take place by the publication of a regularly updated electronic journal.

Initial activities include the preparation of a graphical design to be used with all materials produced within the project. By preparing templates, which are ready for use with various kinds of materials and tools the project will ensure coherence and consistency, thus creating a project identity that is easily recognised. Other activities initiated at the outset of the project - with a view to bringing the project's existence to the public's attention as soon as possible - include the production of an Internet newsletter and a brochure to be used as hand-outs by project representatives at European meetings and conferences. A handbook on practical Internet issues and use of the EUN is also envisaged.

This work package will be responsible for organising EUN workshops and demonstrations. It will also prepare EUN participation in workshops and conferences arranged by other organisations, in collaboration with the EUN representative concerned. In most cases this could mean helping partners to produce presentation materials to a high standard. The WP will also be responsible for preparing EUN participation in mandatory concertation activities and annual reviews.

For internal communication the WEB platform created in WP 6 will be used to establish a project intranet, containing report forms, bulletin boards and conference systems, etc. External and internal dissemination and information activities will thus rest upon a combination of production of materials, workshops, seminars and effective use of the Internet.

Deliverables:

D02.1 Project information and dissemination strategy

Document defining the project's overall strategy in these areas.

D02.2 EUN and Internet Handbook

A very practical handbook for users of the EUN, including a step by step introduction to the Internet

WORK PACKAGE 03

Copyright and IPR Issues

Partners involved: EUN Consortium

Tasks Addressed: ET 1.8, 2.1

Objectives of the work package

- Establish the legal and IPR aspects of the EUN and its use in schools
- Investigate the need for and requirements on an ECMS system for the EUN

Description of the work

The EUN will create opportunities for immediate access to educational multimedia materials originating from all European countries. Much of the information that is expected to be available on the EUN will be produced by commercial partners. At the same time teachers and pupils will produce material that will be used in schools in other countries. In this light it is imperative that the project examines a number of issues related to copyright and IPR matters.

Legislation on the use of copyright material in schools differs between the European countries. This WP will study existing legislation and accepted practice building on previous achievements in R&D programmes complemented with focused studies with a view to producing a set of recommendations for other WPs to take into account in their work. This work will result in an interim report, which offers a foundation for the project and the project partners in this area.

Since legal issues most likely will be raised throughout the project, it will also be a task for this WP to assist other WPs in establishing the legal conditions applicable to the specific context. This WP will thus provide legal support to other parts of the project on a continuous basis throughout the project. The WP will thus fulfil a legal watch function, which also includes publication of up-to-date information via the project intranet.

It is an important task for the project to create conditions for schools to use multimedia material in their teaching effectively without being hampered by IPR issues. In order to make possible the kind of information seeking, retrieval and various forms of use envisaged in the project plans, it will be necessary to organise copyright management for material produced by teachers and pupils. The project will also be required to investigate the need for and possibilities of establishing an Electronic Copyright Management System (ECMS) for the EUN.

The objectives of this WP will be met through the following processes:

- Examination of legal IPR issues for each Member State based on previous work in the field
- Preparation of a report Copyright and IPR recommendations for the EUN
- Development of know-how base for handling rights acquisition and licensing
- Development of training modules on IPR, focusing on copyright issues, for those participating in EUN activities and those using the services of the EUN
- Investigating interfaces and interoperability for Electronic Copyright Management Systems (ECMS)

Deliverables:

- D03.1** ***Interim Report Copyright and IPR recommendations for the EUN***
Report on legal issues published at an early stage of the project, with a view to supporting other WPs
- D03.2** ***Final Report Copyright and IPR recommendations for the EUN***
Final report on legal issues aiming to present lasting recommendations for the EUN

WORK PACKAGE 04

Synergy and Cooperation

Partners involved: EUN Consortium

Tasks Addressed: SOCR 6

Objectives of the work package

- To keep up to date with information on similar new projects
- To establish contacts with other related projects and facilitate their uptake into the EUN
- To ensure that opportunities for synergies are taken into account

Description of the work

The EUN, with its pan-European organisation, is a project with a viable dynamic character where external contacts are of the utmost importance for its continuance and development. It is necessary for the work and outcome of the EUN to collect information about and to keep up to date with the launching of similar new projects. This WP will be responsible for collecting such information and for putting in place instruments that could help the EUN generate long-term synergistic effects for the European education sector together with other project initiatives.

This WP can be seen as a resource for safeguarding the goodwill and dynamics of the project as it will act as the EUN's contact point for communication with other projects that could be appropriate for collaboration or incorporation with the EUN network. This WP will support such activities through, e.g., the realisation of technical and content oriented studies and seminars which will be instrumental in bringing together prospective partners for discussion and analysis of common interests. The WP will target the project's main strands, i.e. Classroom Library, European Virtual Teacher College and Multimedia Lab, as starting points in this process.

This WP – through the coordinator and the project manager - will represent the project in seeking cooperation with on-going and new projects with similar orientation as the fields of the EUN project. The purpose is to ensure that the work of existing European funded initiatives or other national, regional or local endeavours is not repeated.

As a basis for these activities the WP will establish guidelines for co-operation with other projects, ensuring that the objectives of prospective partners and projects are consistent with the EUN concept and that the harmony of the EUN organisation is not disturbed. Work within this WP will be presented in reports to the Project Steering Committee, which will make the decisions in the matter of cooperation agreements.

Deliverables:

D04.1 ***Guidelines for cooperation***

Document defining the rules and procedures for establishment of partnerships with other projects

D04.2 ***Report Synergy and Cooperation Opportunities***

Report on the activities in this WP and their results, including prospective future cooperation opportunities

WORK PACKAGE 05

General User Requirements

Partners involved: EUN Consortium

Tasks Addressed: TEN1

Objectives of the work package

- To establish user needs for all aspects of the EUN
- To provide an analysis of existing schoolnet structures, with a view to establishing requirements for interoperability
- To examine the market in this sector and provide analysis

Description of the work

This WP is central to the successful realisation of the EUN. The services, tools and materials developed within the project must naturally conform to the real needs and demands of the final users of the network. In this sense WP 5 could be considered as the foundation upon which the project rests.

In the preliminary stages of the project this WP will carry out an analysis of school networks existing on different levels, and the conditions for establishment of new ones in countries/regions where there are no such services as yet. In ascertaining the basis for the project, extensive use will be made of the experiences of both users (pupils and teachers) and administrators of existing national schoolnets. Primarily this will be done by arranging a number of national and transnational seminars and workshops as a tool for channelling ideas and requests from users to the project consortium. On the basis of these events a summary report on the role and needs of school networks will be produced.

A user survey that will be brought to all the countries of the European Union will also be carried out. This activity will be carried out with the help of teacher training colleges. Their knowledge of local and national conditions make them well suited for lending assistance in the process of preparing a formative analysis. The results of this survey, together with an analysis of the market as regards communication alternatives, multimedia services, materials and tools, will supply the project with the information required to ensure that the actions and the orientation of the project is appropriate and that the project focus is on satisfying true needs of educational institutions and users/producers of multimedia materials and tools.

The final result of the market analysis, workshops and the survey will be reports on user requirements for each of the main areas of the project. These requirements will constitute the foundation upon which all design and development activities will be based. The survey also serves the purpose of facilitating the process of locating schools suitable for participation in experimentation activities as part of the "Network of Innovative Schools" (see WP 11) - which will act as a support structure for the project activities, especially as concerns validation and demonstration.

Deliverables:

- D05.1** *Interim Report Platform and Services Requirements*
Report with preliminary findings which will be used to initiate and support development activities at an early stage of the project. Will include market analysis.
- D05.2** *Final Report Platform and Services Requirements*
Final report establishing the framework for developing functional specifications.

WORK PACKAGE 06

Technical Platform – Functional Specifications & Development

Partners involved: EUN Consortium

Tasks Addressed: TEN 1

Objectives of the work package

- To define technical, functional specifications for the platform, its future development and integration of existing/new national/regional schoolnets
- To establish a platform design
- To develop a functional platform, as a test environment suited to the needs of the project
- To develop and verify a progression of enhanced versions of the platform

Description of the work

This WP will be concerned with defining the functional specifications for the technical platform needed for the establishment of the European SchoolNet and the services to be offered. These activities will build on the results of the user requirements analysis realised in WP 5. They must, however, also include a well-informed prediction of the technological development in the near future.

This WP will thus establish the network functionality required, investigate appropriate database architectures, conditions for efficient multiple language management, and find the most effective ways of accessing the tools and information contained in the network, including studies related to the use of Euro-ISDN for communication. Interoperability across platforms and borders are, together with flexibility and cost-effectiveness, key factors for attracting a widespread interest in using the EUN. Flexibility in this context should also take into consideration the differences in user conditions in various countries to ensure that the services offered are attractive to beginners as well as advanced users, to users with very basic equipment and those with state-of-the-art technology. In establishing the technical framework of the project this WP will present a network solution which includes definition of appropriate hardware, software, www server type, bandwidth requirements, database distribution methods, data storage/presentation formats, as well as production, management and maintenance tools.

This WP will develop the EUN Network Platform in incremental stages, using the requirements from WP 5 and the functional specifications produced within this WP as a basis for activities. Initially, a platform which could be used as a framework for project activities in other WPs will be established. The development activities will then interact with services development activities in other WPs to enhance and provide the required functionality in a progression of platform versions. In order to create a true virtual network of and for the schools in Europe this WP will have to deal with information management and use, communication – both the technology commonly used by schools today and ISDN which could be the basic standard of tomorrow, interactivity, and aspects like security, ethics and censorship. Another important issue for the EUN is its scalability; how well will it handle/react to future growth.

The main development problem will be to create a platform that can be used by as many users as possible, for creation and presentation, today as well as for a longer period of time. Hence, it can be concluded that meta information (such as data about document structure, bibliographic data, etc.) must be included and handled, for several reasons: facilitation of indexing and searching, rating and review of the contents, maintenance of the contents, platform updates, creation of new services which incorporate old contents. In this context it is evident that multiple-language management features must be incorporated.

For some services and types of contents, plain static information will not be sufficient. Hence, reliable, widespread and growing techniques for adding dynamicity and interactivity will be identified. Today, there are several approaches; the EUN must be designed to be so flexible that it can adapt to and incorporate whichever approach becomes dominating, e.g. Java Applets, CGI script, VRML, etc.

The platform should incorporate tools for a rating (classification) service (e.g. PICS) which could be combined with filters in order to ensure that pupils do not receive "improper" material. Technology for providing reviews of information, software, education, etc. should also be incorporated.

Deliverables:

D06.1 EUN Platform – Alpha version

The first preliminary version of the EUN platform to be verified in projects involving the European Network of Innovative Schools

D06.2 EUN Platform – Beta version

Enhanced version of the platform, which has been improved in accordance with verification results. To be used for further validation activities in WP 07.

WORK PACKAGE 07

Technical Platform - Demonstration & Production
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Partners involved: EUN Consortium

Tasks Addressed: TEN1

Objectives of the work package

- To set up a fully functional demonstrator of a telematics service generally available for European schools.
- To demonstrate all aspects of the EUN system and produce a validation report providing a basis for improvements to the demonstrator
- To prepare a system documentation package

Description of the work

There are a number of major design aims which, however, may be adjusted in the light of the results of the sub-projects realised in other WPs. At this stage the project supposes that the finished demonstrator should:

- fully support the pooling of multimedia resources and tools between all European countries over the WWW
- offer access to tools for interaction between pupils and teachers as well as for professional development of teachers - chat tools, video lecture facilities, collaborative working across borders, joint development of learning material
- offer easy access to large amounts of information in a well-structured and efficient manner
- provide WWW conferences for promoting the exchange of experiences

The process of developing the demonstrator will also take into account work on methodology and pedagogics carried out within the framework of WP 21 and 22. In preparing for the demonstration phase this WP will also produce a preliminary system documentation package which will be finalised as demonstration activities are concluded.

The demonstration will take place with a large population coming from all Member States. The main participants will be the Network of Innovative Schools, complemented with a large number of schools with varying equipment and experience of ICT use for educational purposes.

In preparing for the demonstration appropriate methods for communicating user feedback from such a large population will be established, with a view to ensuring that the user evaluation element of the demonstration is managed in a correct manner. Apart from what could be called a free and independent exploration of the demonstrator, the validation plans produced in WP 8 will form a basis for ensuring that all aspects of the system together with all possible user situations are studied.

As demonstration activities are realised and the results are published in the form of a validation report, work on enhancing and improving the European SchoolNet telematics service will be carried out. This WP will take into account the problems associated with stepping up a demonstrator to a fully functional system ready for deployment.

In finalising work within the project a set of procurement and implementation recommendations for schools seeking to introduce ICT in their teaching will be produced. These recommendations will help the individual school in making the right choices as regards equipment, services and implementation plans, thus ensuring that they experience the full benefit of the EUN.

Deliverables:

D07.1 Integrated EUN Demonstrator

EUN platform demonstrator ready for final validation of the entire system, incorporating tools and services developed in other WPs

D07.2 Enhanced production version of the EUN system

Final version of the EUN platform including tools and services. Enhancements made in accordance with demonstration results

WORK PACKAGE 08

Validation

Partners involved: EUN Consortium

Tasks Addressed: TEN1

Objectives of the work package

- To design a test programme with user scenarios covering all aspects of the EUN
- To establish verification criteria and validation plans which ensure successful integration of tools and services

Description of the work

The validation stage - which in some parts is a continuous process parallel to the development - will involve extensive testing both by producers and users of multimedia based educational material. The Network of Innovative Schools has an important role to play in these activities given their experience of ICT use.

To ensure that the validation activities planned become as profitable as possible to the project, an extensive test programme will be designed. This programme will, in detail, describe the conditions and situations in which testing is to take place for the various parts of the EUN. These test scenarios will be designed as services and tools are developed, thereby providing opportunities for incorporating tests of characteristics which the development stage has identified as particularly crucial or vulnerable.

The project considers it to be of great importance to gather these activities in a single WP, considering the scope of the project. Thereby ensuring that the process of incorporating and testing outcomes of other WPs is carried out in an appropriate manner.

This WP will also include the definition of a number of criteria which will have to be fulfilled in the verification stage. Issues to be dealt with are, for instance, quality assurance and reliability, benchmarking procedures, performance and user friendliness. Criteria for when a tool or an application is ready to be integrated with the full EUN demonstrator and put to demonstration will be developed in the course of the work within this WP.

Validation activities do not only concern technical aspects of tools and applications, it also includes pedagogical aspects of materials and methods used, financial implications, user acceptance, commercial viability, etc. These aspects will be tested through the realisation of a number of test/pilot projects involving all types of end users.

Deliverables:

D08.1 Test Programme & Validation Plans

Document defining validation criteria and describing test settings and situations.

WORK PACKAGE 09

Peer Monitoring and Evaluation

Partners involved: EUN Consortium

Tasks Addressed: TEN1

Objectives of the work package

- To provide continuous monitoring of the project
- To provide peer review for deliverables
- To provide in-depth evaluation at regular intervals

Description of the work

This WP will be concerned with external monitoring and evaluation of the project throughout its duration. Two sub-groups of independent experts will be set up, each consisting of three to four European experts. The aim is to examine if the project outcomes meet the objectives, if they conform to the quality standards and how they meet the demands in subsequent phases of the project. One sub-group will deal with pedagogical aspects and the other with technical aspects of the work undertaken. Their work will be an important instrument for ensuring and confirming that the project is going in the right direction and that the technical and pedagogical level is appropriate.

These peer groups will be established by the project management (WP01), which also takes part in the planning of monitoring activities and the definition of the evaluation plans, methods and criteria to be used, as well as in semi-annual meetings where the two groups are brought together for the purpose of preparing evaluation reports pointing out strengths and weaknesses in the project's work. These meetings will also be forums for discussion of evaluation plans for the following six months.

Monitoring will be a continuous process throughout the different stages of the project. The result of these activities will be communicated directly via electronic means to the partners concerned and the project management. Electronic conferences set up as part of the project intranet will serve as a channel for communication and exchange both between partners and the peer groups.

Evaluation will take place on the one hand through practical use of the tools and services produced by the project, and on the other through the examination of reports and other types of material produced. As part of these activities the expert groups will also provide the peer reviews the project is required to submit together with all deliverables to the Commission services. These peer reviews will also be used as project internal evaluation reports.

Deliverables:

- D09.1** *Evaluation report year 1*
Report giving an overall evaluation of project activities during the first year.
- D09.2** *Evaluation report year 2*
Report giving an overall evaluation of project activities during the second year.

WORK PACKAGE 10

Technical Support Network

Partners involved: EUN Consortium

Tasks Addressed: TEN1

Objectives of the work package

- To operate the EUN platform
- To establish standards and guidelines
- To provide technical support for other WPs
- To fulfil a technology observatory function
- To prepare a first version of Procurement and Implementation Guidelines for Schools

Description of the work

A number of important technical issues must be addressed in the development of the EUN. Some of them are matters specific to the operation of the web platform, while others are of a more general nature relevant to a European school network infrastructure.

These activities include the establishment of a Technical Support Network (hereafter referred to as ETN) should consist of representatives appointed by the Member States and bring together expertise from national/regional technical resource centres associated with school networks in the Member States. The representatives will work partly with national and regional tasks and partly with tasks for the EUN. They constitute the human experts network which is required for the success of the technical infrastructure of the EUN.

In the EUN framework the ETN will be closely associated with the *Technical Office* and have an important role as a forum for discussions and agreements about the technical design, maintenance, security and development of the EUN platform.

Among the different national and regional school information networks in the Member States, there is also a common need to keep abreast of the technological development and as much as possible to be a partner to it. To meet these different needs the project will establish a Technical Support Network as part of the EUN framework. This network should address five tasks:

- (1) to assist in the technical development of the EUN platform and in that connection foster a consensus among school networks in Europe on relevant technical standards and guidelines,
- (2) to provide technical support for the establishment, operation and use of school networks and to the users of such networks, e.g. by producing implementation guidelines
- (3) to serve as a forum for the exchange of information and experience among networks,
- (4) to initiate and manage pilot projects of a technical nature,
- (5) to act as a technical observatory and to serve as a partner for the EUN and the informal European school network infrastructure in discussions with industry and the research community.

To be able to handle these tasks, the ETN should bring together national/regional technical resource centres associated with school networks in the Member States. It should be established as part of the initial development of the web platform in order to allow the network to have a decisive role in the preparation of its technical design. Besides its responsibility for the operation of the EUN platform, this WP will collect and provide access to information on issues of general relevance for school networks in Europe, in particular

national and regional ones. It will be a centre for up-to-date information regarding developments on the Internet, Euro-ISDN and other network based technologies.

Deliverables:

D10.1 Procurement and Implementation Guidelines for Schools

Document with recommendations for schools on what hardware and software to use. Will also include guidelines on how they could be implemented in school environments

D10.2 Final Report Technical Standards and Guidelines

Overall report from the ETN with recommendations for technical standards to be used in the EUN.

WORK PACKAGE 11

European Network of Innovative Schools

Partners involved: EUN Consortium

Tasks Addressed: TEN1

Objectives of the work package

- To establish a support structure for the EUN
- To provide a channel for uptake of user opinions and ideas
- To provide a test-bed for validation and demonstration activities

Description of the work

As a component of the EUN structure the overall goal of ENIS is to create a network of innovative schools which can be utilised for full demonstration of pilot projects in the EUN and beyond. When fully operational, the ENIS network will consist of 300-500 schools with broad European representation. It will constitute a common integrated framework in terms of connectivity and technical infrastructure; technical, pedagogical and organisational tools; as well as skills and knowledge present. The network will not only comprise schools with proper equipment and experience of using it, but also less advanced schools in order to create a realistic environment for validation and demonstration. The network could be used not only by other EUN work packages but should also offer services to other European projects needing a large test-bed of schools.

The first step of the process will be to set up the criteria on which the selection of schools for the network will be based. This activity will establish a requirement specification for ENIS, defining for example the number of schools participating, the technological level of their equipment, their size and previous experience of using ICT. The network should include at least a few schools on an advanced technological level, using video-conferencing, ISDN, etc.

Further criteria will have to be developed as a preliminary activity within the project. Since ENIS will involve a somewhat heterogeneous group of schools the project will need to establish the network in phases, corresponding to the schools' current level of ICT development and competence and their geographical location. The network should ultimately comprise about 15 - 25 schools in each country totalling about 300-500 schools.

To ensure the proper working of ENIS, schools participating in the network will need to be equipped with a set of tools to support their efforts. These tools should not only be of a technical nature, since the objectives of ENIS - and the EUN as a whole - aim at implanting in these schools a new approach to teaching and learning. Therefore a set of non-technical tools should provide schools with appropriate means for organisational development and change, which will be an essential prerequisite for efficient integration of new technology into the activities of the individual schools.

The third step in the process is the actual preparation and integration of the ENIS toolbox. The toolbox should be ready for the task of setting up the network in order for them to be used in the seminars and workshops in the framework of the project. The ENIS toolbox will mainly consist of existing tools as identified in other WPs.

In practical terms, the establishment of the network should include the realisation of a number of seminars/workshops, with participation by network animators. This is where the ENIS members will get "EUN training", information on what they are expected to do, in what ways they can contribute to the EUN,

and perhaps most importantly, where they can meet their ENIS partners, establish personal contacts and discuss project ideas. Examples of such initiatives could be workshops/seminars, interest groups and virtual study tours.

The network will consist of partners in the Member States interested in launching or participating in pilot projects and schools which are ready to explore new territory. A particular effort should be made to foster links between clusters of institutions and neighbouring teacher training colleges or pedagogical research centres. This would bring to each project a strong R&D component and access to support for developing the project in its local environment.

The resources allocated in this task only cover the development of full workshop material and actual workshops in the 5 participating countries. It is the intention that the workshops are utilised by other workpackages (eg. WPs 14-20) to introduce their services to the network participants.

Since ENIS is being set up as a support structure for EUN, the projects to be undertaken will need to be linked in some way to the overall objectives and activities of the project as a whole. The school projects to be carried out must naturally be organised into and coordinated with the body of research and development activities planned. So even though ideas for projects may spring directly from ENIS partners, they will have to be analysed and adapted by an ENIS management team in order to ensure that the test-bed aspect of ENIS is taken into consideration and that the infrastructural support objective is fulfilled.

Deliverables:

D11.1 ENIS Toolbox

Package containing a number of technical and non-technical tools for assisting schools participating in ENIS

D11.2 Report Establishment of ENIS

Report on the establishment of ENIS, including information on the characteristics of the schools of the network. This information is to be used when planning their participation in validation and demonstration activities

WORK PACKAGE 12

Development of Partnerships

Partners involved: EUN Consortium

Tasks Addressed: TEN1

Objectives of the work package

- To establish contacts with key players and possible partners
- To develop partnerships for the future full deployment of the EUN
- To ensure the survival and further development of the EUN after the project duration

Description of the work

The main aim of this WP is to establish contacts with key actors in the educational multimedia and Internet services sectors with a view to forming long-term private and public partnerships which could contribute to the full deployment of the European Schoolnet. Considering the financial implications it is important to initiate discussions with possible financiers as soon as possible. In this process the WP will establish a special Industrial Partner User Group, which could work as a forum for exchange between the EUN and partners in business and industry.

This WP should identify and bring together the key players, and establish the future consortium organisation required to deploy and operate the EUN into the 21st century as a valuable, efficient service for European educational institutions. The consortium/partnerships could include national, regional or local administrations, companies, universities, colleges, schools, galleries, libraries, museums, specialised broadcasters, publishers, course designers, telecom operators or other service providers.

The identification of prospective partners should also include preparing a general framework of guidelines for sponsoring as well as criteria EUN partners need to fulfil. A decision on the final design of these guidelines will have to be taken by the EUN board.

Activities within this WP will not only include direct contacts with companies and organisations, but also the organisation of workshops and seminars which could gather a suitable crowd of possible future partners. These activities will mainly be organised as side activities to conferences organised by organisations within the EUN consortium, with a view to keeping costs low.

The project will be represented by the coordinator and the project management in the establishment of partnerships.

Deliverables:

D12.1 *Report EUN Partnerships*

Report on the contacts and partnerships established, as well as opportunities for future partnerships. To be presented to the Project Steering Committee for consideration.

WORK PACKAGE 13

Business Plan

Partners involved: EUN Consortium

Tasks Addressed: TEN1

Objectives of the work package

- To develop a business plan for the full deployment of the EUN

Description of the work

The aim of this WP is to develop and prepare a business plan which aims at making the EUN a viable, self-sustaining service and ensuring continued development and enrichment in the post-project or deployment stage.

The work in this WP will take into account and build upon previous work done in WP 5 (where the market analysis and user requirements constitute background documents) and WP 12 (which will develop partnerships for the deployment and operation of the EUN).

The business plan should take into consideration the financial implications of full deployment, opportunities for generating incomes to cover operation and development costs, and examine possibilities for further enhancing the attraction of the EUN with a view to positioning the service firmly in the market for educational multimedia services and products.

One important factor in fulfilling this task will be to ensure that the EUN, although it has to be self-sustaining, does not become a purely commercial concern considering the public service function implied in the objective.

In short, the EUN must under no circumstances become solely, or even mainly, a marketplace for companies wanting to sell educational products. It will thus have to consider the impact extensive sponsorship might have on the content and presentation of the EUN.

Deliverables:

D13.1 Business Plan

Document providing background information – e.g. financial implications, cost-benefit - for a decision on the full deployment of the EUN.

WORK PACKAGE 14

Multimedia Tools for Schools

Partners involved: IDEKE (GR), Pliroforiki Technogolia (GR), University of Lund - CITU (SE), Academie Poitiers (FR), Academie Toulouse (FR), University of Oldenburg (DE), Schihandelsschule Schladming (AT)

Tasks Addressed: ET 1.8, 2.1

Objectives of the work package

- To exploit the potential of combining multimedia with advanced IT
- To develop authoring tools for collaborative development of educational projects
- To develop tools for pedagogical management
- To develop a virtual reality multimedia educational application.

Description of the work

The objective of this proposal is to exploit the educational potential of combining multimedia with advanced information technologies, such as intelligent agents, virtual reality and networking, for the benefit of learners, teachers and industry. In order to achieve this, it proposes activities that include research, experimentation and evaluation of these technologies, including the design and development of **MultiLab**, a multimedia toolbox that makes use of existing network infrastructure and can serve as a low-cost platform for the development of multimedia educational applications, the integration in it of authoring tools (i.e. for multimedia content development, instructional management, student monitoring and assessment, etc.), and the development of technically and pedagogically innovative multimedia applications within the MultiLab that could serve as validation test-beds.

MultiLab aims at making new technologies accessible to every teacher and student by using the EUN platform interfaces, while compatibility with existing standards and tools is maintained. Throughout all project stages, the active participation of users (multimedia application developers, publishers, etc) and end-users (teachers, students, people with special needs etc), and the close collaboration of public institutions that use multimedia virtual reality applications, with private companies that publish them, will be sought.

The objective is to have **MultiLab** serve both as an authoring platform for the development of educational multimedia, as a training space, where students will be trained on-line or off-line, in groups or alone, by “inhabiting” virtual training spaces inside which advanced multimedia applications can be found, and as a forum where trainers will be trained in the use of new technology, opinions and ideas among trainers and trainees will be exchanged, and multimedia training material will be deposited and spread for use.

The way to accomplish the sub-project points to the classic five-phase cycle :

- **Specification.** Based on the user requirements analysis in WP 05 both functional and technical specifications of the Multimedia Tools for Schools (**MultiLab**) should be devised.
- **Implementation.** This included two parts:
 - **Development of the MultiLab** including adaptation or development of:
 - multimedia exchange network services
 - authoring tools for the collaborative development of educational projects
 - tools for pedagogical management (i.e. diagnosis support system)

- tools for global management of the learning process (i.e. instructional decision support system, self-assessment tools)
- tools for on-line participation in the training process and tutor-student collaboration

Development of an Educational Multimedia Application

Usage of the MultiLab platform to co-operatively design and develop a virtual reality multimedia educational application (i.e. a virtual laboratory for physics experiments or a virtual observatory)

- **Validation.** The validation stage consists of two sub-phases :
- **Verification :** Within the framework of this WP a small group of EUN platform users will test the Alpha version of the software. A Beta version will be prepared according to the test results.
- **Demonstration :** Within the framework of WP 07 a larger group of EUN platform users will test the Beta version. A final version will be released.

Deliverables:

D14.1 MultiLab prototype pilot (Alpha version)

An alpha version prototype of the MultiLab platform, to be used in verification activities.

D14.2 MultiLab prototype pilot (Alpha version)

A beta version prototype of the MultiLab platform, to be used for further validation activities.

WORK PACKAGE 15

Multimedia Search Tools and Services

Partners involved: Nordic Netcom Centre (DK-SWE), Technical Knowledge Centre and Library of Denmark (DK), University of Humboldt (DE)

Tasks Addressed: ET 1.8, 2.1

Objectives of the work package

- To provide a state of the art distributed harvesting and search service tool to collect meta data for a general database of educational Web multimedia materials. It will utilize standards like Dublin Core and PICS (Platform for Internet Content Selection) for meta data, Z39.50 and GILS for search and retrieval and WWW user interface.
- To investigate ways to infer meta data (like subject classification, quality ratings, search terms for multimedia resources etc) when such information is not explicitly available.
- Simultaneous searching in several databases located at different locations.
- To implement spatial searches based on geographical coordinates according to the Z39.50 standard and profiles.
- To implement a multilingual WWW user interface
- To develop strategies on how to generally get server administrators and authors to use meta data (author guidelines, forms, templates, support)

Description of the work

This WP will address some of the fundamental questions regarding methods for structuring, browsing and searching multimedia resources. Based on large automatically harvested databases covering large parts of the Internet the WP will develop and evaluate ways of finding the most relevant multimedia resources. The WP team will use the Z39.50 database containing all information published by WWW at European schools (produced as a demonstrator in this WP) together with the NWI/EWI databases (<http://nwi.dtv.dk/>) as examples of large unstructured databases. The tools will be validated in the context of the European Schoolnet utilizing quality databases (SBIGs) like EELS (<http://www.ub2.lu.se/eel/>) as additional information sources.

The result set from a search often consist of a very large number of hits, forming a set of information pieces which are unstructured and usually difficult to overview.

The tools to be studies fall into 2 categories:

- Preprocessing tools, i.e. tools involving only local information. These tools will be applied when information is entered into the database and will provide additional deduced information like language of resource, subject classification, type of resource, etc. They thus enhance and structure the information in the database making even current ways of searching easier and more reliable.
- Postprocessing of result sets, i.e. tools involving global information. These tools need to take into account all resources processed and will typically perform tasks like clustering, relevance ranking, quality filtering, etc.

By using information derived from quality controlled information gateways - SBIGs (like distance in hypertext space, number of other WWW-pages linking or citing this page, etc) - information sources in the exhaustive index can be assigned a quality rating automatically. In this context meta data is a key concept. The WP will develop towards a common set of rules to use meta data according to the Dublin Core standard within most educational servers.

Tasks

- Extend the indexing/searching software and develop user interface to handle spatial searches according to the Z39.50 standard and profiles.
- Multimedia metadata
- Investigate the use of metadata standards to describe the content of a multimedia database.
- Develop strategies on how to generally get server administrators and authors to use metadata (author guidelines, forms, templates, support)
- Build a distributed system to harvest and index metadata provided within WWW pages.
- Investigate ways to utilize other information sources like thesauruses, quality assessed link collections (SBIGs), and other network based sources in order to enhance records.
- A tool to extract a database of all multimedia present in national databases.
- Search service
- Extend the multilingual WWW user interface to cover all European languages.
- Complementing the user interface for the multimedia database with search term expansion/multilingual translation of search terms.
- Participate in and contribute to the standards-forming process within the areas search and retrieval, metadata, harvesting WWW resources.

The WP will produce:

Tools

- A tool to extract a multimedia database from a EWI database. [Month 12]
- Multilingual WWW interface/gateway to Z39.50 databases [Month 16]

Demonstrator services

Utilizing the tools above the following demonstrators will be built:

- A database (Z39.50) containing all information published by WWW at European schools [Month 6]
- A database (Z39.50) covering multimedia resources (derived from providers/publishers and/or national EWI databases) [Month 24]

Access to these databases will be given through WWW.

Reports, guidelines

- State of the art report on the use of metadata standards for describing multimedia resources. [Month 8]
- A set of guidelines and strategies on how to generally get server administrators and authors to use metadata. [Month 18]

Taken as an integrated whole the system described above will act as a framework allowing easy creation of new services adopted for school use. Validation will take place with public use of demonstrators in the context of the entire European Schoolnet.

Deliverables:

D15.1 *Tool to extract a multimedia database from an EWI database*
Postprocessing tool to be verified within the framework of this WP

D15.2 *Guidelines & strategies on the use of metadata*
A set of guidelines and strategies on how to generally get server administrators and authors to use metadata

D15.3 ***Multimedia z39.50 database***

A database (Z39.50) covering multimedia resources (derived from providers/publishers and/or national EWI databases)

WORK PACKAGE 16

Database Audio and Video Broadcasts
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Partners involved: BBC Education (UK), Radio Telefis Eireann (IRL), Utbildningsradion (SE)

Tasks Addressed: ET 1.8, 2.1

Objectives of the work package

- To determine the possibility of gathering together visual (initially in still form and eventually in moving pictures) and audio material as a resource for teachers on the Web in defined curriculum areas
- To test out the most effective way of making this material available
- To explore the copyright implications of making free-at-the-point-of-use materials available over the Web, and the implications for commercial products

Description of the work

In this WP the public service broadcasters involved, following research with teachers into appropriate subject areas, will identify material from their archived and current output. Dependent on the bandwidth available, a server and database will be established which delivers moving pictures and audio over the Web. Teachers will then be able to access this material and use it as part of their teaching programmes. The efficacy of the system will be tested using the Network of Innovative Schools. Key issues to be resolved include copyright, database and server selection, day to day running and usage of the site and updating of the site.

First steps will be to define appropriate curriculum areas in which to gather visual material, based on an assessment of teacher needs. First steps will be to define appropriate curriculum areas in which to gather visual material, based on an assessment of teacher need.

Each broadcaster will then need to explore the copyright implications (in collaboration with WP 03 – Copyright and IPR Issues) of using broadcast material, free at the point of use, and delivered over the Internet and possibly via CD-ROM for use on the Internet.

A database and server will be selected and installed to store and deliver the broadcast material to users. The BBC has developing expertise in database installation and development through their R & D division at Kingswood Warren, and through their digital media and new services units. Once developed, and rigorously tested through the Network of Innovative Schools, this database of materials will be made available to schools.

The availability of visual material from different public service broadcasters in an easily usable format. Guidelines for the copyright implications of making public service broadcasting materials freely available for use by teachers in defined functional areas. Database to store slides and moving pictures. Server/software to deliver these visual elements to users.

There are two key strands to be carried out in this WP:

- the drawing together of visual and audio material on the Web as a resource for teachers, exploring the copyright and rights issues on a trans-European basis
- the development of a database and server to enable teachers to access clips and moving pictures

The tasks to be completed involve:

Defining appropriate curriculum areas in which to gather visual material based on an assessment of teacher need. Exploration of the nature of visual material available in defined curriculum areas drawing from current and archived programme output

Method: gathering together programme information, both current and archived

Identification of the rights accompanying these materials; the costing implications in terms of copyright of using them in the open access context of the World Wide Web, and the implications of teachers using them in a self-authoring context.

Method: Exploration of the rights associated with different programmes in several European countries

Deliverables:

D16.1 Audio and Video Database Alpha version

Alpha version of the database to be verified within the framework of this WP

D16.2 Audio and Video Database Beta version

Beta version of the database to be validated with a larger audience within the framework of WP 07

WORK PACKAGE 17

Courseware Based on Sound

Partners involved: Sema Group, Escuela de Música de Talavera, ANAYA and Ministry of Education (ES), (ES), Grazer Musikhochschule, Hochschule für Musik und darstellende Kunst in Graz and Bundesministerium für Unterricht und kulturelle Angelegenheiten (AUT), Pliroforiki Technognosia (GR)

Tasks Addressed: ET 1.8, 2.1

Objectives of the work package

- To provide the European society with a multimedia application capable to cater the needs of music training, both for teachers and pupils.
- To provide teachers with a tool which enables them to survey the degree of advancement in the learning process of their pupils, as well as modifying the pedagogical plan.
- To obtain the most of the utilisation of available technologies, encompassing a combined on-line/off-line approach for providing the expected training on music abilities.

Description of the work

This WP (Open Training Interactive Courseware based on Sound – OPTICS) aims at building a system for Computer-Based Training provided with audio feedback learning activities. The project is oriented to music learning, but the methods could be applied to other sound based subjects. The approach to the process of music learning is achieved by developing a demonstrator that will offer the high school pupils basic musical training and basic singing skills through audio feedback based on voice nuance recognition.

Through the development of this product the WP will demonstrate the degree of effectiveness of a combined on-line/off-line approach from a pedagogical point of view in two different areas of Europe, Austria and the German speaking countries and Spain. The results of the WP will raise the awareness of new information and communication technologies within the community of music teachers, most of which show reluctance to adopt to new methods.

Combining on-line (Internet) and off-line (CD-ROM) technologies results in the achievement of an application which can be reached by any body, both from Network PC's and stand-alone workstations. The **interoperability** between both aspects is ensured thanks to the inclusion of both technologies in the design of the system, from the very beginning of the development process.

The user needs analysis performed in WP05 will be used to analyse the specific needs of music pupils and teachers, both from the pedagogical and technological points of view. A concrete technical specification catering to the expressed user needs will be developed. It will point to a combined off-line/on-line approach.

The development stage will produce a computer-based training program that will measure the whole range of sounds produced such as pitch and tone colour. The strength of the computer is the precise recording of sound. The advantage for the student is the feedback the computer is able to provide. On the one hand computer-based training programs in the field of vocal training should improve the hearing and help the students to find out about mistakes they make (pitch, intonation) and should also offer exercises for the correction of the mistakes. On the other hand the computer should help the pupils in the field of articulation, formation of sound and developing the best individual tone colour by recording the voice, then providing a graphic representation of the relevant formants and finally offering possible ways to improve the sound of the voice. This can be well achieved through multimedia applications.

It is easily imaginable that the computer for example produces tones or a sequence of tones (e.g. samples or MIDI-files) which the student is going to repeat by singing into a microphone. The feedback about a possible deviation of the pitch should be given on graphs so that the student can realise the extent of his error.

The validation stage consists of two sub-phases: A small amount of users (EMT, GMHS) will test the Alpha version of the software. A Beta version will be prepared according to the test results. A greater amount of users drawn from the European Network of Innovative Schools will test the Beta version within the framework of WP 07. A final version will be released and user manuals in Spanish and German will be prepared.

Deliverables:

D17.1 OPTICS - Alpha version

Alpha version of the software and CD-ROM and Internet to be used for verification within the framework of this WP.

D17.2 OPTICS - Beta version

Beta version of the software and CD-ROM and Internet to be used for further validation within the framework of WP 07.

WORK PACKAGE 18

School Library

Partners involved: Biblioteca di Documentazione Pedagogica (It), Ministry of Education (ES), Lambrakis Foundation (GR), Elektronische Datenverarbeitung GmbH (AT)

Tasks Addressed: ET 1.8, 2.1

Objectives of the work package

- To create an interactive environment on the Internet: it should be a model for cooperation among schools
- To develop the educational use of the Internet resources
- To create a model of educational sites for learning
- To create a schools' network for the documentation and for developing didactical research activities on line
- To provide on-line resources for learning and make the resources produced by schools usable on line
- To encourage telematic communication and comparison between didactical experiences of schools from different Countries

Description of the work

This library project is an attempt to create an interactive environment, accessed via the Internet, representing a model of cooperation among schools. There they can exchange experiences, ideas and materials and at the same time they can use the materials stock produced during the opening phase of the project.

This WP implies the model creation of an Internet site with useful resources for learning. This model will aim at creating a container where schools will be able to find not only information and ready materials, but also a didactical path in progress, developed through a schools' network. These schools will carry on, at least for two years, activities documented in a part of the site dedicated to the laboratory. In this way schools not only will find data and information on line, but will also provide resources for other schools.

The project we are outlining is divided in three layers. The first one implies the construction of a site in VRML format and with a 3D graphics; through it pupils can easily surf on a thematic area. Linked to this surfing, there are databases with images, sounds and filmed materials: in these multimedia materials there is not a lot of text, however you can find discussion list, chat that is the typical environment for Internet communication, and a laboratory (in technical terms, FTP and database services) where pupils can exchange experiences.

The model consists of three main fields:

- construction of a laboratory model: the schools participating in the network will prepare a periodical report for their research activities
- construction of a library model: this field will host multimedia data with various materials and a repertory of sites characterised by didactical relevance and concerning the subject the school library is relating to
- construction of a communication model: this field will offer the necessary tools for communication among schools that carry on research activities; it will also offer links to contact other European schools carrying out similar experiences.

In order to try out the model the following subject has been chosen:

NATURAL PARK as a resource for environmental education. This subject has been chosen, because previous experiences concerning the relation between schools and natural parks have already produced

interesting multimedia materials. During the model construction we will refer particularly to one natural park for each WP Partner Country. For Italy it will be the Foreste Casentinesi National Park.

During the first year preliminary activities will be initiated:

- a technical-scientific committee will be formed in order to set off work within the WP and to check it *in itinere*
- the schools participating in the network will be chosen
- training courses will be held for the teachers involved and the schools' network construction will be strengthened
- the technical infrastructures will be planned on the server
- schools hard/software equipment will be checked and, if necessary, completed
- on-line Internet connections for schools will be ensured
- the multimedia database prototype will be developed
- a repertory of Internet sites will be created
- the national centre will start cooperating with other European Countries where similar experiences have been carried out

In the operating phase schools will start research activities and begin writing, on the Internet site, their periodical reports about their work

During the second year:

- the multimedia data base will be completely implemented
- links to similar experiences in other European Countries will be active
- the on-line didactical activities of schools will continue
- dissemination and publication of the experience of tasks carried out

Deliverables:

D18.1 *European Interactive Virtual Library alpha version*
Alpha version to be verified within the framework of this WP

D18.2 *Model for building a schools' network to use and update the Library*
Tools for communication among schools that carry out research activities. It will also offer links to other European schools carrying out similar school projects.

D18.3 *European Interactive Virtual Library software*
Client software, which is based on ISIS and used to update the EIVL

WORK PACKAGE 19

Virtual Workspace Environment

Partners involved: Umeå University (SWE), UNI-C (DK), University of Coimbra (P), Schulen ans Netz (DE)

Tasks Addressed: ET 1.8, 2.1

Objectives of the work package

- To provide a basic Virtual Workspace Environment, which can be used in accordance and integration with other, existing and non-existing applications, by users on different technical and knowledge levels.
- To develop and integrate adaptive software tools into the Virtual Workspace Environment which can be adapted to the different needs of the user and in that fashion are suitable for co-operative work with an added European value.
- To stimulate virtual collaboration in European education by providing a Virtual Workspace Environment and a pedagogical framework for collaboration, which is flexible, intuitive and meets the pedagogical need for development work and professional development at a European level.
- To verify the usability of the Virtual Workspace Environment by validating the system in actual practise in some countries to form the basis for a large scale demonstration at a European level.

Description of the work

The overall objective of this WP is to provide tools, techniques and methods to be used by teachers and schools in support of co-operative project work in computer networks within the EUN platform; to create a flexible and open environment usable for professional development work at a European level that will aid change in teaching and school practises. The VWE is set to be a virtual place for collaboration, where the user or a group of users have the opportunity to create and adapt their own workspace with tools suited to their special needs.

To achieve the objectives set up, the Virtual Workspace Environment will consist of four major components:

1. A basic set of tools and software for collaborative work, built on standard techniques. This part will mainly contain existing software that suits the purpose (for example Web-server software, e-conferencing software, software for broadcasting video and audio etc)
2. A software framework for administration and integration of the different tools in the virtual workspace environment. This software package will be developed within this WP.
3. A set of distributed software tools to support collaborative work in EUN projects and courses. Those software tools will be developed within the WP.
4. A well defined API, (to the software framework environment) to support third party developers to integrate their own distributed software tools. This will be a part of the documentation.

The following tasks will be carried out in order to develop the Virtual Workspace Environment:

1:1 Based on the user requirements from WP5 a functional specification of the VWE is generated. The specification will also take into account all existing tools that may be used to fulfil the functions needed and it will devise a plan for integrating such tools into the environment needed. The outcome of the specification phase may change the content of the following tasks. The specifications below thus represent the current view.

1:2 Setting up servers and installing the software needed to set up the VWE. The main platform will consist of three servers, one main server for WWW, e-conferencing and software objects, one media server for

video/audio broadcasting (this server might also be used for video- and audio conferencing) and one database engine server.

1:3 Adaptation and implementation of search facilities and intelligent agents for collecting information.

2:1 Design and development of an administrative framework for the virtual workspace environment – ‘tools to handle the tools’ (phase 1). The administrative framework will be developed as a distributed software package with an object-based design, which makes it possible to extend it with new functionality and facilities. This is not an isolated activity, it will be carried out related to other activities in this WP. In the first phase, this development-activity will be concentrated on integrating the basic tool-set into the homogeneous environment of the Virtual Workspace.

2:1:1 Design and development of software tools for administration of the personal workspace environment for use by the user. This will be a set of tools for creating and manipulating the personal user interface and the personal toolbox.

2:1:2 Design and development of administrative tools for managing users and user groups. This part of the system should also contain tools for time tracking and monitoring.

2:1:3 Design and development of software tools for creating and maintaining databases and registers within workspaces.

2:1:4 Design and development of an adaptive on-line help and pedagogical support system.

2:2 Design and development of the distributed software tools that are intended to be developed within the Virtual Workspace Environment WP. Each of these software tools will also contribute with software objects to the administrative software package (se 2:1).

2:2:1 Designing and develop a server-sided WYSIWG software tool for generating html- documents. This tool is needed to adapt the interface of the personal workspace. It shall also be used by the users and other software tools to create/generate reports and papers.

2:2:2 Design and development of a distributed software tool for carrying out evaluations, tests and inquires.

2:2:3 Design and development of tools for creating collaborative work areas that facilitates synchronous, collaborative manipulation of common files, such as graphical files, text files, multimedia files et c.

2:2:4 Design and development of distributed software tools for calendar- and project planning/management.

2:2:5 Design and development of tools for presenting and processing geographically connected information and data

3:1 Testing and evaluation of the virtual workspace environment and the integrated software tools. The technical evaluation will be done from two aspects (I) from a single tool, functionality point of view and (II) from a Virtual workspace environmental point of view, where the pedagogical and co-operative (effectively) aspects are considered. Both the developer and the user’s point of view will be considered. The testing and evaluation will be done for each activity as well as for the whole WP.

3:2 Verification of the usability of the system by testing how selected teachers/schools develop actual multimedia tools and materials in 3 countries: Denmark, Portugal and Sweden.

3:2:1 Preselected interested teachers from some schools in each country will in a series of virtually conducted workshops and seminars identify 2-3 projects. The selected teachers/schools should be on different technical-

and knowledge levels. The workshops/seminars will be carried out with assistance from teacher educators and researchers functioning as mentors and resources. The projects to be selected must meet criteria of pedagogical relevance within the EU net and accordingly also involve the uses of IT in the school. Participants may come from, but are not restricted to schools and institutions participating in ENIS (WP 11).

3:2:2 Carrying out the seminars and workshops as planned. This subtask will also activate the group of partners behind the Virtual Workspace Environment workpackage,. The endresult of the workshops/seminars is a detailed description of projects to be carried out. In a final version of the VWE the workshop/seminar may be unnecessary if and when projects are already defined by the users.

3:2:3 The carrying out of the projects will be the actual verification phase that also activates the group of partners behind the VWE fully. The pedagogical partners utilizing the tools, the national providers supplying the actual platform in daily operation and supported by the main developers in accordance with the respective responsibilities for the projects to be carried out.

3:2:4 The verification will take place in two steps, one based on the basic platform and one on the full Virtual Workspace Environment.

4:1 Project reports and documentation.

4:1:1 API documentation for the administrative framework and software tool packages.

4:1:2 Software documentation

4:1:3 Documentation of verification procedures as reports

4:1:3 Project end report.

Deliverables:

Key points of the deliverables: The deliverables should be; distributed, platform independent, using open standards, using an object oriented architecture as far as possible, easy to use, well integrated.

D19.1 Platform version 1.0bx

The initial platform set-up with servers, intelligent agents and search tools

D19.2 Version 1.0bx of the virtual workspace environment

Alpha version of the Virtual Workspace Environment, to be used for evaluation and verification within this WP

D19.3 The final and revised version of The Virtual Workspace Environment, version 1.0.

Production version of the Virtual Workspace Environment, enhanced in accordance with demonstration results

WORK PACKAGE 20

The European SchoolNet Teacher Network

Partners involved: Schulen ans Netz (DE), Umeå University (SE), University College of Education of Iceland (IS), University of Salzburg (AUT)

Tasks Addressed: SOCR 3

Objectives

The overall objective of this WP is to establish a European Teacher Network based on the EUN platform and using the tools and techniques of the WP 19 Virtual Workspace Environment. The European Teacher Network will develop the basic modules of a Virtual Teacher College (VTC) with specific fora for technical, pedagogical and organisational problems in the process of creating the EUN. This discussion and communication fora shall concentrate for example on:

- a technical forum for exchanging information and a helpdesk
- a pedagogical forum for interesting tuition material
- a forum for didactics and methodology
- a forum for subject oriented work
- a forum for practice oriented teaching and learning scenarios
- a forum for the reorganisation of the further training institutions using VCT.

The very pragmatic objective of this WP is to establish these fora according to the requirements of trainers and further training institutions.

Description of the work

To set up the European Teacher Network the coordinator of the WP and the partners will organize a strong link to the development of the EUN platform and to the development of the Virtual Workspace Environment. Organizing these link will be combined in the starting phase of the WP with Task WP 20.1: Developing the requirements for further training and communication within an ETN

This task will be fulfilled by a very specific questionnaire and a workshop among the partners of EUN, added by experience of some experts in Telelearning (see Deliverable 20.1).

Task WP 20.2: will concentrate on the organisational development of training institutions for teachers using the EUN and the VTC (see Deliverable 20.2)

Task WP 20.3: will develop practice-oriented scenarios as demonstrators of the EUN Teacher Network and the VTC. These scenarios have to build up the above mentioned fora according to the results of the requirement analysis.

Task WP 20.4: has to organize a demonstration phase for the ETN using the fora of Task 20.3 and the partner have to moderate these fora. As a result of this WP we will present

- a requirement analysis
- a strategy for reorganisation of teacher training institutes using EUN and ETN
- a working platform in the VTC with specific fora as demonstrators

These results can be transferred also to other school networks and even the necessary generalization can be tested in a large field experiment if the demonstrators are successful.

Deliverables:

- D20.1. Report on retraining requirements***
- D20.2 Report on Reorganisation of training institutes using the EUN-TeacherNetwork***
- D20.3 Report and Donostrators of practice-oriented scenarios for the EUN teacher network***
- D20.4. Demonstration and moderation of specific fora using EUN and VTC***

WORK PACKAGE 21

The Learning School

Partners involved: De Montfort University and Welsh Joint Education Committee (UK),
University of Ghent (BE), University of Santiago de Compostela (ES),
Vrije University of Brussels (BE)

Tasks Addressed: SOCR 3

Objectives of the work package

- To provide guidelines for schools (and government) about factors ensuring the effective use of ICT in schools. These guidelines will be based on examination of aspects of methodology and pedagogy for new learning environments specifically on:
- factors supporting and hindering the effective utilisation of ICT across the whole curriculum by pupils and staff. This will include studying management of change, support needed for change, training of teachers, costs, quality of services provided, curriculum applications, teachers knowledge and development.
- identification of effective practice in the use of ICTs across subject. This will include focusing on the European added value, potential for new approaches to multilingual and multicultural contexts and the integration of ICT into the curriculum. The impact of the EUN on teachers and school managers on this area will provide one focus.
- To provide pedagogical guidelines for other work packages. This will contribute to the development of the EUN on the basis of research about school needs and practice eg on the usefulness of the platform and the tools provided

Description of the work

The work has a number of innovative aspects. It will build on the substantial work in Europe on pedagogy, management and school improvement to investigate the factors which ensure integrated ICT use in schools. It will focus on the identification of particular school-based factors supporting the shift from traditional teaching methods to methods involving effective use of ICT. The identification of successful curriculum applications of ICTs, especially those giving an added European dimension to children's learning will be undertaken. The impact of the EUN on managers and teachers will be part of this. Training needs for staff will be identified. Constraints in new pedagogy caused by examination systems will be examined.

Partners in a number of European countries are to be involved in this WP. The central team consists of teacher educators from Ghent (Belgium), Santiago de Compostela (Spain) and De Montfort Universities (UK). Beatriz Cebreiro (Spain) and her colleagues bring to the project, specialisms in teacher professional development and induction as well as the integration of new technologies in formal and informal education. Guy van Belle (Belgium) and his colleagues bring specialist knowledge of educational theory, pedagogics, action research and multimedia in education. Marilyn Leask (UK) and her colleagues bring specialist skills in school improvement, development planning, internet curriculum projects and assessment and examination. The working languages of the team will be Spanish and English.

To ensure that the guidelines are responsive to circumstances in the different EU countries and have credibility in all EU countries, a wider team drawn from the remaining EU countries will provide peer review and will assist in the analysis of questionnaires to the schools in their country (which are in the European Network of Innovative Schools).

Methodology

A multi-site case study approach will be used to collect data from successful schools. Issues to be explored

include factors inhibiting and supporting change, change management, staff attitudes and training, finance, leadership, curriculum philosophy, pupil attitudes, pedagogic issues (including examinations), concerns about the technology as well as opportunities for transnational collaboration. Schools in the Network for Innovative Schools and schools close to the institutions undertaking the work will provide data. Where local conditions permit, a small group of teachers in each school will be identified as 'action researchers' and the WP team will work closely with them. Questionnaires, interviews, documentary analysis and observations will be used at different stages during the enquiry. The reports produced will include case studies giving examples of practice in successful schools including the overcoming of difficulties and inhibiting factors.

The study has two main approaches:

- A) Questionnaires will be distributed electronically on three occasions to teachers in schools in the Network for Innovative Schools and educators in teacher training institutions in each country.
- B) Detailed case studies will be undertaken in a range of schools in different countries. These will include detailed contact with the school on 5 occasions over the 22 months.

The detailed analysis of this data will produce the guidelines for schools wishing to implement change in the way information and communication technologies are used across the curriculum. Local contexts will be considered and the advantages (and disadvantages) of undergoing such curriculum change will be identified.

Sample:

- A): a stratified random sample of schools in the Network of Innovative schools will be sent questionnaires at three points during the project. These will be sent to schools in each European country.
- B) 36 schools of different types across three countries will be studied closely over the 22 month period. Data will be collected from teachers using action-research techniques; interviews and observations will also be carried out with senior managers and classroom teachers.

The findings from this work provide the foundation for the guidelines required for other work packages and this WP will thus provide reports of emerging issues to co-ordinators of different work packages as appropriate. This WP will also produce regularly updated information for the EUN web site, e.g. case studies of successful curriculum projects; identify training needs and provide this information for the further development the European Virtual Teacher College; provide views from teachers on frequently asked questions and hints and tips. As part of the activities (data collection and dissemination) the WP team will contribute to relevant forums on the EUN site and organise virtual conferences/seminars will be held within the Virtual Teachers College section of the EUN (2/year).

The guidelines for effective practice produced by this WP will be widely disseminated through the deliverables reported below but also through conference attendance and papers as well as text books. The publishers Routledge in the UK are committed to publishing some findings. Reports from this project will be widely circulated to educational institutions across the EU and internationally via publication on the EUN. School managers would find the report useful as providing ideas for strategies to employ in developing a 'learning school' which is able to respond to the potential of ICTs to enhance pupil learning. Teachers would find information about the effective deployment of ICTs in their subject areas. Government organisations will find the guidelines useful in encouraging schools to go forward and providing strategies for this.

Deliverables:

D21.1 Guidelines for educational institutions seeking to introduce IT and educational multimedia

Guidelines to be used by other WPs and schools. Includes issues related to management, training, costs, change, teacher attitudes, pupil attitudes, hardware, software, internet service providers provision

D21.2 ***Final report on ICT use in schools***

Report on how ICT use in schools (and/or teacher training institutions) can enhance the curriculum and encourage transnational collaboration between pupils, teachers, teacher trainers.

WORK PACKAGE 22

EUN Pedagogical Guidelines

Partners involved: University of Keele (UK), University of Padova (IT),
University of Lisboa (PT), Pedagogical Institute of Education (GR),
University College of Education of Iceland (IS)

Tasks Addressed: SOCR 3

Objectives of the work package

- To provide support, data and analysis about effective learning partnerships (HEIs and Schools) in ICT.
- To provide a discussion forum and reports on innovations and their organizational/pedagogical/professional practices and implications.
- To create a database of information, which can be searched, redrafted and organised by topic, FAQs, site and other pertinent criteria.

Description of the work

The overall aim of this WP is to develop a pilot programme for the European Virtual Teacher College focused on the development of a pedagogy for ICT involving school/university partnerships, the skilling of teachers and the creation of effective professional identities and practices. To achieve this aim the WP will build a series of partnerships, between schools and universities, school and school, university and university, across Europe to create an effective link between new ICT technologies and schools developing pedagogy and reflective expertise.

This WP will address a number of problems in ICT in schools. A recent research overview on ICT in teacher education in Europe revealed a number of problems. Although there were a number of projects, there were very few cross European projects, conceptual confusion about the theoretical terms used and their overall validity. There are also a number of crucial, practical difficulties which have been exposed by a range of limited innovations and projects in the area of ICT in schools in which it can be seen that technological innovators and commercial suppliers underestimate the problems of using ICT in schools. ICT cannot be inserted into schools as if it was a simple, bolt-on technology to teaching. As a medium for innovation, it involves problems of professional identity and competence, organisational structures, team relations, new pedagogical styles and developing theory. ICT enters the complex arena where educational philosophy, age or subject or topic pedagogy and teaching methods are constructed by the teacher in isolation, within professional communities mediated through national traditions.

This WP will establish a knowledge base which informs the evolution of telematics for school improvement and the professional development (from preservice to inservice) of teachers. Learning partnerships, skilling/reskilling teachers for work with new learning technologies and the construction of new professional identities and practices are the main foci of the work: derived from current projects and discussions, each of these foci will illuminate the problems of ICT innovation in pedagogy and provide pupil, teacher and researcher based data and interpretation which can be translated into future actions and guides.

The project will have several stages

Developing Learning Partnerships

Skilling and Reskilling Teachers

New Professional Identities and Practice

Projects will be developed on learning partnerships, skilling and reskilling teachers and on developing new professional identities. These will operate sequentially and it is expected that their work will be built into successive training programmes and modules in other subprojects in the EUN. The three aspects of the WP are interlinked and depend on each other, firstly, building effective learning partnerships, secondly skilling/reskilling teachers and thirdly, confident professional identities managing complex technological and pedagogic change.

The first stage will be to establish and consolidate effective learning partnerships (for training and inquiry) between schools, teacher education and educational research institutes. This stage will be concerned with the operation and practices of learning partnerships in teacher education, clarifying procedures and concepts and initiating common research and inquiry procedures and practices. This stage will begin with a conference between the main partners. The organisation of the interactive database and procedures for discussion and report will be instituted.

The second stage will focus on the preparation of student teachers and the reskilling of teachers for work with new learning technologies in new pedagogic and organisational contexts. The integration, maturation and creativity of ICT inside pedagogy and pupil learning and the problems of absorbing radical new technologies will be studied by researchers, with the support of students and teachers. Systematic inquiry of skills, practices and networks will be the basis of this stage.

The third stage will focus on the ways in which teachers construct new professional identities to manage pedagogic and organisational change in relation to new technologies. This is a crucial step in learning how this process is achieved and reproduced. In a sense, it is overcoming incompetence to become effective; in teaching, this is not a simple step and an understanding of this process is vital.

Each of these stages will involve a mixture of participant observation, teacher and pupil diaries, reflective essays, case study evaluation and interviews. In addition, interim reports and drafts will be produced for the database and will be searched, commented upon and redrafted by project participants from the learning partnerships. The project will be reported and disseminated by an open access database of research papers and working drafts about ICT in schools.

Deliverables:

D22.1 A series of reports

Reports written by teachers/researchers, through electronic redrafting over time, about aspects of key objectives, or written by researchers as formative and summative evaluations of the project.

D22.2 Model database

This database will be constructed to allow participants to communicate with each other and other users to understand and predict outcomes of similar experiments in their partnerships, classrooms and schools.

Project description – TEN Telecom

1.5. ADDITIONAL INFORMATION

1.6. to be supplied in the TEN-TELECOM workpackage

1. Identification of the Member State authority granting agreement to the submission of the final application

It is advisable that a copy of your final proposal is sent to the appropriate TEN-Telecom national contact point(s).

Identification of the authority :	Swedish Ministry of Education
Name and phone number of person to contact :	Education Counsellor Ulf W Lundin +32 2 289 5701

2. Information for verifying the eligibility and the conditions for Community aid (ref.: art.2 and 5 of Council Regulation N° 2236/95 of 18.09.1995, OJ n° L228 of 28.09.95).

- a) provide the study cost and the total investment cost of the overall project in FORM TEN-1 (see below).*

TEN - Workpackage information specific to TEN-TELECOM workpackage(s)

FORM TEN-1 : TEN-Telecom / SUMMARY INFORMATION

Project Acronym : EUN

Project Title : EUROPEAN MULTIMEDIA SCHOOLNET

Summary description of the Study for which TEN-Telecom aid is requested

The project will carry out a feasibility study to assess the general validity of the ideas underpinning the establishment of a European Schoolnet and the prerequisites for full deployment of the overall project. In this process the project will study the possibilities of using Euro-ISDN for improving communication. The result of the study, in the form of a business plan, will take into account financial implications and establish the conditions for successful launching, providing background material for decision-makers, when forming an opinion on how the EUN could be developed into a sustainable service for schools and education offering services with an added European value into the 21st century.

Summary description of the overall Project likely to emerge from the study

The overall EUN project will bring national/regional school information networks together into a European network of networks. The network should be accessible to all schools offering innovative tools and services on a much larger scale than the present project. The areas of the EUN platform will, for instance, include meeting-places, video-conferencing, virtual environments. The full deployment of the system will require investments in communication equipment, mirror servers, reflectors for audio and video, and for many of these services it will be necessary to use Euro-ISDN. By providing tools and pedagogical means for introducing ICT and multimedia in all schools the project will make an important contribution towards enhancing the quality of education in general.

Study cost : 3 223 000 (ECU) **Study duration :** 24 (months)

TEN-Telecom aid requested for the study: 1 397 000..... (ECU)

TEN-Telecom aid requested for the study: 43 % of study cost (max 50 %)

Tot. Investment cost of the overall project: 148 000 000 (ECU)

TEN-Telecom aid requested for the study: 0.9 % of total investment cost (max 10 %)

Joint Call Educational Multimedia - Guide for Full Proposals
Part B Proposal description – TEN Telecom

b) *provide the list of participants (name and country) involved in the study*
 See form A.3 – Participant's List – entities based outside the European Union are excluded.

c) *Identify the public authority or the body equivalent to a public entity which participates in the financing of the study. Fill at least one line of the following table. Specify also whether the project is implemented and directly financed by this public authority or receives public aid or aid out of public resources. Fill FORM TEN-2 (see below)*

FORM TEN-2

Type of entity	Type of organisation	Name of organisation	Address	Admin. or legal framework in which it operates
Public Authority	National (e.g. ministries)	Swedish Ministry of Education and Science + Ministries of Education in the other 14 Member States.		n.a.
	Regional	For further		n.a.
	local (e.g. cities)	Reference		n.a.
	Other authorities (e.g. schools)	See List of		n.a.
Body equiv. to public entity	Public enterprise Or Private enterprise Running public services (e.g. priv.universities)	Partners		
		In Section S of this proposal (non-EU. Partners excluded)		
	Other entities			

d) *Explain and specify the **financial obstacles** met by the achievement of the overall project and the minimum financial aid necessary for the launch of the overall project.*

The overall project will require investments on a scale that national education authorities and administrations cannot provide if they are to fulfil their primary duty, viz. to provide high quality education to the young and growing generations. The operation of the network alone will put a great strain on the financial status of these organisations, should they have to pay for it themselves. And at present – this is a thing which the feasibility

study will have to examine – it is unclear what kind of sponsoring the EUN could receive from enterprises without having to give in to commercial interests. These considerations will carry great weight in the discussions which inevitably will precede a full deployment.

It is also evident that the individual schools will not have financial resources to pay for the EUN services if investment costs are to affect the fees charged to users. Considering the rapid developments in the ICT field, it is not difficult to realise that they will have enough problems raising funds to buy the equipment needed to supply their pupils with access to new teaching and learning media.

The fully deployed EUN will require the best possible bandwidth to ensure reliable, fast access: the huge amount of information will require a number of powerful servers, including mirror servers to provide the kind of services envisaged in an appropriate manner. These are just a few of the very high costs associated with full deployment.

The minimum requirement of financial aid required is estimated to be in the region of 50 MECU, where a number of sources of funding will be investigated.

- e) Provide an estimate of the total investment cost of the overall project (=feasibility study and validation costs + construction and start up costs. It excludes operating costs)*

The total investment cost of the overall project is estimated to be in the region of 148 MECU (see breakdown below).

- f) Specify other sources of Community funding already received or requested for the overall project*

None

- g) Describe how the overall project will contribute to the development of a range of services based on Euro-ISDN and will promote the use of Euro-ISDN.*

The overall objectives of the proposal are:

- to support the implementation and the deployment of electronic school networks in Europe, particularly at national and regional level, , taking into account possibilities for promoting the use of ISDN
- to provide a platform for the development of teaching and learning multimedia resources of European interest,
- to support the professional development of teachers aimed at furthering the use of new technologies in the classroom
- to provide high-quality information services to schools in a user-friendly way and support their integration into the teaching and learning process in schools
- to study the prerequisites for full deployment of a viable European Schoolnet and put in place conditions for turning it into a self-sustaining service.

The project outlined in this proposal will bring national/regional school information networks together into a European network of networks - the European SchoolNet (EUN). Thereby presenting an excellent opportunity for launching a large-scale, co-ordinated effort towards transnational co-operation in the development of appropriate technology and its use, and making a significant contribution to the development of curricula and the training of teachers through the exchange of examples of good practice and other dissemination activities. This statement is based on the fact that the project has gained high-level political support in a majority of Member States, and that the partnership brings together ministries of education, national school administrations, existing school networks, industry and users.

In its ultimate form the EUN will be a **network of networks** for mutual support and for the development and delivery of tools and information services with a European added value for schools. It will provide a **common platform** for these networks and their partners in education and industry in Europe for information services and for the development of ICT in education. The unique feature of the EUN as a network of networks will ensure that it is solidly based in **official national environments** for school development and that its contributions will reflect their needs and priorities. In this way, it will also provide a common instrument for **enhancing the quality of education and promoting the deployment of ICT in education**.

The European Schoolnet will be established with seven main objectives:

- (1) To establish a common European platform for providing Internet and multimedia services with a European added value, supplementing services provided by national networks and other public organisations as well as private companies.
- (2) To act as a common framework for the development of ICT tools and services aimed at schools and their use by teachers and pupils.
- (3) To support the development of national and regional school information networks by providing mutual support, defining common standards and serving as a forum for the exchange of ideas and experience.
- (4) To provide schools with a comprehensive entry point to the world of Internet and multimedia services, ensuring easy access to general support as regards the Internet and its use in schools.
- (5) To act as a vehicle for communications with private companies and public authorities on the development of services and technologies aimed at schools, with the ultimate aim of deploying the European SchoolNet as a viable service after the termination of this project.
- (6) To provide a well-structured gateway between national school information networks, , taking into account possibilities for using ISDN as a mean of improving communication
- (7) To demonstrate the full potential of the Internet multimedia and new communication technology for schools by providing a model web platform.

In a TEN-Telecom perspective, successful deployment of the EUN will contribute to the promotion of EURO-ISDN. This statement is based on the fact that some of the services offered will require high bandwidths if the user is to experience the full benefit of them. Through the establishment of a telematic service for schools, the EUN will bring ICT use to the fore of European education, attracting much attention and generating a lot of interest. This involves not only already devoted users of the Internet and school networks, but also large crowds that previously have not been part of the technological revolution we are witnessing today. As services on the EUN platform should be highly competitive and up to date, it is evident that the project will have to initiate testing of Euro-ISDN to establish the exact needs and improved performance offered. Thus, the EUN could become a driving force in the introduction of new information and communication technology, e.g. ISDN.

Technical description of the study

a) give a technical description of the study; methods and techniques envisaged.

The study will start with a user requirements analysis which will also take into account the present market situation and forecasts of the future (see WP 5). The project will then establish the functional specifications of the technical platform, which will be developed/integrated (see WP 6) to include all services and tools developed within the framework of the Multimedia Call proposal put forth by the EUN Consortium. In considering the advanced and demanding nature of some of the services offered, it is evident that through tests will have to be conducted with regard to the usefulness, benefit and need for using ISDN. To ensure that validation activities become as fruitful as possible to the project, a validation/test programme covering all types of situations and settings appropriate (see WPs 7-8).

Extensive demonstration and validation will be realised throughout Europe with the help of the European Network of Innovative Schools (ENIS) (see WP 11). This network will be set up as a support structure. Demonstration and validation will be analysed, for instance, with regard to usefulness, quality, performance and user acceptance. Many of the activities under these headings will also be directed towards studying and establishing more precisely what the needs of schools are as regards bandwidth, ISDN or not, security and performance.

WPs 12 and 13 deal with matters intimately related to the future deployment of the EUN. WP 12 - Development of Partnerships will seek to establish contacts and initiate an interest in the business community for taking active part in the realisation of the EUN in its ultimate shape.

- b) Give a breakdown of the work to be achieved as proposed in the common workplan (task TEN1). This will include the description of the sub-tasks, the role and the work load for each participant, the timetable for the execution of the study, the expected deliverables and the monitoring indicators. The Business Plan will integrate the results of the study into an overall plan for the deployment and operation of the applications/services.*

See work packages 5 – 13 and the work package resources forms C.2 for these WPs.

- c) Give a description of the management of the study.*

The responsibility for managing the study will rest with the EUN project office, which acts on the commission of the EUN Steering Committee. In practical terms, the Project Office will coordinate, plan and report activities. In most ways the study will be managed just as other activities within the EUN project (details to be found in Question 10 of the General description section of the entire proposal).

The EUN Project Office will act as coordinator of the feasibility study WPs as they are considered central to the development of the European Schoolnet. Further information is supplied in the General Description section – Question 10 Project Management.

- d) Specify the criteria, the level of performance and the financial indicators on which the next phase of the project will be decided.*

The main criteria determining further action is naturally user acceptance and the validity of the overall EUN concept. User acceptance in itself is a good indicator of the level of performance of the system and its services, since a slow service will not attract the attention of the users.

The financial indicators could be divided into two main areas; the consortium's possibilities of establishing possible partnerships with industry to ensure provision of adequate financial resources. Another important factor to consider will be the readiness of the users to pay for the services. This will be established during validation and demonstration activities.

The cost/benefit of the project will, naturally, be an important factor in the process of coming to a decision in this matter.

- e) Explain how the cost /benefit of the overall project and its socio-economic effects notably on employment will be analysed*

The cost/benefit and socio-economic aspects will, e.g., be studied with regard to cost-effectiveness of the project for learning and teaching purposes, the added value offered to European schools, opportunities for distance learning by the disabled and people living in remote areas.

This process will take into consideration work done in WP 09 Peer Monitoring and Evaluation, and analyses performed as part of the demonstration and validation activities. Naturally, the conclusions of the business plan will constitute an important component of this task.

4. Description of the overall project likely to emerge from the feasibility study

Describe the overall project in which the promoters intend to invest, and which they plan to deploy at Community level and operate in permanent way and on a commercially viable basis.

a) Provide a summary description of the overall project. (Fill also FORM TEN-1 below).

The overall EUN project will bring national/regional school information networks together into a European network of networks - the European SchoolNet (EUN). Thereby presenting an excellent opportunity for launching a large-scale, co-ordinated effort towards transnational co-operation in the development of appropriate technology and its use, and making a significant contribution to the development of curricula and the training of teachers through the exchange of examples of good practice and other dissemination activities.

In its ultimate form the EUN will be a **network of networks** for mutual support and for the development and delivery of tools and information services with a European added value for schools. It will provide a **common platform** for these networks and their partners in education and industry in Europe for information services and for the development of ICT in education. The unique feature of the EUN as a network of networks will ensure that it is solidly based in official **national environments** for school development and that its contributions will reflect their needs and priorities. In this way, it will also provide a common instrument for **enhancing the quality of education and promoting the deployment of ICT and Euro-ISDN in education.**

The EUN is designed to give comprehensive support to actors in pedagogical processes of relevance for international school cooperation. The content areas for the EUN-platform has been developed in a process which has involved expertise from all the Member States. The areas of the platform are envisaged as:

- Meeting places
- Information and news services
- The European Union and its Member States
- Multimedia Laboratory (MML)
- European Virtual Teacher College (EVTC)
- Classroom Library
- Collaborative school projects
- Language learning centre
- Technical corner

Many of these areas are described in the separate work packages (see Work Package Description Section). Educational services offered include guides for the introduction of ICT in schools (including pedagogical frameworks), training modules (for teachers), common tools, telematics services (database access, real-time communication, video) and directories.

b) Describe the objective of the present study in relation to the overall project

The objective of the present study is to assess the general validity of the ideas underpinning the establishment of a European Schoolnet as presented in the present proposal and the prerequisites for full deployment of the overall project, together with possibilities for using EURO-ISDN for improved communication. Demonstration and validation activities will be used to ascertain the applicability and appropriateness of the overall EUN concept and its possibilities for gaining user acceptance.

The results of the feasibility study, in the form of a business plan that, for instance takes into account financial implications and establishes the requirements for successful launching etc. This plan will provide the background material required in order for decision makers to form an opinion regarding if or how the EUN system should be developed further towards full deployment in the educational market as a coherent,

comprehensive service offering access both to the tools, information and knowledge needed to bring schools in line with the technological developments in the 21st century.

c) Describe the service(s) that will be provided.

The basic service provided is easy access, for instance via ISDN, to a large number of networks, through the establishment of an EUN platform. This platform will offer a range of services and tools suited to the needs and requirements of schools in Europe. The services will be divided, for the feasibility study and the present project, into three "EUN spaces":

- Classroom Library
- Multimedia Lab
- European Virtual Teacher College

The EUN will offer pupils and teachers not only with access to databases, i.e. information, but also to meeting-places and forums for exchange of experiences and ideas as well as for collaborative working across borders.

For the present proposal the project has identified a number of projects for services described in WPs 14-20.

The project will thus develop, combine and integrate a number of technical services with such appeal that the EUN could become a household name in all education and training contexts, complemented with pedagogical innovation and forums for exchange of experience and ideas in such a way as to make the EUN a virtual meeting-place and centre for education.

d) Describe the users of the service(s) (The users are the organisation(s) or the individuals that will be using and paying for the service(s)).

The users of the services are primarily schools, and in these organisations mainly pupils and teachers but also school leaders, as well as teacher training colleges and educational researchers. The project also sets out to create meeting-places where schools and industry could exchange experiences and ideas in a mutual fruitful manner. Pupils will be from the age of 7 to 19. For further information on users and user needs see Section B General Description - Question 4.

e) Provide a technical and functional description of the system to be deployed; identify the standards which will be applied in order to ensure interoperability.

The EUN is a platform for distributed services, i.e., its content and services are primarily located on remote servers. Users enter the EUN via the central server and may then (transparently, via ordinary WWW links) enter services and fetch documents that are maintained at local/regional/national servers.

This formulates requirements on the design and structure of the distributed services, in order to create a coherent and consistent EUN. Services and contents that are to be considered *core EUN content* must be coordinated (*note*: not controlled or maintained) by a group with overview of the EUN.

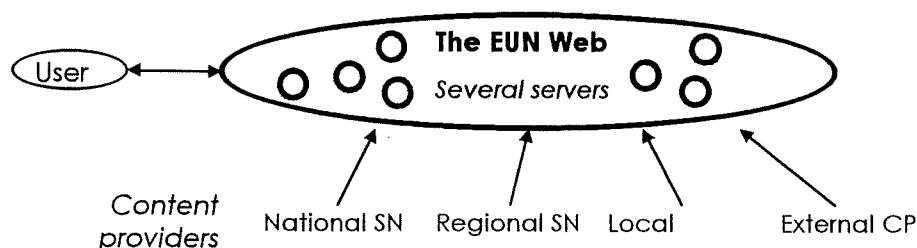


Figure 1. The EUN provides distributed services.

During the interim phase, before an organization that coordinates the distribution of services has been set up, several of the core services may be located at the central server.

Server capacity and service location

The EUN should be prepared for growth. In the short perspective, it is reasonable to act as if the main bottleneck when providing EUN services is the network itself (and not the hardware or software). It is important to locate frequently used and bandwidth-intensive services at “good” places in the net, for example near the backbones, and to consider the use of Euro-ISDN for increasing communication capacity. This recommendation can not be generalized or formulated in terms of current geography, since load and network capacity changes rapidly. Decisions about service location must be made at design-time, and in close cooperation with the expert group of the ETN.

In addition to good locations, each service must be designed and prepared so that its capacity may be expanded using multiple servers and mirror servers. Capacity expansion should result from user demand. Increased demands on capacity must be monitored, prepared for and handled by each individual service producer (in collaboration with the ETN).

The EUN is primarily about logical structure and collaboration of national content/service providers. Its main purpose is to create an entry to and a coherent view of a multitude of services and information.

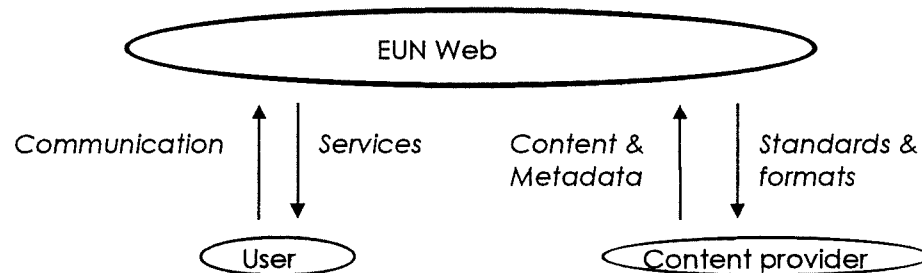


Figure 2. The EUN is a logical structure and a resource network. Note: the terms “User” and “Content provider” may of course in many cases denote identical persons/organizations.

The main goal of the web-based parts of the EUN is to foster and improve communication between its users: pupils, teachers, administrators, parents, etc. Hence, the most important services in the EUN will be about communication and collaboration; services that help people find each other and then engage in dialogue/collaboration. Services for this may include school address (email and postal) registers, virtual group rooms, meeting places for pupils, indices for ICT projects, indices for EUN services, search engines with an educational focus, etc.

Since improved communication is a main goal, it is important to make sure that the core services of the EUN can be used by as many intended users as possible; However, this must not prevent the EUN from pushing

new technology. The EUN should also make use of state-of-the-art and front-line technology.

Metadata describes the content

The EUN relies upon the use of metadata in order to make its content accessible, organized and searchable. This is one of the corner-stones for the added-value of the EUN - to make the content and services of the national European schoolnets more accessible.

Example: when having finished a new service/document for the EUN, when publishing the result, the author creates a description of the content to be included in the EUN. This description contains information about the new content, its author, its origin, its intended audience, keywords, etc. From this information, data for search engines and indexes can be extracted.

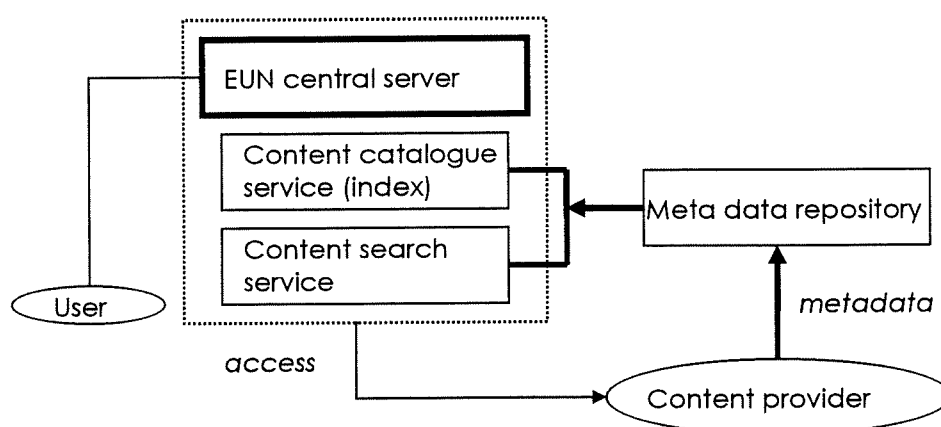


Figure 3. The Metadata may be used as input for other core services. The repository, catalogue and search services may be located at the EUN central server or distributed.

In order to make metadata useful in the EUN, it must a) provide relevant information to the intended users, and b) be easy to create and maintain. Creating and forcing all producers to use a common, multi-lingual, consistent metadata format for *all* services (including local schools) in the EUN is not the goal. The main focus is to *encourage* content and service producers to include metadata in some form. Hence, the primary responsibility for maintaining metadata lies at the national and regional school nets. The ETN should be used as a discussion forum for coordinating different initiatives for handling metadata.

It is *recommended* that the EUN (in effect the ETN) develop and agree upon a common platform to be used indexing, i.e. a platform that can be used by the national/regional school nets and the EUN central server.

Bottom-up approach drives the development

The EUN is based on the idea that new content and services will grow primarily from the initiatives and needs of the users. New services and content may be developed and located locally, and information about them propagated “upwards” to the national and central servers, thereby generating the EUN content. This is also a “collaboration protocol” that generates yet an incentive for each country to participate actively. In order for this to work, content/service coordination and editorial services is needed at the level between national/regional school nets and the central EUN server.

Example: the EUN could host a database of school addresses, which is based solely on local/regional information. Each regional/national school net hold databases for their own schools. These databases (using a common platform) form a single index/overview (it may still be distributed) from the user’s perspective.

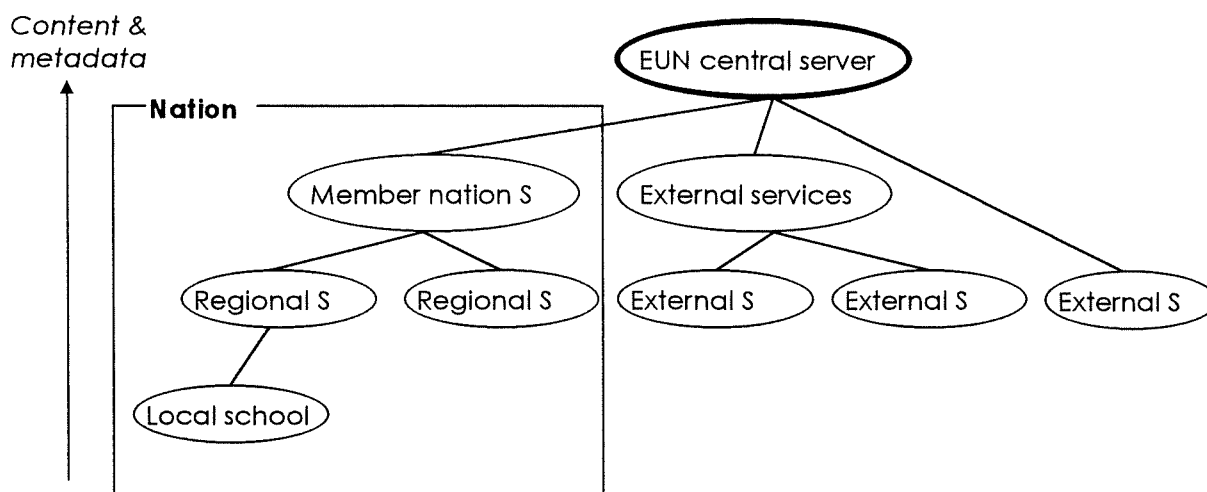


Figure 4. Bottom-up content contribution and upwards propagation. In order to make it possible to provide data for, e.g., indexing and searching, metadata (as well as services) should be propagated bottom-up from the content providers.

Editorial board and service coordination - providing an educational resource

Closely related to the technical coordination is the content/service coordination and editorial functions. Editing the content (c.f. editorial work for a magazine/journal) of the EUN is crucial - it is *the* main added-value of the system. Editing includes selection of content, adapting and integrating it into the EUN.

The work requires, among other things, judgments concerning information quality, pedagogical value, and ethical aspects. This is primarily an organizational issue, but the international collaboration may be supported using technological tools (conferencing, remote maintenance of services, etc.).

The central EUN server

The central EUN server will in many situations act as the entry for users of the EUN (although frequent users probably will link directly to specific services located at other sites). The EUN server must be able to operate 24 hours/day, 7days/week, all year. This requires reliable hardware and software and a robust maintenance and monitoring organization. The main purpose of the EUN server includes:

- running a WWW server
- providing an entry point to the EUN

possibly hosting some large, demanding applications (e.g., school address databases, common newsgroups, etc.)

It is *recommended* that the central server, as well as distributed servers hosting core services, are implemented on a Unix machine, for capacity and security reasons. Most of the recommendations and guidelines concerning the central server also apply to servers running distributed services in the EUN.

Hardware aspects

The EUN central server must be able to provide a large number of users with information in a fast, reliable way. Hence, the hardware should be capable of:

- running a WWW server
- running large, demanding applications that produce services for the EUN, e.g., very large databases, indexes and search mechanisms
- making it possible to work and test “internally” new content/services and then make them public

It is *recommended* to separate different main services and applications on different hardware, in order to create a more robust and fail-tolerant system. One possible setup is:

A powerful (set of) computers operated as (from the users perspective) one WWW server

A powerful (set of) computers running large, demanding applications that produce services for the EUN, e.g.

- Some important aspects when selecting hardware (and the software for it!) are, e.g.:
- Speed - processing power
- Bandwidth - a fast connection, possibly ISDN
- Security - see below
- Separated production and publication

It is *recommended* that the EUN server consists of two sets of WWW servers: a public server for publication and an “internal” server for production. The reasons for this are primarily: formalized publication process and information quality assessment and increased security for vital parts of the platform.

The production process for services to be put at the central server should involve the following steps: 1) receive new material, 2) put at internal production server and discuss in editorial body, 3) integrate in system on production server, 4) publicize on the publication server.

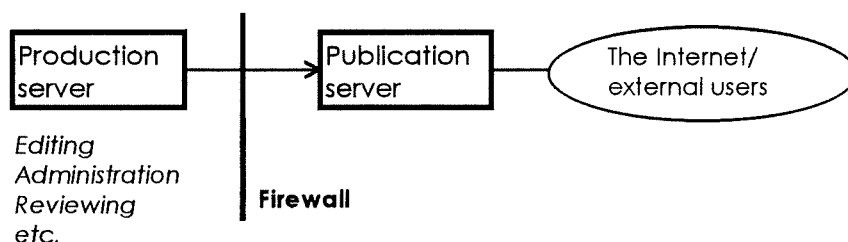


Figure 5 Separated production and publication
Security aspects: system, external, transaction, information

There are at least four different “types” of security to be discussed when designing the central EUN server: In all cases, the degree of resources and technology required depends primarily on the desired level of security. Hence, each situation (new service/content) calls for a discussion where the ETN should be included.

System security - viruses

All externally produced software and contents that are to be integrated in the EUN should be checked for viruses; for protecting the EUN servers as well as the end-users.

External security - cracking, creation of “warez-sites”, etc.

The EUN is most probably not a primary target for destructive attacks from the outside. However, there is

always a risk that the EUN gets “negative publicity” if someone manages to manipulate the contents (not a high-risk situation) or use the server(s) for spreading illegally copied software and non-educational content

(very likely for all server maintainers). Hence, it is *recommended* that production servers in the EUN are at least located behind a firewall and publication servers designed and implemented in order to prevent intruders.

Transaction security - transaction payment, restricted services

Some services of the EUN might require identity/origin control, for example content producers who charge the EUN for providing their services to *only* the educational users of Europe. There are several approaches to this, primarily: a) login - require name and password for all users, b) IP-check - check the IP address of users. In the EUN perspective, both approaches have the drawback of generating a huge amount of administration (maintaining and checking identities). Furthermore, passwords may easily be spread and cracked, and IP-checks are hard to handle when many users rely on "floating" addresses from modem connections. It is *recommended* that this discussion is performed for each service requiring transaction security, and that the producer has the main responsibility for the technology required. Relevant EC policy documents regarding this matter should be consulted early on.

Information security - filtering, censoring

Editing (c.f. editorial work for a magazine/journal) the content of the EUN is crucial! This is in effect a procedure that filters the content of the net. However, some nations/regions/local organizations may want to filter information on the WWW/Internet even further. This *must* be the responsibility of each nation/region/local organization; the EUN should not provide central filtering or censoring mechanisms for its users. The reason for this is twofold: a) different user groups and producers are likely to have different views on what is suitable and what is not - the EUN should not force everyone to conform, b) there are a large amount of legal issues that complicates this aspect - in some states, a filtering mechanism may in legal terms be equal to censoring, and hence illegal. Ethical issues will be an important part of the content coordinators of the EUN.

Mirror servers

In the future, it is probable that the EUN will get a huge amount of users, generating a vast number of "hits" for the EUN central server every day. It is possible that the server, or its connection to the Internet, will be bottle-neck. One approach to this problem is to use mirror servers, i.e., servers distributed over Europe (closer to the regional users) with exact copies of the main servers content. However, this requires a very fast and reliable mirroring mechanism (or the material will be out of sync for the users). Mirror usage should result from user demand. The use of mirror servers will most likely not be needed during the interim phase of the EUN project.

Additional hardware

In addition to the basic hardware (and software) outlined above, the EUN central server may be used to host several other services to the users; these require additional hardware and software:

- Newsgroup servers
- Mailing list servers
- Reflectors for video conferencing, audio communication, etc. (Mbone, CU-SeeMe)

Software aspects

When selecting the software for the EUN server, the following aspects are of importance:

- Security (see above).
- The possibility to perform some administrative tasks remotely.

Some of the software needed *may* include:

- Server software, e.g., http (www), ftp, news, address repository applications.
- Metadata repository applications.
- Index and search facility production applications.
- File transfer software, from production to publication.
- Statistics (usage) software.

Operation/organization

The operation of the EUN technical platform has is not only about the hardware and software at the central server. It also includes service coordination and editor tasks.

The EUN Technical Network (ETN) - technical discussion forum

The EUN technical network (ETN) is responsible for the coordination of data formats, standards, protocols, etc. Each country *must* allocate personnel responsible for handling the contact with (or participating in) the ETN. The representatives are preferably involved in each regional/national school net project, or similar organizations.

Editorial board and service coordination - providing an educational resource

The editorial board and service coordinators are responsible for selection of content, adapting and integrating it into the EUN, handling of online conferences and discussion services (moderating). The work requires, among other things, judgments concerning information quality, pedagogical value, and ethical aspects.

The EUN central server

The EUN central server requires an organization that can handle at least the following tasks:

- publication of content/services
- indexing/description of new content/services
- content/service maintenance
- short- and long-term platform maintenance
- publication
- publication of new local/regional services/content is handled and maintained locally.
- publication of services/content on the central EUN server is handled in two steps. The material is developed and tested (!) on a separate server, the production server. Then, the material is transferred to the public publication server.

Indexing/description

In order to create an added-value for the user (in terms of finding and interpreting online material), the EUN *must* provide a means of searching Europe-wide in the EUN. Hence, some sort of content description, i.e. metadata, is needed. There are at least two different approaches to this (with the same appearance and behaviour from the perspective of the user): a distributed and a central service.

Each local and regional site is responsible for description and indexing of its own material. Each site runs an indexing/search engine which is also capable of propagating its data to other servers. The EUN server runs a "central" search engine which is capable of collecting index/description information from the local engines.

Each local service describes its services/content in a formalized, pre-defined way. This description information

(metadata) is propagated “upwards” to the national service, and eventually to the EUN indexing service. Hereby, the content description is bottom-up driven. The upwards propagation (registration of new/old services and metadata) may be either automatic or manual. The description format is developed and standardized for the whole EUN. The format is maintained by the central indexing/description service.

Content/service maintenance

Some of the content and services of the EUN will be hosted at the central server, and some of that will require long-term maintenance. Such services include, e.g.:

- address registers (updating, validating, contact with regional administrators)
- project catalogues (updating, validating, contact with regional administrators)
- mailing lists (administration, moderation)
- newsgroups (administration, moderation)

In order to assure that users of the EUN can access its content and services in the way they were intended, there are some requirements regarding the users technical platform that must be met. It is important to make sure that the core services of the EUN can be used by as many intended users as possible. However, this must not prevent the EUN from pushing new technology. The EUN should also make use of state-of-the-art and front-line technology. In this context the EUN will examine possibilities of using EURO-ISDN.

f) Describe the physical and non-physical investment that need to be made.

Physical investment

In the way of physical investment the EUN will need telecom access lines offering the highest communication speed available for the main servers and the mirror servers planned. In this respect ISDN links must be considered. To keep up with the technological development and to ensure that the latest services and tools could be efficiently utilised, the project will almost certainly need to employ ISDN as a main medium of communication. This will provide the bandwidth required for rapid transfer of information, for running demanding applications such as voice, picture and video on-line, as well as for ensuring security, quality and usefulness.

The deployment system will require investments in computers and hardware to ensure powerful, fast and efficient handling of the vast amount of users visiting the system every day. The fact that the system will need to handle and store demanding applications and multimedia objects also contributes towards the need for powerful machine resources. It is a vital prerequisite for the success of the deployment system that users do not experience it as being slow, but as a highly efficient service without apparent communication bottle-necks.

Non-physical investments

Naturally, a system purporting to satisfy the needs of the European educational community will have to use the very latest in softwares. Since the system almost certainly will have to charge users by the minute or by the of objects retrieved, it will be necessary to either develop a new or adapt an existing ECMS system.

Further, to make the EUN attractive and competitive, it will have to develop a number of unique services and tools which are specifically targeted towards schools. Some of the responsibility for these activities could almost certainly be interesting to commercial enterprises, but the consortium will probably have to initiate and carry out development projects of its own.

To fulfil the aims of the EUN as regards content, it will be necessary to establish and develop a number of databases/information repositories containing high quality materials. Other costs include, e.g. translations and production of handbooks in all community languages.

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Part B Proposal description – TEN Telecom

Finally, there are costs for promotion and marketing throughout Europe associated with the launching of the EUN as a pan-European system for schools.

g) Provide a summary breakdown of the estimated investment costs.

ESTIMATED INVESTMENT COST FULL DEPLOYMENT OF EUN (in MECU)	
Access lines	20
Equipment, hardware	50
Software, e.g. ECMS system	15
Development of services and tools	22
Developing databases, high quality material	32
Other costs , e.g. translations, handbooks etc	6
Promotion, Marketing	3
SUM	148
TOTAL	

Part C

Project resources and deliverables

PART C: PROJECT RESOURCES AND DELIVERABLES

C.1 Work-Package List

Proposal N°	Acronym	Sheet
2142	EUN	1...of...2....

Work-Package ID (a)	Title	Tasks addressed of the Common Workplan	Lead Contractor ID (b)	pms (c)	Start Month (d)	End Month (d)	Phase (e)	Deliverable IDs (f)
WP01	Project Management	SOCR 6	C1	48	1	24	1-5	D01.1-01.3
WP02	General Dissemination	SOCR 6	C1	24	1	24	1-5	D02.1-02.2
WP03	Copyright & IPR issues	ET 1.8, 2.1	C1	12	4	15	1-4	D03.1-03.2
WP04	Synergy & Co-operation	SOCR 6	C1	3	3	18	1-4	D04.1-04.2
WP05	General user requirements	TEN1	C1	8	1	6	1	D05.1-05.2
WP06	Technical platform – functional specs & dev.	TEN1	C1	42	3	12	2-3	D06.1-060.2
WP07	Technical platform – demonstration & production	TEN1	C1	42	13	24	4-5	D07.1-07.2
WP08	Validation plans	TEN1	C1	12	9	12	3	D08.1
WP09	Peer monitoring & evaluation	TEN1	C1	6	1	24	1-5	D09.1-09.2
WP10	Technical support network	TEN1	C1	72	1	24	1-5	D10.1-10.2

C.1 Work-Package List (2)

Proposal N°	Acronym	Sheet
2142	EUN	2...of...2....

Work-Package ID (a)	Title	Tasks addressed of the Common Workplan	Lead Contractor ID (b)	Pms (c)	Start Month (d)	End Month (d)	Phase (e)	Deliverable IDs (f)
WP11	European Network of Innovative Schools	TEN1	C1	42	3	24	1-5	D11.1-11.2
WP12	Development of Partnerships	TEN1	C1	3	12	24	4-5	D12.1
WP13	Business Plan	TEN1	C1	2	21	24	5	D13.1
WP14	Multimedia Tools for Schools	ET 1.8,2.1	A2	38	4	20	2-5	D14.1-14.2
WP15	Multimedia Search Tools & Services	ET 1.8,2.1	A8	48	4	24	2-5	D15.1-15.3
WP16	Database Audio & Video Broadcasts	ET 1.8,2.1	A10	48	3	24	2-5	D16.1-16.2
WP17	Open Interactive Courseware based on Sound	ET 1.8,2.1	A13	38	4	20	2-5	D17.1-17.2
WP18	School Library	ET 1.8,2.1	A17	38	4	20	2-5	D18.1-18.3
WP19	Virtual Workspace and Tools for Teachers and Schools	ET 1.8,2.1	A19	72	3	24	2-5	D19.1-19.3
WP20	European Schoolnet Teacher Network	SOCR 3	C4	22	4	20	2-5	D20.1-20.4
WP21	The Learning School	SOCR 3	A24	22	1	24	1-5	D21.1-21.2
WP22	Pedagogical guidelines	SOCR 3	A31	22	1	24	1-5	D22.1-22.2

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C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
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Work Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP 01	Project management	1	SOCR 6

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont. % FC	% of EU Cont. % AC	EU Contribution ECU
C1	48	251 200					60 000	62 800	311 200	50 %		155 600
A.1.n												
S.1.n												
Subtotal 1	48	251 200	0	0	0	0	60 000	62 800	311 200	50%	0	155 600
C n												
A.1.n												
S.1.n												
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
C n												
A.1.n												
S.1.n												
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
C n												
A.1.n												
S.1.n												
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	48	251 200	0	0	0	0	60 000	62 800	311 200	50%	0	155 600

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	311 200
<i>EU contribution in %- (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	155 600
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
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Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed Of the Common Workplan
WP02	General dissemination	1	SOCR 6

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C 1	24	63 200					50 000	15 800	129 000	50%		64 500
A.1				50 000					50 000	50%		25 000
Subtotal 1	24	63 200	0	50 000	0	0	50 000	15 800	179 000	50%	0	89 500
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	24	63 200	0	50 000	0	0	50 000	15 800	179 000	50%	0	89 500

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	179 000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	89 500
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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**C.2 Work-
Package
Resources**

Proposal N°	Acronym	Sheet
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Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed Of the Common Workplan
WP03	Copyright and IPR issues	4	SOCR 6

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C 1	12	99 200						24 800	124 000	50%		62 000
Subtotal 1	12	99 200	0	0	0	0	0	24 800	124 000	50%	0	62 000
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	12	99 200	0	0	0	0	0	24 800	124 000	50%	0	62 000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	124 000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	62 000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
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Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP04	Synergy and co-operation	3	SOCR 6

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C1	3				25 000		50 000		75 000	100 %		75 000
Subtotal 1	3	0	0	0	25 000	0	50 000	0	75 000	100 %	0	75 000
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	0	0	0	25 000	0	50 000	0	75 000	100	0	75 000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	75 000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	100%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	75 000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
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Work- Package ID (a)	Title	Starting Event (b)	Tasks addressed Of the Common Workplan
WP05	General user requirements	1	TEN- Tele

Participants Code3	Person- month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % EC	% of EU Cont % AC	EU Contributio- n ECU
C1	8			150 000			200 000		350 000	43%		150 500
Subtotal 1	8	0	0	150 000	0	0	200 000	0	350 000	43%	0	150 500
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	8	0	0	150 000	0	0	200 000	0	350 000	43%	0	150 500

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	350 000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	43%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	150 500
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
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Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP06		3	TEN-Tele

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C 1	42	400 000		50 000				100 000	550 000	50%		275 000
Subtotal 1	42	400 000	0	50 000	0	0	0	100 000	550 000	50%	0	275 000
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	42	400 000	0	50 000	0	0	0	100 000	550 000	50%	0	275 000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	550 000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	275 000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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**C.2 Work-
Package
Resources**

Proposal N°	Acronym	Sheet
2142	EUN	1 of 1

Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP07	Technical platform - demonstration and production	13	TEN-Tele

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C1	42	213 600				150 000		53 400	417 000	50%		208 500
Subtotal 1	42	213 600	0	0	0	150 000	0	53 400	417 000	50%	0	208 500
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	42	213 600	0	0	0	150 000	0	53 400	417 000	50%	0	208 500

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	417 000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	208 500
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
2142	EUN	1 of 1

Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP08	Validation plans	10	TEN-T

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont. % FC	% of EU Cont. % AC	EU Contribution ECU
C1	12	132 000						33 000	165 000	50%		82 500
Subtotal 1	12	132 000	0	0	0	0	0	33 000	165 000	50%	0	82 500
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	12	132 000	0	0	0	0	0	33 000	165 000	50%	0	82 500

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	165 000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	82 500
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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**C.2 Work-
Package
Resources**

Proposal N°	Acronym	Sheet
2142	EUN	1 of 1

Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP09	Peer monitoring and evaluation	1	TEN-Tele

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C1	6	164800						41200	206000	50%		103000
Subtotal 1	6	164800	0	0	0	0	0	41200	206000	50%	0	103000
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	164800	0	0	0	0	0	41200	206000	50%	0	103000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	206000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	103000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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**C.2 Work-
Package
Resources**

Proposal Nº	Acronym	Sheet
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Work- Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP10	Technical support network	1	TEN- Tele

Participants Code3	Person- month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contributio n ECU
C1	72	648000						162000	810000	25%		202500
Subtotal 1	72	648000	0	0	0	0	0	162000	810000	25%	0	202500
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	72	648000	0	0	0	0	0	162000	810000	25%	0	202500

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	810000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	25%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	202500
<i>Estimated contribuilon from Sponsoring Partners (ECU)</i>	0

C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
2142	EUN	1 of 1

Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP11	Network of innovative schools	4	TEN-Tele

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C1	42	120000		500000				30000	650000	50%		325000
Subtotal 1	42	120000	0	500000	0	0	0	30000	650000	50%	0	325000
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	42	120000	0	500000	0	0	0	30000	650000	50%	0	325000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	650000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	325000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
2142	EUN	1 of 1

Work- Package ID (a)	Title	Starting Event(b)	Tasks addressed of the Common Workplan
WP12	Development of Partnership	13	TEN- T

Participants Code3	Person- month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contributio n ECU
C1	3				25000		25000		50000	50%		25000
Subtotal 1	3	0	0	0	25000	0	25000	0	50000	50%	0	25000
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	0	0	0	25000	0	25000	0	50000	50%	0	25000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	50000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	25000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
2142	EUN	1 of 1

Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP13	Business plan	22	TEN-T

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C1	2				25000				25000	100		25000
Subtotal 1	2	0	0	0	25000	0	0	0	25000	100	0	25000
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	0	25000	0	0	0	25000	100	0	25000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	25000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	100%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	25000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
2142	EUN	1 of 1

Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP14	Multimedia Tools for Schools	4	ET 1.8, 2.1

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C1									0			
A.2		56400						14100	70500	50%		35250
A.3		56400						14100	70500	50%		35250
A.4		48800						12200	61000	50%		30500
A.5		48800						12200	61000	50%		30500
A.6		68800						17200	86000	50%		43000
									0			0
												0
Subtotal 1	0	279200	0	0	0	0	0	69800	349000	50%	0	174500
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	279200	0	0	0	0	0	69800	349000	50%	0	174500

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Total estimated allowable costs (ECU) (to art 3.1. in contract)	349000
EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)	50%
EU Contribution (ECU) (to art. 3.2. in contract)	174500
Estimated contribution from Sponsoring Partners (ECU)	0

C.2 Work- Package Resources

Proposal Nº	Acronym	Sheet
2142	EUN	1 of 1

Work- Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP15	Multimedia Search Tools and Services	4	ET 1.8, 2.1

Participants Code3	Person- month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contributio n ECU
C n									0			
A.7	18,5	185000	15000	0	14000	0	0	0	214000	50%		107000
A.8	12,5	62500	15000	0	14000	0	0	18300	109800		100%	109800
A.9	9	76500	7000	0	14000	0	0	19500	117000		100%	117000
									0			
									0			
Subtotal 1	40	324000	37000	0	42000	0	0	37800	440800	50%	100	333800
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	40	324000	37000	0	42000	0	0	37800	440800	50%	100%	333800

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	440800
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	76%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	333800
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
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Work- Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP16	Database Audio and Visual Broadcasts	aug-97	ET 1.8, 2.1

Participants Code3	Person- month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contributio n ECU
C n												0
A.10	56	98000	90000	0	8000	8000	0	12000	216000	50%		108000
A.11	20	20000	80000	0	8000	2000	0	2000	112000	50%		56000
A.12	20	20000	80000	0	8000	2000	0	2000	112000	50%		56000
												0
												0
Subtotal 1	20	138000	250000	0	24000	12000	0	16000	440000	50%	0	220000
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	20	138000	250000	0	24000	12000	0	16000	440000	50%	0	220000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	440000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	220000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
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Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP17	Open Training Interactive Courseware Based on Sound	4	ET 1.8, 2.1

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C1												
A.13		230000						57500	287500	50%		143750
A.14		24000						6000	30000		100%	30000
A.15		16000						4000	20000		50%	10000
A.16		24000						6000	30000	30%		9000
A.3		52000						13000	65000	50%		32500
									0			
Subtotal 1	0	346000	0	0	0	0	0	86500	432500			225250
C2		16000						4000	20000	50%		10000
									0			
									0			
Subtotal 2	0	16000	0	0	0	0	0	4000	20000	50%	0%	10000
C3		16000						4000	20000	50%		10000
									0			
									0			
Subtotal 3	0	16000	0	0	0	0	0	4000	20000	50%	0%	10000
Total	0	378000	0	0	0	0	0	94500	472500			245250

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	472500
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	52%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	245250
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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**C.2 Work-
Package
Resources**

Proposal Nº	Acronym	Sheet
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Work- Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP18	School Library	1	ET 1.8, 2.1

Participants Code3	Person- month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contributio n ECU
C1												
A.17		139600						34900	174500	50%		87250
A.18		69800						17450	87250	50%		43625
Subtotal 1	0	209400	0	0	0	0	0	52350	261750	50%		130875
C2		69800						17450	87250	50%		43625
Subtotal 2	0	69800	0	0	0	0	0	17450	87250	50%	0%	43625
Subtotal 3	0	0	0	0	0	0	0	0	0	0%	0%	0
Total	0	279200	0	0	0	0	0	69800	349000	50%	0%	174500

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	349000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	174500
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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**C.2 Work-
Package
Resources**

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Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP19	Virtual Workspace Environment (VWE) for Teacher Development	3	ET 1.8, 2.1

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % EC	% of EU Cont % AC	EU Contribution ECU
C.1												
A.19	33	242000						60500	302500		50%	151250
A.20	21	154000						38500	192500	50%		96250
A.21	21	154000						38500	192500		50%	96250
Subtotal 1	75	550000	0	0	0	0	0	137500	687500			343750
C.4	8	58640						14660	73300	50%		36650
Subtotal 2	8	58640	0	0	0	0	0	14660	73300	50%	0%	36650
Subtotal n	0	0	0	0	0	0	0	0	0	0%	0%	0
Total	83	608640	0	0	0	0	0	152160	760800			380400

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	760800
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % Additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	380400
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

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C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
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Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP20	European Teacher Network	4	SOCR 3

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C n												
A.19	3	24000	2500	0	3750	3900	3750	2500	40400		50%	20200
A.22	3	24000	2500	0	3750	3900	3750	2500	40400		50%	20200
A.23	3	24000	2500	0	3750	3900	3750	2500	40400		50%	20200
Subtotal 2	9	72000	7500	0	11250	11700	11250	7500	121200	0%	50%	60600
C.4		48000	5000	0	7500	7800	7500	5000	80800	50%		40400
Subtotal 3	0	48000	5000	0	7500	7800	7500	5000	80800	50%	0%	40400
Subtotal n	0	0	0	0	0	0	0	0	0	0%	0%	0
Total	9	120000	12500	0	18750	19500	18750	12500	202000			101000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	202000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	101000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
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Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP21	The Learning School		SOCR 2

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % FC	% of EU Cont % AC	EU Contribution ECU
C n												
A.24	10	67500	0	0		11000	13298	67500	78500		50%	39250
A.25	2				7125				7125		50%	3562,5
A.26	2				7125				7125		50%	3562,5
A.27	2				7125				7125		50%	3562,5
A.28	2				7125				7125		50%	3562,5
A.29	2				7125				7125		50%	3562,5
A.30	2				7125				7125		50%	3562,5
	22	67500	0	0	42750	11000	13298	67500	121250	0		60625
A.6												
A.1.n												
S.1.n												
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
C n												
A.1.n												
S.1.n												
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	22	67500	0	0	42750	11000	13298	67500	121250	0		60625

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	121250
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	50%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	60625
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

C.2 Work- Package Resources

Proposal N°	Acronym	Sheet
2142	EUN	1 of 1

Work-Package ID (a)	Title	Starting Event (b)	Tasks addressed of the Common Workplan
WP22	Partnership for Pedagogical Change	1	SOCR 2

Participants Code3	Person-month4	1. Personnel costs	2. Equipment costs	3. Third Party Assistance (subcont.)	4. Travel and Subsistence	5. Consumables and Computing	6. Other significant Specific Project Cost	7. Overheads	Total costs ECU	% of EU Cont % EC	% of EU Cont % AC	EU Contribution ECU
C n												
A.31	17	71000	0	0	8000	5500	0	15250	99750		100%	99750
A.32	10	23667						5083	28750		100%	28750
A.33	10	23667						5083	28750		100%	28750
A.22	10	23667						5083	28750		100%	28750
									0			
Subtotal 1	47	142000	0	0	8000	5500	0	30500	186000	0		186000
Subtotal 2	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 3	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal n	0	0	0	0	0	0	0	0	0	0	0	0
Total	47	142000	0	0	8000	5500	0	30500	186000	0		186000

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<i>Total estimated allowable costs (ECU) (to art 3.1. in contract)</i>	186000
<i>EU contribution in % - (EU Contribution excluding 100% additional cost * 100 / Total cost excluding 100 % additional cost)</i>	100%
<i>EU Contribution (ECU) (to art. 3.2. in contract)</i>	186000
<i>Estimated contribution from Sponsoring Partners (ECU)</i>	0

C.3 Deliverables List

Proposal N°	Acronym	Sheet
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Deliverable ID (a)	Title	Work Package	Delivery date (b)	Nature (c)	Dis-semination Level (d)	Type PD or X (e)
D01.1	Documentation standards	01	2	OT	PU	X
D01.2	Work plan 1998	01	2	OT	PU	X
D02.1	Information & dissemination strategy	02	3	OT	PU	X
D05.1	Interim report user requirements	05	3	RE	PU	X
D04.1	Guidelines for cooperation	04	4	OT	LI	X
D19.1	Platform version VWE 1.0bx	19	4	PR	LI	X
D02.2	EUN & Internet handbook	02	6	OT	PU	PD
D03.1	Interim report IPR & copyright	03	6	RE	PU	X
D05.2	Final report user requirements	05	6	RE	PU	PD
D10.1	Procurement & Implementation Guidelines	10	6	RE	PU	PD
D20.1	Report Retraining requirements	20	6	RE	PU	X
D06.1	EUN Platform – Alpha version	06	8	PR	LI	X
D16.1	Audio & video database – Alpha version	16	8	PR	LI	X
D11.1	ENIS Toolbox	11	10	TO	PU	PD
D14.1	MultiLab Prototype Pilot – Alpha version	14	10	PR	LI	X
D06.2	EUN Platform – Beta version	06	12	PR	PU	PD
D08.1	Test programme & validation plans	08	12	OT	PU	PD
D15.1	Tool to extract MM database	15	12	TO	PU	PD
D16.2	Audio & video database – Beta version	16	12	PR	PU	PD
D17.1	Optics – Alpha version	17	12	PR	LI	X

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Proposal Nº	Acronym	Sheet
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Deliverable ID (a)	Title	Work Package	Delivery date (b)	Nature (c)	Dis-semination Level (d)	Type PD or X (e)
D18.1	EIVL – Alpha version	18	12	PR	RP	X
D20.1	Report Reorganisation of training institutes	20	12	RE	PU	PD
D21.1	Guidelines for ICT in educational institutions	21	12	RE	PU	X
D22.1	Series of reports on pedagogical partnerships	22	12/18	RE	PU	X
D14.2	MultiLab Prototype Pilot – Beta version	14	12	PR	PU	PD
D01.3	Work plan 1999	01	13	OT	PU	X
D09.1	Evaluation report year 1	09	13	RE	LI	X
D11.2	Report Establishment of ENIS	11	14	RE	PU	X
D18.2	Model for building school's net to use EIVL	18	14	SP	PU	X
D17.2	Optics – Beta version	17	15	PR	PU	PD
D03.1	Final report IPR & copyright	03	15	RE	PU	X
D07.1	EUN Demonstrator	07	15	PR	PU	PD
D15.2	Guidelines & strategies on the use of metadata	15	18	RE	PU	PD
D20.3	Report & demonstration scenarios	20	18	RE	PU	X
D04.2	Synergy & cooperation opportunities	4	20	RE	LI	X
D10.2	Final report Technical standards & guidelines	10	20	RE	PU	X
D18.3	EIVL software	18	20	PR	PU	PD
D20.4	Electronic fora	20	20	TO	PU	PD
D19.2	Virtual Workspace Environment version 1.0bx	19	21	TO	LI	X
D09.2	Evaluation report year 2	09	24	RE	PU	X
D12.1	Report EUN partnerships	12	24	RE	LI	X

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Deliverable ID (a)	Title	Work Package	Delivery date (b)	Nature (c)	Dis-semination Level (d)	Type PD or X (e)
D13.1	Business plan	13	24	OT	LI	PD
D15.3	Multimedia z39.50 database	15	24	PR	PU	PD
D19.3	Final, revised version of VWE	19	24	TO	PU	PD
D21.2	Final report on ICT use in schools	21	24	RE	PU	X
D22.2	Model database on pedagogical partnerships	22	24	PR	PU	X
D07.1	EUN Production version	07	24	PR	PU	PD