Share.TEC
teacher education resources

ECP-2007-EDU-427015/Share.TEC

Share.TEC\

Second Year Report

Deliverable number	*D1.7/ Annual Report #2*
Dissemination level	*Public*
Delivery date	*22 July 2010*
Status	*Final*
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[1] OJ L 79, 24.3.2005, p. 1.

1 Table of contents

2   Progress towards project objectives

Share.TEC has undertaken to build an advanced user-focused system that aggregates metadata describing TE-related digital resources located Europe-wide. The system aims to offer personalized, culturally-sensitive brokerage for the retrieval of relevant digital content and to nurture a more Europe-wide perspective among those working in and with the TE community.

As well as generally pursuing its objectives as set out in the Description of Work throughout Year 2, the consortium also targeted its efforts on a series of realignment actions. These were specifically devised as a suitable response to the findings of the First Intermediate Review (EC evaluation) and the project's internal Year 1 Evaluation Report. The most important of the realignment actions regarded greater end-user involvement to ensure acceptance of project results (especially portal & services); significant enhancement of the system from prototype to pilot, ensuring it is capable of meeting user needs; steps to set up a network of user communities; measures to ensure a suitable balance between quantity and quality of items available in the portal. The actions taken in each of these cases are reported in Sections 5 and 7, while a detailed report listing each evaluation finding and the corresponding actions is contained in Deliverable D1.6.

Semantic, linguistic/cultural and technical interoperability

The semantic and linguistic/cultural interoperability of Share.TEC lies with the Teacher Education Ontology (TEO) and the affordances this offers for pedagogical characterization of digital content, for representation of user profiles and competencies, and for multilingual and multicultural functionality in brokerage. A new version of TEO representing the TE field in all partner countries has now been integrated into the pilot system, thus providing the basis for leveraging the above mentioned affordances.

Technical interoperability is facilitated by the adoption of the Common Metadata Model (CMM), the project's LOM-based application profile. This represents a common reference for resource descriptions while at the same time providing the means whereby resources can be described in terms reflecting specific TE contexts. The model and the TEO-derived TE specific vocabularies have been the subject to validation as reported in Sections 4 and 7. Further testament to progress towards interoperability comes from successful harvesting of metadata records from repositories outside the consortium. This has been performed thanks to full integration of the Metadata Migration Facility (MMF), which handles the necessary format conversions of existing TE metadata records that are migrated to Share.TEC's metadata repository.

Provision of an effective means for describing heterogeneous TE resources while maintaining compliance with international standards and specifications.

Progress in achieving this objective is guaranteed by implementation and integration of the Resource Integration Companion Kit (RICK). RICK allows indexing and enrichment of CMM-compliant metadata records, especially with respect to the TE-specific metadata characterising the CMM application profile. The most recent release (RICK20100603) allows "batch" indexing of records so that multiple records can be assigned certain values simultaneously, thus facilitating the indexing and enrichment processes. Provision has been made for release of an "international" version of RICK with fully localised interface for each partner language and TE context.

Fostering reusability and overcoming resistance to solutions "Not Invented Here"

Key to pursuing these objectives is the activation of a network of user communities. Efforts in this regard have focused both on identification and integration of appropriate services for supporting Share.TEC based communities and also on launching initiatives to foster collaboration among users outside their immediate locus of practice. An important step forward in this direction has been the establishment of a set of "dissemination pilots" to begin in Autumn 2010. In these pilots, practitioner groups at TE institutions located in different European countries will use the Share.TEC pilot system for accessing, sharing and reusing digital resources within a framework defined by jointly set curricular objectives. These pilots will represent important use cases for encouraging other users to explore new, possibly innovative solutions.

Provision of an effective brokerage system for TE

In the course of Year 2, significant steps forward have been taken in enhancing the services available in the Share.TEC system so as to provide more effective brokerage. Specifically, advanced ranking and recommender functionalities have been integrated, thus providing personalised ranking of query results and personalised recommendations of resources (and users) that may be of potential interest to the individual user.

3   Consortium

This section describes the partners one by one and the role each plays in the project. In addition to the specific roles listed here, all consortium partners engage in collaborative project activities and provide Share.TEC with digital content they have developed specifically for Teacher Education purposes.

- **Istituto per le Tecnologie Didattiche, Consiglio Nazionale delle Ricerche (ITD-CNR), Italy**

Description: Part of Italy's National Research Council, ITD deals with technology for innovation in teaching and learning processes within many fields, including Teacher Education (TE). A member of the Kaleidoscope and Stellar Networks of Excellence, ITD has led several TE-related European projects including ULEARN (eLearning initiative, 2001-2003) and UTeacher (eLearning initiative, 2004-2006). ITD is active in technology for TE at regional, national and international levels.

Project Roles: Project Coordinator; responsible for project management (WP1); developer of Teacher Education Ontology and supervisor of Common Metadata Model (WP2); developer of system recommender functions.

- **Trinity College Dublin (TCD), Ireland**

Description: Rated by the EU as Ireland's leading research institute, Trinity College produces over 1900 publications annually. Trinity has 66 departments across 6 faculties, with over 1000 active research accounts and 800 self-financing activities. Trinity has a strong track record in the use of its intellectual property, an area where social sciences and humanities are gaining increasing importance.

Project Roles: Supervisor for interoperability activities, inc. Multicultural Metadata Model, metadata repository & population (WP3).

- **Università Ca' Foscari di Venezia (CIRDFA), Italy**

    Description: Ca' Foscari University conducts teaching and research in various disciples, including initial teacher education. Its Interfaculty Centre of Educational Research and Advanced Training supports scientific collaboration in teaching methodologies and teachers' vocational training. National/international activities focus on training methodologies, professional profiles, tutorship, distance learning, planning methodologies, communities of practice.

    Project Roles: Supervisor for evaluation & assessment activities, inc. project evaluation (WP6); responsible for system metrics.

- **Stockholm University (SU), Sweden**

    Description: SU provides research-based vocational training for 14,000 students per year, 3500 in distance education. The Learning Resource Centre (LRC) provides a variety of learning and research support services including the building of, and online access to, various e-resource repositories covering educational e-contents, digital learning objects, streamed video, e-publications, and special disciplinary collections.

    Project Roles: Responsible for awareness and dissemination activities; supervisor for sustainability (WP7).

- **CLUEB (CLUEB), Italy**

    Description: An academic publisher associated to the University of Bologna, CLUEB has a catalogue of 2,400 volumes, mostly monographs by university scholars. CLUEB is also active in digital publishing and distance learning. It is the TE contents provider for UniVirtual Distance University, which in 2006-2007 provided 300 online courses to 4,800 students. CLUEB is currently shifting from traditional to mainly digital production.

    Project Roles: Responsible for sustainability plan; host institution for final Share.TEC system on completion of the project.

- **Open Universiteit Nederland (OUNL), The Netherlands**

    Description: OUNL is a leading academic institution whose Centre for Learning Sciences and Technologies (CELSTEC) is steering major developments in the field like EML and IMS-LD. CELSTEC brings expertise in lifelong learning networks, interoperability and intelligent tutoring systems. Participant in a range of EU projects and initiatives, including TENcompetence, MACE, iCoper, Prolearn, Stellar, OpenScout.

    Project Roles: Responsible for Common Metadata Model, system specifications, activation of end-user community networks.

- **Universidad de Valladolid (UVA), Spain**

Description: The GSIC/EMIC group (Group of Intelligent and Cooperative Systems / Education, Media, Informatics, and Culture) is an interdisciplinary research group at the Universidad de Valladolid (UVA). Main research areas are e-learning applications and technologies, practitioner support and CSCL. Developers of Collage, an LD authoring tool which won the Kaleidoscope NoE 2006-2007 European CSCL Technology award.

Project Roles: Supervisor for system usability (WP4); responsible for system expansion facilities, query and brokerage.

- **Sofiyski universitet (NIS-SU), Bulgaria**

Description: Sofia University's St. Kliment Ohridski School of Higher Education is the first of its kind in Bulgaria. The Centre of Information Society Technologies (CIST) is an interdisciplinary research and training institution dealing with the development and widespread use of ICT. The centre aims to establish co-operation between academia and industry, SMEs, NGOs, public administration, local communities for promoting ICT use.

Project Roles: Supervisor for integrated platform and services (WP5); responsible for development & testing of system (prototype, pilot, release), wizard & user interface, metadata repository.

4 Project Results/Achievements

The second year of activities built on the solid foundations of Year 1 and saw the attainment of a number of important milestones crucial to the development of the project. These included the development and release of the pilot system, and the holding of the second and third project workshops, which were not only central to dissemination efforts, but also represented key moments in the lifecycle of the system portal, providing critical validation opportunities and sources of feedback.

- **Release of the pilot system**

One of the leading results of Year 2 was release of the pilot system, which was developed on the basis of the architecture of the first system prototype, extending it by adding new components and new functionalities, as it is described in D5.5.

The main set of services offered to the user in the Share.TEC pilot system is related to the realization of different types of searches of varying complexity to the central repository. The Share.TEC Portal allows the *automatic personalization of portal interface* to match user's language, knowledge and preferences, community role, and history. All queries can be performed in any of the six partners' language (Bulgarian, Dutch, English, Italian, Spanish, Swedish) and, in reference to the user's own context, by using simple and advanced range of parameters for query filtering; key parameter values are automatically set in accordance with user profile and multiple values can be attributed to each parameter.

On the base of the user's personal profile, analysis of system history and user behaviour, the Share.TEC pilot system is also offering a rich set of *adaptation features*, including recommender system, which offers the following possibilities: automatic ranking of search results in accordance with user profile characteristics; comprehensive recommender hints, to

which tagged individual user favourites and annotations could be aggregated; and personalized Profile-specific form for adding feedback (i.e. rating and experiential annotation).

In addition, a number of *Social networking functions*, which are also provided by the Recommender system and based on the adaptivity approach chosen, have been implemented to capture inter-user relations in terms of propagating information about profiles and interests among users. These functions allows for finding: other users with similar interest and behaviour; items (like description of searching) from users with similar interests and behaviour; and News about new users in Share.TEC with similar interest (like "notify me if someone similar to me joined Share.TEC").

All adaptivity features implemented in the pilot system are based on the *Share.TEC metrics for resource-user matching*, which is a combination of a group of metrics that give insight on the relevance of learning objects in a specific situation, (as described in Deliverable 4.2). In the Share.TEC system, these metrics are used not only for creating a ranking system, but also for implementing a set of techniques on which the recommender system can rely (like collaborative filtering), as well as for functions concerning user interface customization.

With regard to pilot system development, during the 5th project meeting (held June 30-July 2 in Bologna immediately after the Third workshop), the consortium agreed to define a roadmap for portal lifecycle. This regards the user interface in particular but also covers functional improvements to be made over the third project year. This encompasses feedback from previous and prospective user involvement activities, and fits into the overall project schedule. At the meeting several partners pointed to the need to introduce rapid improvements in the UI, and to prioritise the modifications to be made on the basis of user requirements. To this end, an interface design group comprising partner representatives was established. Full results from the 5th project meeting will be discussed and included in the next report period.

- **Validation & Testing**

Guided by the general validation plans reported in Deliverables 6.1 and 6.2, validation and testing activities in Year 2 covered a range of project outputs, including the initial use cases, usability of the system portal (prototype and pilot versions), the Resource Integration & Companion Kit (RICK), as well as monitoring of system performance and metadata record consistency.

A major outcome of activities in this period was the completion of iterations in the development of the system from the prototype released in Year 1 to the pilot released in Year 2. This fundamental segment in the system lifecycle entailed validation and testing conducted in-house by consortium partners and also as part of activities directly involving external experts and a representative end user population.

Following release of the prototype, a detailed plan was defined and implemented for conducting validation at the Second Project Workshop in Dublin in July 2009 (see Deliverable D7.7) . The workshop testing session involved a mixed group of experts and typical end users, who were set a sequence of tasks to complete using the prototype system. The aim was to gather information about the suitability of prototype functionalities and system usability in general. For these purposes a specific think aloud protocol was formulated. This involved Share.TEC staff members acting as observers, noting the actions and observations of the participants, who worked in pairs on the tasks set them. Further data were collected from

participants via a questionnaire and set of open questions: detailed results are reported in Deliverable D7.7 Second Project Workshop. The first validation and testing round provided valuable input for the next system iteration, i.e. development from prototype to pilot.

Release of the pilot system in Year 2 was followed by an intense round of validation and testing activities performed by all partners. The aim was to gather a substantial body of information for tuning the final development of the Share.TEC system. A systematic sequence of pilot experiments and tests was run in which around 100 end users (teacher educators, in-service teachers and student teachers) engaged in hands-on activities. The general procedure adopted for validation activities was largely based on that used in the second project workshop in Dublin, with tasks that were specifically adapted by each partner to suit the local context. User satisfaction was measured using an online "Desirability Kit" localised for use in the different partner countries.

The outcome of pilot system validation and testing (reported in Deliverable D7.8) led to the identification of a general plan for short-term portal improvements (already implemented) and longer term modifications to be integrated before the final system release.

On-going in-house testing by partners of the Resource Integration & Companion Kit (RICK) led to a series of iterations which resulted in substantial optimisation both in terms of functionality and usability. In direct response to partner feedback, the current release now has template and "batch mode" modes for easy integration of metadata that are common to a set of records or frequently used, thus greatly speeding up the metadata population process.

- **System expansion tools**

The implementation and integration of the system expansion tools, namely Metadata Migration Facility (MMF) and Resource Integration Companion Kit (RICK), is a key result for the success of the Share.TEC project, facilitating the migration of existing TE metadata records to the Share.TEC system and performing the necessary format conversions to CMM. Since the metadata available in existing repositories cannot be expected to be CMM compliant, the need arises for supporting automatic migration of existing metadata records to CMM format: this is the role played by the MMF. Creating or enriching new CMM-based metadata is performed using RICK, a tool designed for user-oriented interactive annotation of resources. Using RICK, expert users and TE practitioners will be able to enrich metadata records in the Share.TEC portal, especially with respect to the TE-specific metadata, thus leveraging the TE-related potential of Share.TEC.

- **Second Share.TEC workshop**

The Second Share.TEC workshop, *"Sharing Teacher Education Resources In Europe: Capturing Users' Perspectives"* (Dublin, July 8-10, 2009) gave considerable impetus to dissemination and awareness of the project. The workshop sessions featured the active participation of a number of key players representing TE networks and major initiatives in the European landscape of educational repositories, including potential stakeholders in Share.TEC. Among the institutions present were the Association of Teacher Educators in Europe (ATEE), European Educational Research Association, Istituts Universitaires de Formation des Maitres (IUMF), Learning and Teaching Scotland, Open Access Publishing in European Networks (OAPEN), Open University UK, Educational Repositories Network (Ed.Re.Ne), Learning Resource Exchange (LRE), European Schoolnet, Contento/e-4learning,

DiDiMa, The Digital Hub, TeachNet. Their participation provided the basis for building closer ties with the TE community at large and also provided valuable input for the project on critical areas like successful strategies for unlocking digital resources, building TE communities around resource sharing, and future directions in educational repositories.

The workshop also represented a major milestone in the iterative development of the Share.TEC system. Indeed, one of the main objectives of the event was to gain feedback about the initial prototype, especially regarding technical interoperability and sustainability. For this purpose, a pool of external user-experts in the area of Teacher Education (TE) was assembled to engage with consortium members and participate in the validation process. The results provided valuable input for development of the system pilot, especially as far as the user interface is concerned, and also for clarifying user requirements: outcomes are reported in detail in D7.7 Second Project Workshop.

- **Third Share.TEC workshop**

The 3rd Project Workshop was originally planned to be held in Heerlen, the Netherlands 19-21 April 2010. In early 2010 it was agreed to shift the event to Bologna, Italy for logistical reasons. The volcanic eruption in Iceland in mid April and subsequent closure of European air space forced the rescheduling of practically all the onsite workshop activities, which were postponed to 29-30 June. Given that the workshop constituted an important milestone in a number of project activities (e.g. validation of the pilot system, engaging end users and potential stakeholders, activating a network of user communities, etc.) this postponement caused considerable disruption to progress and forced delayed submission of several deliverables.

The workshop was primarily conceived as an opportunity to bring together a representative group of the end users who had taken part in the systematic local testing of the Spring 2010 pre-release version of the pilot system (see D7.8 Third Workshop). The representatives presented and compared the outcome of their validation activities and discussed these Share.TEC representatives, leading to a prioritised list of modifications deemed necessary for the final version of the Share.TEC portal. Another key aspect of the workshop involving TE end users and institutions regarded initial exploration and planning of a set of "dissemination pilots" due to commence in Autumn 2010. In these pilots, practitioner groups at TE institutions located in different European countries will use the Share.TEC pilot system for sharing and reusing digital resources, providing not just a springboard for dissemination but also a significant opportunity for field testing at international level.

Dissemination and sustainability issues were also addressed in specific workshop sessions that were held as planned in the original 19-21 April 2010 slot. In these sessions, key stakeholders like national and international TE organizations and educational publishers explored how a portal such as Share.TEC can best meet TE needs by bridging organisations that provide digital content with the community of TE practitioners and institutions interested in accessing, sharing and reusing that content. Specifically, the sessions looked at how Share.TEC could attract and involve educational publishers, thus extending the portal's content base and building the foundations for sustainability.

5   Target Users & their Needs

As reported in Section 2, end-user involvement was the subject of special attention during Year 2, especially in response to the First Intermediate Review and the First Internal Evaluation Report. These involvement efforts were guided by a user involvement strategy, which was formulated at a special meeting of partners held in Bologna in November 2009 (for details see D1.5). The user involvement actions foreseen included:

- gaining users' input on their requirements via the 2nd Project Workshop (see D7.7)

- wide scale surveying of TE practitioners regarding their resource needs and their views on portal recommending and social networking services (D1.6 Half-year report#4);

- validation and testing activities held as part of local initiatives organised by partners (see D1.6), and also within the series of testing sessions scheduled for the 3rd Project Workshop, where results were compared and discussed among end users (see D7.8).

As well as involving individual TE users, the consortium also strived to engage with TE organisations both at national and European level. Some of these efforts are listed in the dissemination coordination action plan & roadmap, and are also reported in the meeting of stakeholders & content providers held as part of the original 3rd Project Workshop (see D1.6). In addition, the formation of the Share.TEC End User Board following the 3rd project workshop is an important step in consolidating and strengthening direct ties with the community of TE end users (see D1.6).

6   Underlying Content

In Year 2 work continued in a number of directions with the ultimate aim of endowing the Share.TEC pilot with a rich corpus of metadata records describing TE content both from partners and also from outside the consortium. The Metadata Migration Facility (MMF) and the Resource Integration Companion Kit (RICK) were put in place for full scale generation/harvesting/enrichment of metadata records – more details are provided in the next section. This provided the technological infrastructure necessary for systematic population of the Share.TEC metadata repository. At the same time efforts also concentrated on the actual indexing procedure, which in Year 2 began in earnest following initial trials in Year 1. Work also began on the production of CMM guide to support those engaged in this activity and help them achieve quality output.

Initial trials were also carried out with a purposely-created metadata analyser to ascertain the state of actual records generated. The "*Share.TEC Meta-Data Analyser*" application is designed to harvest all metadata records which are currently published in partners' OAI-PMH targets and to generate metrics related to metadata quality and quantity (e.g. top 10 keywords, mean length of title, etc.).

Throughout Year 2 ongoing discussions were held to explore issues and strategies related to the quality of items to be made available within the Share.TEC portal. These efforts focused in particular on the most suitable policy to adopt for establishing an optimal balance between quantity and quality of items. This activity culminated in the formulation of a framework that all partners agreed to adopt as the consortium policy regarding the resources that the portal will make available and the metadata records describing those resources. In the first instance, resources considered appropriate for inclusion in Share.TEC are those that are

(a) TE-specific, i.e. designed for or used in a particular TE context; (b) TE-relevant, i.e. potentially usable for TE purposes. Metadata records, on the other hand, are to be classified into three quality categories depending on the amount and detail of pedagogical information they convey beyond the CMM mandatory elements (which include the 1.4 Description field). At the 5th project meeting held in Bologna jointly with the Third Workshop, partners agreed that the three optional fields to be adopted as criteria for this purpose are Keywords (CMM 1.5), Knowledge Area (CMM 9) and Digital Content Type (CMM 10.3). According to these criteria, metadata records will be classified into three quality categories: *Bronze quality* (CMM mandatory plus values given for any of the three optional fields); *Silver quality* (CMM mandatory plus values given for any 2 of the three optional fields) and *Gold quality* (CMM mandatory plus values given for all the three optional fields). Full results from the 5th project meeting will be discussed and included in the next report period.

7   Summary of Activities

In the second year of the project, the consortium engaged in a number of key activities that built on the work performed in Year 1 and paved the way for achievement of Share.TEC's immediate and long-term goals.

- **Production of a guide to the Common Metadata Model (CMM)**

Ongoing efforts have been devoted to production of a comprehensive guide to the CMM for experienced indexers working within partners' teams. A preliminary technical guide was issued to partners in September 2009 to help them produce initial CMM compliant records. Subsequently, a wiki was provided as an arena for partner-indexers to exchange views and experience as they mark up resources. An online workshop was held in May 2010 so that indexers could engage in the process of producing the guide and ensure that the result meets their needs.

- **Population of metadata repository**

A substantial number of metadata records (20,000+) were ingested in the system, both from partners' indexing of their digital resources in accordance with the CMM, and from harvesting of other TE repositories. The harvesting mechanism put in place to support both cases was perfected to ensure sound performance. Monitoring of ingested metadata records for quality assurance commenced, with initial runs of a metadata analyser system developed specifically for the purpose. A solution for automatic metadata generation was identified as a means to support the population process.

- **Completion of the Teacher Education Ontology (TEO)**

The process of incorporating instances reflecting all partner country TE contexts in the final version of TEO was completed. Following debugging, this iteration of TEO was integrated into the portal and into RICK. The vocabularies adopted in TEO were subjected to validation by end-users. Issues related to management of the TEO lifecycle were identified, specifically regarding approaches to the multilingual and multicultural dimensions (see D1.6).

- **Development of the pilot system**

Major iterations in the system lifecycle were attained. These include initial validation and testing of the first system prototype by end-users and stakeholders (2nd Project Workshop); pilot system development (integration of advanced adaptivity and personalization

functionalities); integration of the MMF and RICK system expansion tools; initial release and in-house testing of the pilot system; systematic end-user validation and testing of the pilot system, run first at national level and subsequently as part of the Third Project Workshop in Bologna in July 2010.

- **Implementation/integration of adaptivity and personalization functionalities**

Metrics for resource-user matching were analysed and defined. The most feasible options were adopted and integrated into the system in order to support personalised ranking of query results and personalised recommendations of resources (and users) of potential interest to the individual user (see D4.2). Following study of the scope of adaptivity and personalization in Share.TEC, the ranking and recommender functionalities were defined and integrated. These draw both on the metrics and on the system's user modelling capabilities, which comprise both static and dynamic aspect for interface adaptation and individualised recommendations (see D5.5).

- **Implementation/integration of system expansion tools**

Following analysis of existing solutions for semantic mapping between metadata forms, the tools destined to support system expansion, namely the Metadata Migration Facility (MMF) and the Resource Integration Companion Kit (RICK) were implemented and integrated into the pilot system. The MMF handles the necessary format conversions of existing TE metadata records that are migrated to Share.TEC's metadata repository. RICK allows indexing and enrichment of CMM-compliant metadata records, especially with respect to the TE-specific metadata characterising the CMM application profile. The most recent release (RICK20100603) allows "batch" indexing of records so that multiple records can be assigned certain values simultaneously, thus facilitating the indexing and enrichment processes. Provision has been made for release of an "international" version of RICK with fully localised interface for each partner language and TE context.

- **System validation**

A validation plan was defined and implemented for testing the portal with end users and experts, for collecting user feedback, for monitoring system performance and for checking the consistency of records in the system's metadata repository. Pilot validation sessions were performed by each partner. These involved representative end-users, who followed specifically-designed use cases for testing usability in the different national settings. Data resulting from these sessions were collected, summarised by partners, and specified for implementation in the system in two stages. The first phase was completed for the Third Project Workshop in Bologna, July 2010, with implementation of a series of modifications to the first pilot release. The second phase will take place during year 3 of the project. The pilot validation data gathered from users will be summarised and reported in detail in D6.2. In addition, a questionnaire aimed at gauging end user reactions was produced in partner languages and submitted to TE practitioners: the results are reported in Del 1.6.

- **Activating a network of end user communities**

To guide activation of a network of end user communities, a general roadmap was produced that outlines strategy and future actions for dissemination purposes and for engaging user groups (see D1.6). The strategy involves targeting different actors: TE associations and networks; institutions like universities, professional schools and university departments involved in TE curricula; and working groups of teacher educators. In line with this strategy, a draft proposal was circulated and discussed for addressing TE needs specifically at the

institutional level (see D1.6); this aspect will contribute to the definition of the sustainability plan due for release in mid-summer 2010.

As a springboard for efforts in activating a network of TE groups and institutions, plans were established at the Third Project Workshop for a set of dissemination pilots to commence in Autumn 2010. These will involve use of the Share.TEC pilot system for sharing and reusing digital resources between practitioner groups at TE institutions located in different European countries.

In addition, specific actions and tools suitable for the purposes of network activation have also been identified (see "Ideas for activating a network of end-user communities in Teacher Education" in D1.6) and are under consideration for adoption.

8   Impact & Sustainability

As part of steps towards production of the final sustainability plan two questionnaires were distributed, one for partners to provide fresh data on key aspects impacting on sustainability and a second for compilation by teacher educators in partner countries. All partners attended a meeting held in November 2010 in Bologna, Italy, to clarify and consolidate the orientation of the sustainability plan. As part of sessions scheduled for the 3rd Project Workshop, a meeting of stakeholders & content providers was held in Bologna in April 2010 to explore potential interest in Share.TEC beyond the project period and to analyse issues affecting sustainability (see D1.6). This session provided useful insights for the project sustainability plan, which will be included in D7.6 Sustainability Plan due in Month 28 (10 September 2010).

Dissemination efforts have intensified both at national and international levels. Activities carried out by each partner to engage end users in validation and testing of the system have also represented excellent opportunities for grassroots dissemination in TE communities and organisations. Contacts have also been activated with representatives of TE networks and repository-oriented initiatives in Europe (ATEE, TNTTP, IUFM, EERA, Learning & Teaching Scotland, Open University UK, LRE/EUN, etc.). Clustering with European projects such as EdReNe and ASPECT has been consolidated. Project dissemination materials have been enriched with the production and distribution of the project flyer in all partner languages, together with multilingual information available on the website. To enhance the effectiveness of dissemination undertakings, a coordination action plan and roadmap was produced in March 2010 (see D1.6) to guide the consortium's efforts in this direction through Years 2 and 3. A part of preparations for the final project exhibition at the Online Educa Conference in Berlin, December 2010, a proposal has been submitted for a lab session, including presentation and hands on session with end-users and the organization of dissemination activities on an Exhibition stand.