PURPOSE OF REPORT

iTEC (Innovative Technologies for Engaging Classrooms) is a major EU-funded project in which European Schoolnet is working with education ministries, technology providers and research organisations to bring about transformation in learning and teaching through the strategic application of learning technology. With 26 project partners, including 14 Ministries of Education, and funding of €9.45 million from the European Commission’s FP7 programme, iTEC is the largest and most strategic project yet undertaken by European Schoolnet and has the potential to be a flagship project for the design of the future classroom. The project lasts from 2010 to 2014.

This report fulfils a contract commitment (deliverable D1.3.1) to provide a mid-term report for public consumption by a diverse group of stakeholders outlining the progress made by the project together with interim project results and findings.

The report has been printed and published as an abridged version also; click here to go to that version.
BACKGROUND

Technology and the future classroom

iTEC explores the fundamental question of how technology can be used effectively and successfully by both learners and teachers and is seeking to define the nature of the future classroom. The project brings together policy makers from 14 education ministries across Europe together with some of the key learning technology providers and experts from leading research organisations and universities. Their diverse knowledge and experience is used to design and take to scale 21st century learning and teaching scenarios. iTEC builds upon experiences and research carried out in the past but with the firm intention of delivering impact and sustainable system improvement.

The key aim is to develop engaging scenarios for learning in the future classroom that can be validated in a large-scale pilot and be subsequently taken to scale.

Prior to the iTEC project, some scenarios for the school of the future suggested radical visions in which governments announce the end of compulsory schooling by 2020 and the school has even disappeared. Such blue-sky thinking has a role to play but there is a risk that such approaches are simply too unconnected with current practice, fail to engage teachers and cannot be mainstreamed because they are too far removed from educational policy making in the real world. While iTEC is developing ambitious scenarios for the future classroom, it also recognises the realities and pace of the educational reform process. By the end of the project, schools will most certainly still exist but the organization of learning will be changing as social interaction and personalization become much more prevalent.
Over one thousand classrooms

The initial impact of the project is provided through piloting learning and teaching scenarios which are being tested and evaluated in more than 1,000 classrooms across 17 countries.

Much has been written about the design of the future classroom, and scenario-based approaches are by no means novel. However, iTEC is different in terms of the scale of the testing of future classroom designs. The practical application of technology in a diversity of classrooms across Europe is allowing us to better understand the constraints and opportunities of actual physical environments as well as teachers’ attitudes and aptitudes. By linking this analysis with education policy objectives at national level and with evolving technical capabilities provided by the suppliers participating in the project, a reliable vision of the future classroom is emerging. The iTEC project, therefore, has started to act as an “Ideas Lab” for both ministries and technology providers which enables them work together in order to rethink and test designs that really appeal to current and future generations of learners.

iTEC is now forging ahead with eleven work packages stimulating the development of new tools and services more attuned to the needs of learners, teachers and others involved in the education process. Investment is being made in iTEC to identify the value of this technology and establish new models which allow easy access to resources. Collaboration amongst commercial providers and research establishments is making the development of fit-for-purpose tools and resources easier and faster. iTEC is now tackling exciting concepts and opportunities for using technology to support learning, including:

- the trend towards the integration of widgets or apps to create a personal learning environment;
- multi-touch and multi-user interactive devices;
- growth in the use of social networks and media sharing services;
- the semantic web as a powerful mechanism for connecting users to the most appropriate resources.

Teacher skills and institutional maturity – the challenge of mainstreaming

Adoption of advanced approaches to learning and teaching using new scenarios to integrate technology can’t be left to chance. Many previous research projects have demonstrated the significant value technology plays in learning and teaching when applied well, but have found wide-scale adoption to be an insurmountable challenge. Mainstreaming outcomes and finding long-term solutions for taking the work forward beyond the project is therefore also a central objective for iTEC.

Ensuring value for money and return on investment

iTEC’s work on defining an achievable vision of technology-supported learning compatible with European schools will enhance the ability of education systems to focus investment in technology. There are proven risks associated with investment in technology when an informed strategy is not in place. By ensuring that users and suppliers of technology are fully engaged in continuous dialogue regarding development, adoption and use of technology aligned with a shared vision, investment can be focused where it will bring the greatest return in terms of educational impact.

To find out more about iTEC and become involved visit the website at: http://itec.eun.org
CURRENT STATE OF PROJECT IMPLEMENTATION

The scenario development process

The iTEC project is being delivered over four years (2010-2014), involving five cycles of design and testing of learning activities.

The iTEC project has eleven work packages: work packages 2-5 deal with large scale piloting of engaging pedagogical scenarios including initial development, preparation, piloting and associated CPD (continuing professional development), and the evaluation of pilots. This core part of iTEC comprises:

- **Scenario-building**: building novel learning and teaching scenarios which maximise the engagement of learners in the future classroom through the effective use of ICT.

  Scenarios are based on an analysis of various trends affecting the way in which education is expected to change. These include trends in education policy and strategy, trends in the development and use of technology, and social trends. Throughout the process learners, teachers, policy makers, technology providers, and pedagogical experts collaborate in designing these scenarios.

- **Prototype learning activities**: building and testing innovative collections of learning activities, based on novel scenarios, and making practical use of a variety of familiar and new communication and collaboration tools.

  The initial learning scenarios are used as a stimulus for further analysis and design, with teachers, in order to produce suitable learning activities. This design process starts with workshops to identify the challenges teachers would face delivering the scenarios, and to guide the development of learning activities. The teachers then test these activities in the classroom at small scale to refine them.

- **Large scale classroom pilots**: collections of learning activities produced in the design stages are provided to teachers in 17 European countries. The learning activities are tested in a much larger number of classrooms to evaluate their potential value and impact on the future classroom.

  Trainings and support are provided to the teachers involved, who become members of the iTEC community of practice.
**Evaluation**: assessing the potential of the iTEC learning activities, and identifying supporting factors and barriers.

Teachers provide feedback on the potential of the learning activities to bring innovation to the classroom. This evaluation process involves a combination of methods including data collection, observations, case studies and multimedia journals produced by the teachers involved.

The process for using iTEC learning activities involves a number of technical work packages (numbered 7-10) which provide ICT tools to support lesson preparation, learning and teaching. Finally, work package 6 focuses on providing the training and support for piloting partners in the project to use and adapt iTEC technology.
Where are we up to in September 2012?

iTEC is being delivered in five overlapping 18-month cycles. The project started in September 2010 with the timing of cycles arranged to fit the availability of teachers during the school year in each of the countries in which there are iTEC pilots. The graphic below is a simplification of the project activities to indicate key phases only.
This report is therefore being published at a time when the project consortium has completed two out of the five piloting cycles and iTEC learning stories and activities have been delivered in almost 800 classrooms across 17 countries. Participating Education Ministries have considerably exceeded the minimum number of pilots that were originally anticipated at this point in the project, and the ambition is to scale up the adoption of these scenarios by schools across more European countries. The initial plans of the project included just 12 piloting countries, but pilots have now taken place in an additional five countries, namely Spain, Finland, the Czech Republic, Germany, and the United Kingdom.

How do we develop realistic and practical classroom scenarios?

The design process for iTEC learning activities is in two main phases:

- the **first phase** involves the development of “innovative learning scenarios”: these scenarios provide the initial stimulus for the development of iTEC learning activities. They are developed through an iterative process of research, surveys and trends analysis².

- the **second phase** is based on the principles of research-based design. Within this phase the learning scenarios are used as a stimulus for the design of the learning activities, through a process involving collaboration between technical and pedagogical design experts and teachers.

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² The iTEC scenario development process builds upon a range of established scenario development techniques and consensus building tools such as Delphi, and drawing on methods developed to support futures-facing prototype development such as the Beyond Current Horizons programme (www.beyondcurrenthorizons.org.uk). The Delphi method was developed by the RAND Corporation in 1953 as one of the first techniques created specifically to support forecasting.
First phase: creating innovative learning scenarios

This phase flows through three stages:

**Trends analysis**

Trends are identified through a combination of desk research, including reference to other European-funded projects, and through consultation with the eclectic mix of partners iTEC provides. The trends include technological advancements, social trends, and current economic and political issues of pressing relevance to education.

*Output:* Internationally recognised trends

**Learner and teacher realities**

Information is also gathered from teachers, through surveys, and from learners through a “ranking tool”, designed by Futurelab, to establish the priorities of these key stakeholders.

*Output:* Learner and teacher realities

**Expert and teacher workshops**

Trends and teacher and learner realities are used as the source material and building blocks for designing learning scenarios. Innovation in iTEC is enhanced by bringing together partners with diverse perspectives. The scenarios are formulated in a series of workshops that bring together the technical, pedagogical, commercial and strategic partners, with teaching practitioners.

*Output:* Innovative learning scenarios
Second phase: prototyping learning solutions

This phase flows through five stages:

**Teacher workshops and focus group sessions**

Focus groups are used to introduce the scenarios to teachers and identify the challenges they would have in putting the scenarios into practice.

*Output:* A collection of design challenges for each scenario

**Iterative design and prototyping**

Production of pedagogical and technical prototypes in the form of learning activities which are delivered together according to a learning story, and tools for testing in the classroom.

*Output:* Prototype learning stories, activities and tools

**Pre-pilots**

Selected teachers across the pilot countries are asked to test out the initial learning activities before going to full scale pilots.

*Output:* Teacher feedback

**Conclusion reporting**

The results of the pre-pilots feed into the final design stage where the practical experiences are written up as a conclusion report and the learning activities are finalised with additional detail to overcome implementation issues and incorporate recommendations such as technologies.

*Output:* Final learning stories and activities
Techniques for designing learning activities

An important step in the design process is the selection of those learning scenarios and activities that are believed to be most likely to have a “positive impact”. The project began with some relatively broad expectations concerning what constitutes an effective pedagogical approach:

“To evaluate the extent to which the iTEC scenarios have been successful in supporting collaboration as well as individualisation, creativity and expressiveness, identify those with maximum potential to have a transformative effect on the design of the future classroom, and the underlying change processes necessary to bring about this transformation.”

This led to a set of "selection criteria" with six dimensions in all:

- Dimension 1 – Is the scenario sufficiently innovative for the future classroom?
- Dimension 2 – Does the scenario add to the range of innovation provided through iTEC?
- Dimension 3 – Does the scenario have the potential to support teacher competency acquisition?
- Dimension 4 – Is the scenario innovative in its potential use of technology?
- Dimension 5 – Does the scenario address recognised focus areas for educational reform?
- Dimension 6 – Is the scenario currently feasible and sufficiently scalable for potentially large-scale impact?

These criteria play an important role in the design process both initially as a specification for the design of learning scenarios and later to assess potential learning stories and activities. To ensure that criteria have been met during the design process, project partners play a collective role in selecting scenarios which most closely meet the design profile. At this stage, half of the scenarios are rejected. Those that proceed further in the process receive feedback on how they should be improved so as to build on the strengths and address the weaknesses recognised during selection.

These criteria are underpinned by the research work carried out so far in the project, such as the trends analysis. This includes research into the meaning of innovation in the context of iTEC, and additional areas of research, including the relationship between recognised teacher competency frameworks and the iTEC learning activities.
Transforming Education – Innovative Learning Stories and Activities

The key outputs of iTEC in the first phase of the project have been the learning stories and activities. The learning activities are intentionally simple for teachers to understand and therefore adopt, and it is through the adoption of these learning activities, at scale, that iTEC will provide the impact envisioned³.

The learning activities on alone, provide elements or building blocks of innovative practice within the classroom, and need contextualisation for teachers so that they can assess how they can be used to enhance the learning and teaching experience. This context is provided by a learning story. Learning stories provide a holistic, educationally focused description of how a collection of learning activities may be put to use. Teachers can select appropriate learning stories and activities, based on their learners’ requirements and adapt them to their school, the learners, and the learning objectives.

In cycle one, two learning stories were piloted:

- **Outdoor Study**: this project based approach requires teams of learners to collect data (scientific, multimedia) outside the classroom.
- **Bring in the Expert**: this learning story includes activities that require teams of learners to collaborate with outside experts via communication technologies.

In cycle two, three learning stories were piloted:

- **Mathematics in a multicultural setting**: This learning story uses the language of mathematics to improve participation and communication in a multicultural setting. Groups explain mathematical concepts linking to online resources via a wiki using their own language and link to other group’s explanations in native or other languages.
- **Embedding exam preparation in learning activities**: The scenario provides both teachers and students with useful and innovative ways of using technology to build a bank of resources that can be used for ongoing learning and revision.
- **Students creating (science) resources**: Students support one another to learn difficult concepts in science or other subject areas. They create exhibits (for example, posters, podcasts, simulations) for younger students.

³ The ITL (Innovative Teaching and Learning) Research study, carried out in seven countries: Australia, England, Finland, Indonesia, Mexico, Russia, and Senegal, provides evidence for the importance of providing teachers with new pedagogical practices. The project was sponsored by Microsoft partners in Learning and run from 2009 to 2012. Its aim was to investigate the factors that promote the transformation of teaching practices and the impact those changes have on students’ learning outcomes across a broad range of country contexts. This global, multi-year research program used a mixed-methods design that includes surveys, observations, interviews, and examinations of student learning experiences. 24 schools in each participating country took part in the survey study. The respondents were typically identified among teachers of students between the ages of 11 and 14. The total sample size was 4,030. Within the survey findings it is clear that “Practice a new teaching method”, is rated as the most influential factor in teacher CPD to bring about improvement.

All instruments are available at [http://www.itlresearch.com](http://www.itlresearch.com), where there is also a technical supplement that describes project method.
Within the third year of the project the full set of validated learning stories and activities will be published through the iTEC website for teachers outside of the project to use. A programme of promotional and training activities is planned to foster wider scale uptake.

**Learning Stories and Activities – an example**

As an example, let's take the learning story “redesigning school”. This new learning story includes a number of new learning activities introduced for cycle three. The following learning activities are recommended and described for the teacher.

**Design brief** – The teacher provides a “design brief” to the students. The students form teams and discuss and share ideas about the brief, involving collaboration skills and communication technologies. In this learning story, the design brief asks students to consider ideas for redesigning the school, but the learning story could be adapted to any curriculum topic with the design of any product, service, object, performance etc.

**Contextual enquiry: observation** – Students are expected to work together and talk to other people to gather and test ideas for their design. This could involve external “experts” visiting the school, possibly virtually, or external visits with mobile technology used to record findings or interviews etc.

**Product design** – Students use simple communication and design tools to share ideas and produce design proposals e.g. a design for a school.

**Participatory design workshop** – Students carry out workshop activities with others to test design ideas and record their reflections.

**Final product design** – The collected inputs and outputs of the students are brought together and presented. This will include their own reflections, recordings of other people who contributed to the design from interviews and workshops, and their original design ideas.

**Reflection** – Throughout the process ICT is used to record the students’ progress as reflections on their own learning successes and challenges. This can be shared with teachers, students and others as a record of progress, and to improve performance.

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**What do we mean by “innovation”?**

Innovative practice involving ICT in schools varies between countries. This has led partners in the project to re-examine exactly what is meant by the concept of “innovation” in teaching and learning.

This is a fundamental question for the project, and it has been important to reach agreement amongst such diverse partners. iTEC has not set out to create its own definition, but instead to build upon the knowledge and research available. Simply put, innovation within the iTEC involves:

"Potentially scalable learning activities that provide beneficial pedagogical and technical responses to educational challenges and opportunities".
Within this, the project is trying to ensure that the innovation is more than just a novel idea, but has positive value, and reflects an improvement in practice. Within this philosophy we have incorporated the argument of Michael Fullan\(^4\) that educational innovation must include the following elements:

- use of new or revised materials (e.g. curriculum materials or technology)
- use of new teaching approaches (e.g. teaching strategies or activities)
- alteration of beliefs (e.g. pedagogical assumptions)

Within iTEC it is also very apparent, given the range of teaching and learning contexts involved, that, as Kozma\(^5\) identifies, “innovation often depends on the cultural, historical, or developmental context within which it is observed”. Consequently it is clear that what is innovative within one local or national context may be already mainstream in another, and beyond the possibilities of yet another. iTEC tackles this by promoting the learning activities as a stimulus to teachers and baseline for further development and innovation where necessary. The learning activities are also useful in identifying, across different countries, where barriers to innovation in learning and teaching currently exist. These barriers include, for example, different national attitudes to the use of personal devices and social media in formal education.

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THE ROLE OF TECHNOLOGY

iTEC is very much focused on learning and teaching, and not simply on introducing technology into the classroom, which has arguably been a weakness of many educational reform initiatives. With the future classroom in mind, iTEC has technology embedded within it, and a clear technical vision.

Learners and teachers will be able to access the information and resources required to allow them to plan and participate in engaging learning activities, making effective use of the technologies they currently have and providing them with additional and innovative resources. In addition, they will have access to people and events that can support learning. These resources will be brought together through a customisable user interface, in a way that meets learning requirements.

Various customisable interfaces will be available to users through the project, and each will give access to valuable resources including:

- A planning tool called the “Composer” which helps teachers find suitable learning stories and activities, and the resources needed to deliver them in the classroom.
- A “widget store” that provides a number of simple tools called “widgets” that are designed for learning activities.
- A service that links teachers and learners to “people” and “events” that can act as resources for learning activities.

Keeping technology simple

Quite often the simplest ideas are the most effective, and when it comes to providing teachers with technologies that can be used beneficially, simplicity is essential. This belief is at the heart of the iTEC technical vision.

Teachers have too often been presented with tools which, although powerful, are difficult to master and, without adequate training and support, have failed to take hold and pass into daily use.

The iTEC technical strategy provides teachers with access to a number of simple, customisable learning environments. These are online interfaces which have been kept as technically simple as possible, while retaining the facility to securely log in.

The value of the technology comes with the introduction of tools called “widgets”. These tools provide simple functions such as a notepad, or calculator: you may be familiar with these things if you use a smart phone or desktop widgets or gadgets on your computer. They can also be far more sophisticated, providing access to online services and more powerful educational tools.

iTEC has developed two of these customisable learning environments based on the popular learning systems Moodle and DotLRN. These have been provided to schools for pilots, to give access to a growing bank of educational widgets called the “widget store”. The project also provides the necessary training, but in fact, as with most popular web services, little training should be required.

Practical tools for teachers

If we look at practical ways of supporting teachers, we would point to two examples of the type of tools iTEC has been developing:
The Composer

This is a planning tool, designed to make it easier for teachers to plan their use of iTEC learning stories and activities. As well as providing access to existing iTEC learning stories, the Composer, as its name suggests, allows users to compose their own learning stories either by reorganising existing activities, or by creating and adding their own.

The Composer is also being developed with another powerful feature, intended to make the planning process much easier, and to overcome a recognised barrier to classroom innovation: it will call upon a service to help the teacher select tools and resources that are best suited to the delivery of their chosen learning activities. This service, due for release to teachers in the third year of the project, will provide personalised recommendations to match the teacher to the most appropriate resource. These may be some of the traditional resources familiar to the teacher, but will also include new resources, such as widgets, broadening the teacher’s repertoire.

TeamUp

This is the name given to one of the first technical tools, developed in support of the early iTEC learning stories and activities. It is a widget that allows teachers to organise students into teams, based on the skills and strengths of each student. Teachers can also quickly review each team’s progress and record notes about the students for future reference. TeamUp provides a simple but more structured way of forming teams as well as supporting improved group collaboration and recording of progress.

In April 2012 TeamUp won the eEemeli competition, Apps4Learning, at the Finnish Education Conference ITK 2012 (Interaktiivinen Tekniikka Kouluutuksessa).

This is what teachers have said about TeamUp:

“Throughout the iTEC lessons, the teachers were witnessing a process of growth among their students, for example they told us that TeamUp helped the students to overcome personal and social difficulties that arose during the group work in a much mature manner.” Israel, case study report
**TeamUp case study from Turkey: Bring in the Expert in the English curriculum**

This is the story of how a teacher and her 48 students used the iTEC TeamUp tool within the “Outdoor Study” learning story. The groups of students planned activities (which included meetings with experts related to their group’s topic) with the following themes:

- Tourist attractions – Holiday activities
- Protecting our school – Improving one’s look
- Practising English – How to improve English

The students shared their plans and communicated with each other via blogs and Facebook. As well as uploading videos and documents to their blogs, they also recorded “announcements to the voice thread and voki avatars.” In her multimedia story, the teacher includes links to the students’ blogs and shows screenshots of their communications. There are also photographs of her students talking to experts in their own workplaces. Students also used Skype to talk to experts as well as meeting them face-to-face. The students reviewed each other’s work and provided feedback via the blogs. There is evidence in the students’ work of social networking and collaborative learning.

See [http://itec.eun.org/group/teacher-community/imms-library](http://itec.eun.org/group/teacher-community/imms-library) for the full story.

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**Improving networking and communication amongst teachers**

The iTEC project has set out to produce learning activities that support the skills identified as essential for the modern working environment, including collaborative approaches and learner-centred pedagogical styles that support social constructivism (i.e. groups constructing knowledge for one another, collaboratively creating a culture of shared learning). Consequently, many of the learning stories and activities designed for pilots include references to working with others (e.g. peers or outside experts).

iTEC is developing a technological solution to overcome some of the challenges learners and teachers encounter with these types of approach. As part of the iTEC Composer mentioned above, teachers and students will be given access to a directory of “people” and “events” that can contribute to the learning activity. The people may be other learners, with whom they can collaborate, or experts in specific areas of the curriculum who they can call upon for support; the events can be organised discussions, presentations, or webinars. The international nature of iTEC also allows for cross-border collaboration.

This approach mirrors changes observed in society as a whole, in that the internet is no longer seen as a place for finding static information, but is increasingly the medium for social interaction.
SCALING UP: WIDE-SCALE CLASSROOM PILOTS

Over the two piloting cycles already completed, iTEC learning stories and activities have been delivered in almost 800 classrooms across 17 countries indicated on the map below. The plan is to scale up the adoption of these scenarios within those countries and in schools across more European countries.

In each piloting country National Coordinators manage the piloting activities. Together with teachers, these coordinators play a critical role. Normally there is a National Pedagogical Coordinator that identifies and works with the schools and teachers involved and arranges workshops for the design activities, or training for the pilots. In addition, there is also a National Technical Coordinator, whose role is to provide support and guidance to teachers in the use of technology during the pilots.
iTEC Pilots - An example from Portugal

Portugal’s iTEC partner Direção-Geral da Educação (DGE) reports their experience of piloting iTEC learning stories and activities:

During the past years Portugal has increased the availability of ICT for education through initiatives such as e.escola and Portal das Escolas (the Schools Portal). This has provided a fruitful basis for testing and implementing iTEC teaching and learning scenarios in Portuguese schools.

The Portuguese ministry launched a call for projects “Learning and Innovating with ICT” to be undertaken by Portuguese schools at all levels. 100 schools were selected as recipients for the equipment and infrastructure to be provided by the Ministry, consisting mainly of computers, interactive whiteboards and broadband Internet access. These were the schools chosen initially to be involved in the iTEC project.

The selection of the teachers was supported by Portuguese Competence Centres, units mostly based at universities and other tertiary education institutions around the country, contracted by the ministry to support schools in the use of ICT.

For more detail on the Portuguese experience of iTEC, read the Portugal - Country Report on ICT in Education (Insight series by European Schoolnet)\(^6\)

The pilots are supported centrally by the project coordinator through an online community, online support and face-to-face training events. The National Pedagogical Coordinators and National Technical Coordinators play, arguably, the most important support role in ensuring that teachers are given sufficient guidance, through local online support and workshops, in order to effectively evaluate the iTEC learning stories and activities.

The evaluation programme

The main role of the evaluation programme up till mid-2012 has been to prepare for the evaluation of the large-scale piloting of the iTEC scenarios.

The core outcomes have been:

- A Knowledge Map which initially documented existing innovative pedagogical practices in classroom contexts from across Europe and beyond. It has provided a baseline against which to assess the impact of iTEC on teachers’ pedagogies and learners in participating countries. The first part contains a review of current innovative practices in classrooms, mainly in Europe, with a focus on teachers’ actual use of technologies in the classroom. The second part gives summaries of the national contexts for the 12 original countries participating in the large-scale pilots as full partners in the project and 2 countries participating as Associate Partners. The knowledge Map is available at: itec.eun.org/web/guest/knowledge-map

- The Evaluation Plan which outlines the approach undertaken to evaluate each of the five cycles of pilots in the iTEC project. It includes the objectives and research questions underpinning the evaluation, the underlying methodology, the data collection methods and workflow, and the approach to data analysis including criteria for success.

- An Evaluation Handbook which is designed to offer a single source of guidance to meet the needs of National Pedagogical Co-ordinators.

\(^6\) http://cms.eun.org/shared/data/pdf/cr_portugal_2009_final_proofread_2_columns.pdf
The Knowledge Map is be updated periodically, and the Evaluation Plan and Evaluation Handbook are revised after each iTEC cycle.

**Evaluation findings so far**

The evaluation of iTEC pilot activities draws information from several sources including questionnaires and case study data collection which includes lesson observations and interviews with the teachers, head teachers and students. The case study teachers also produce a “multimedia story” documenting their piloting experience, and National Coordinators produce a case study report. This data and information from different sources and perspectives is used to verify and ensure the accuracy of the findings.

**Improving teachers’ skills**

Teachers in the iTEC pilots, from the 17 countries involved in the first cycle, perceived that the learning stories had introduced a range of different pedagogical strategies. 86% of teachers reported that the learning story they piloted presented exciting opportunities to do things differently in the classroom.

> “Here there are people who come into the class... people who are journalists, photographers, illustrators... I really like it because we discover lots about jobs which we didn’t really know about before.” France, student interview

iTEC Learning Scenarios are intentionally designed to introduce 21st Century skills including, for example, opportunities for collaboration and creativity. The majority of teachers (88%) agreed that the Learning Stories led to more opportunities for collaboration and 89% agreed that students had used digital tools to support collaboration.

Many specific benefits of this approach emerged from the case study data including enhanced motivation, knowledge building and development, improvements to the social dimension of learning (for example, relationships and interactions, classroom ethos). Teachers in France referred to interactions being ‘real’ and students improving their relationships with their peers with whom they had not worked before. Students found it more fun than other (traditional) approaches which, for example, a Turkish student described as ‘monotonous’.

70% of teachers agreed that participation in the cycle 1 piloting had enabled them to develop their own creative skills. 77% of teachers agreed that there was a positive impact on students’ attitude and 82% agreed that students were deeply engaged in their work.
“The iTEC project is important because it allows us to experiment with new learning scenarios so that we can develop alternative models compared with how we have traditionally worked.” Head teacher

“So the pupils have the opportunity to experiment with new ways of learning and be protagonists in changing contexts and integrating new and old resources.”

The survey data suggests that teachers felt that the learning stories led to creative learning. 88% teachers felt that the learning story enabled creative activities to take place and enabled students to develop their creative skills. In addition, 87% of teachers agreed that the learning story enabled students to express themselves in new ways.

**Student-centred pedagogical strategies and new methods of assessment**

Through the evaluation, a range of themes emerged regarding active learning, learning to learn, knowledge building, student autonomy, drawing on students’ interests, and student choice. 88% of teachers agreed that students were actively involved whilst 70% agreed that they could work at their own pace.

“The students that were interviewed explained that the commitment and motivation they felt was due to the fact that they were given much responsibility and freedom of choice and were dominant in the preparation of materials for the lessons.” Israel, case study report

“Students feel very proud of themselves because they have worked alone, because they have been able to collaborate and because now they think that they are able to have a conversation with an expert.” Spain, teacher interview

“According to the school head teacher, experiments like this bring a positive new approach in schools, where teachers are no longer mere ‘bearers of knowledge’, and pupils ‘become partakers of the construction of their knowledge’.” Italy, case study report

“As there is task-sharing in the groups we learn to take responsibility and it becomes easier to exchange information from each other.” Turkey, student interview
In the teacher questionnaire 80% of teachers agreed that the learning story had enabled them to assess students in a new way.

“Once in our history lesson we were part of a club, everybody was some historical person and teacher asked us questions and we had to react as the person would. This was assessed and it was very interesting.” Slovakia, student interview

“A discussion forum was started on [the VLE] for the students to give positive feedback on the materials. Students were given ground rules that they should give constructive feedback and positive comments. They really enjoyed using the forum to give comments about the resources and each other’s resources.” England, teacher evaluation

The impact of technology

A variety of technological tools have been used during piloting to collect data (scientific measurement, photographic evidence), analyse data and create presentations and podcasts, and assess learning. In Belgium, the use of iPads was perceived to be ‘easy ICT’ and so seen to be an enabler. For the “Bring in the Expert” learning story, Skype and email were used to facilitate communication with experts.

Technology as such was not seen as the core focus of the project – most teachers understood that what is important is the way in which technology is integrated and the pedagogical strategies facilitated by such tools. Students and teachers reported that the technology was motivating, but they also spoke about working together and collaborating as equally important. In addition, technology was seen to make linking home and school easier.

“In cycle 2 the teachers and students worked, as part of collaboration, with SMART Bridgit conferencing software to work together or to present each other results of the pilots. The Spanish and German teachers and students are staying in contact and now multicultural aspects are part of these pilots as well. SMART Bridgit helps them as a collaborating tool to write or paint what they mean. It is easy to use and to combine with SMART solutions (e.g. SMART Board). Via camera, sound and the SMART Board they can use, present and work very intuitively on their pilots and results. The feedback was good and the pilot classes got an overview of other existing pilots in Europe. The learning aspects are positive too because the two pilot students groups present the results themselves with the assistance of SMART Bridgit”. SMART Technologies, National Coordinator.

“The teacher experienced that her pupils were very much motivated by the use of technology. [...] Pupils love the possibility to use technology and they told us that the English class is unique from this point of view: they don’t use web 2.0 tools in other classes, neither do they have online access to learning materials.” Hungary, case study report

“I did not need to use internet and computer out of curricular purposes with the application of this kind of learning. I was chatting and communicating for social purposes. Now I do not need social networking sites. Rather, I am doing school homework with my friends on the internet. Also, I’m using social networking sites to share information purposes with my classmates.” Turkey, student interview

Multiple positive impacts

The evaluation process covers several features of importance to the design of the future classroom. Whilst it is still early in the project, the evaluation results have been positive:
- 75% of teachers agreed that their knowledge of the pedagogical use of ICT had increased.
- 78% of teachers agreed that their understanding of the potential of ICT had developed.
- 77% of teachers felt that the learning stories had a positive impact on students’ attitudes to learning.

The teachers’ commitment to using iTEC learning stories and activities again, outside of the project, is a key indicator of their perceived value and benefit. 53% of teachers suggested that they would definitely implement the learning story they piloted again in the future, and of the remainder, 45% said that they would probably implement it. Only 3% of teachers suggested that they would not implement it again.
MAKING A SUSTAINABLE IMPACT ACROSS EUROPE

iTEC is clearly has the envisioned potential to ensure that the advances made in technology-supported education can be taken to scale in a way that can make a real impact in European schools. Too many projects in the past have delivered impressive outcomes, but have not managed to take hold in the wider education system beyond the end of the project. iTEC is facing this challenge in a number of ways:

- providing and disseminating key analysis from experts
- linking up with national policy and practice
- building “bottom up” communities of practice and through model demonstration facilities
- exploitation planning.

Key expert analysis

iTEC has established a High Level Group of decision shapers, made up of experienced and influential policy making experts, to ensure that the learning stories and activities that are successfully validated in the large-scale pilots are given the opportunity to impact upon the educational reform agenda at national level. Members of the High Level Group act as information brokers in relation to the Ministries and also provide advice and recommendations to project partners on how iTEC results can influence ICT policy development.

The High Level Group members are:

- Eduardo Marçal Grilo (Chair), Portugal
- Gavin Dykes (General Secretary), United Kingdom
- Emanuele Fidora, Italy
- Herbert Gimpl, Austria
- Øystein Johannesssen, Norway
- Toine Maes, The Netherlands
- Bálint Magyar, Hungary.
- Maciej Marek Sysło, Poland
- Alain Séré, France
- Antreas S. Trakoshis, Cyprus

Full profiles of the members can be found on the iTEC website: [http://itec.eun.org/web/guest/high-level-group](http://itec.eun.org/web/guest/high-level-group)

The group has met annually to debate the challenges and opportunities for educational reform involving ICT, and to provide the project with a strategic approach to engaging policy makers with a message that will stimulate support. In the group’s May 2012 meeting, the foremost issue was the scaling-up of the iTEC project from a pilot programme to its roll out at a national level. Following this discussion, in July 2012, the High Level Group issued an initial set of recommendations on mainstreaming innovative use of ICT in schools in Europe.

Several members of the High Level Group feature in the short iTEC movie, which explains the aims of the project: [http://youtu.be/V1Wz3Oe2yRI](http://youtu.be/V1Wz3Oe2yRI)
Linking up with national policy and practice

Understanding the value of iTEC at a national level is essential to wider scale adoption and impact. The relationship between iTEC with policy and practice within participating countries is usefully illustrated by the following two examples.

National example: Austria

The Austrian Federal Ministry of Education, Arts and Culture (BM:UKK) is one of the iTEC partners using iTEC to support their own nationally important initiatives in technology-enhanced learning in Austria. BM:UKK has developed a framework initiative, eFIT21, which aims to develop a new ICT strategy. eFIT21 pays special attention to the social web for Web 2.0 applications. eFIT21 has revealed that Austrian schools have a solid infrastructure for broadband Internet access (ranked 8th among 40 OECD countries and 2nd within the EU).

Austria is also active in the European Network of Innovative Schools (ENIS). Currently there are 54 Austrian ENIS schools out of 401 schools in 19 countries. ENIS schools are recognised as front-running schools that exchange experience, problems and solutions. The iTEC project has already been introduced to the Austrian ENIS teachers who have been involved in scenario development. A clear interest is developing in the iTEC project. According to Bernhard Racz, from ENIS Austria, iTEC has already caught the attention not just of Austrian teachers but also of policy makers and inspectors. He is confident that this will set a solid ground for the dissemination of the eventual school pilot results.

eFIT21: [http://www.bmukk.gv.at/schulen/futurelearning/index.xml](http://www.bmukk.gv.at/schulen/futurelearning/index.xml)

National example: France

Another example of the value of iTEC at the national strategy level is provided by France. The range of innovative pedagogical approaches such as personalisation and mobile learning tackled within iTEC are perfectly in line with the goals of the French Ministry of Education. The strategy has the support of French teachers participating in the project. One teacher commented: “I had never worked with outside experts such as a book writer from another country and I had a pleasant surprise when the author of a novel studied in class agreed to answer the students’ questions. This experience was very rewarding to my students and me.”

In France, the iTEC pilot is carried out by the Agency for the use of ICT in education, a department of the National Center for Pedagogical Documentation (CNDP).

Building “bottom up” communities of practice and model demonstration facilities

The close involvement of teachers throughout the process of learning activity design and piloting is intended to increase the potential impact of iTEC learning activities and help ensure that they are taken up by teachers outside the project. The project has also been working to support the building of communities at national and international levels in order to foster peer exchange. The focus of the communication strategy in iTEC, in the second half of the project, is to provide teachers with easy
access to the growing catalogue of learning stories and activities, and to facilitate the sharing of ideas and experiences. This approach is reflected in the recently updated website (http://itec.eun.org/), which also offers teachers the opportunity to participate in international information-sharing and training activities.

Example: successful online communities of teachers

One example of a successful sustainable online community that supports collaboration and peer support is Promethean Planet. A global community with over 1.4 million members this community has been active in promoting the benefits of the iTEC project. Specifically the community has supported cycle 1 and cycle 2 iTEC pilots by:

- seeking comments on scenarios which would offer the greatest benefits to teaching and learning
- sharing best practice on the use of tools including ActivEngage and ActivExpression to support new approaches to assessment e.g. the outdoor study in cycle 1
- distributing the Power League Survey through Promethean’s language specific sites including French, Italian, German, Finnish, Danish, Spanish and Portuguese.

With 109 active members in the iTEC community the forums provided a place to share and develop the learning stories and activities through the use of blogs, forums and file sharing.

As we enter cycle 3 and building on the success of this online community Promethean are extending the support to all teachers interested and involved in iTEC. With dedicated web pages, a team of iTEC experts and resources in a single place will continue to raise the profile of the iTEC project and share best practice and encourage and increase online collaboration.

http://www.prometheanplanet.com/iTEC

iTEC is coordinated by European Schoolnet (http://www.europeanschoolnet.org), an organisation that, with its 30 Ministries of Education, is well positioned to spread the value of the project through its work with other projects and stakeholders. There are several other initiatives underway that will provide certain aspects of the iTEC project with further long-term impact. EUN also views iTEC as the model for future validation of learning activities by both education ministries and technology providers and is supporting the iTEC dissemination activities by launching new initiatives such as the Future Classroom Lab demonstration facility that was opened in Brussels in January 2012.

Example: Future Classroom Lab

An important resource for supporting this work is the EUN Future Classroom Lab. Located in Brussels, a fully equipped, reconfigurable, teaching and learning space developed by European Schoolnet. It has been designed as a ‘Living Lab’ for showing how ICT can be implemented in schools and as a facility where policy makers, ICT suppliers, teachers and educational researchers can come together to continue and build upon the work started in projects, such as iTEC.

A further and closely related initiative being coordinated by European Schoolnet, and involving several iTEC partners, is the CPD Lab (Continuing Professional Development Lab) project. Its aim is to improve the quality of ICT-related Continuing Professional Development available to teachers, school leaders and other school staff, by offering a portfolio of training courses directly related to the needs of teachers in the future classroom.
iTEC is not being delivered in isolation, and many of the partners have participated in previous or current projects with complementary aims to iTEC. iTEC sees itself as having a valuable role in ensuring that existing or emerging innovative ideas and practices are fed into the iTEC process. As an example of this, several other projects and activities have been - or are being - used to inspire iTEC scenarios. These include: the ITILT project, which specifically investigates good practice in teaching and learning using interactive whiteboards; the NEXT-TEL project, which is providing inspiration for highly innovative approaches to assessment; the STELLAR project which provided insight into the TEL domain; and eTwinning, the highly successful international collaboration of teachers exploiting the use of information technology in the classroom.

**Exploitation Planning**

At the half way stage in this four-year project, all project partners have now begun to consider how iTEC results can be exploited and taken forward after the project ends in August 2015.

A very positive sign is that, along with partners from Austria and France (see above), many education ministries in the project already see the piloting in iTEC as being well aligned with their existing ICT strategies and are considering how iTEC results can be incorporated within new national plans that are now being developed. In some countries this may involve actions to embed iTEC results within new initial teacher and in-service education programmes, while in others the national ICT agency is exploring how the most innovative iTEC learning activities, together with iTEC technology, can be introduced into pilots of future ‘demonstration schools’ as part of the new national ICT strategy. For yet others, the aim is to make more productive use of ICT in their classrooms by providing schools with “a set of iTEC validated, high quality practices”.

At the same time, however, project partners are also providing serious food for thought for the iTEC High Level Group that is looking at how to upscale and mainstream iTEC innovative practice and the technology being developed in the project. A diverse range of mainstreaming challenges as well as potential roadblocks to widespread exploitation of iTEC results have been identified by project partners. These include: a lack of modern school infrastructure in some countries; insufficient funding for teacher and head teacher training; the problem of trying to implement iTEC learning activities...
within an “inflexible curriculum” where teachers struggle to find time to adopt innovative practice; the lack of channels for dissemination of new practice on a large scale in countries where there is a decentralised education system; the lack of a global standards for some of the technologies (e.g. widgets) being developed in the project.

In September 2012 a peer learning workshop for HLG members and education ministries will examine these and other exploitation challenges in more detail. This will lead to the publication of a more elaborated set of mainstreaming recommendations at the end of the year.
CONCLUSION

This interim report is being published at a time when we have completed two out of the five iTEC piloting cycles and iTEC learning stories and activities have been delivered in almost 800 classrooms across 17 countries. The first two years of the project have inevitably been dominated by setting up the structures and systems that drive the project, but these are now successfully in place and provide the foundations for the most fruitful phases of the project in terms of outcomes of educational importance. In reference to the technical developments, the first two years have provided the initial versions of the various tools and services described in this report. In the final years of the project, with 3 further cycles of piloting to go these technologies will be further tested in context, with teachers and learners, and iteratively refined to a point where those with proven value can be potentially sustained and exploited beyond the project.

The next two years of the project are planned to yield a wide range of important results and outputs, including:

- Final reports on the pedagogical design process, and a teacher toolkit for sustaining further design of learning stories and activities
- Two further cycles of design and the testing, and publishing of three more collections of learning stories and activities, with wider scale adoption by teachers.
- A teachers guide to prototype learning activities and tools
- A flexible modular programme of training for teachers, including materials, in development and use of future classroom learning activities
- Three more cycles of pilot validation of learning stories, activities and tools, and subsequent reports on the validation process
- Reports on the evaluation of pilots, including a final report highlighting what has been learned from all five cycles of piloting.
- Final iTEC customisable learning environments fully deployable at scale
- Established and sustainable services, including the widget store, with growing access to widget tools through sustainable community activity.
- A completed iTEC Composer tool, to support teachers in finding and sharing innovative learning activities and resources, and the automatic “intelligent” configuration of learning environments with necessary tools.
- Increased levels of public and stakeholder awareness, as the project emphasis on exploitation, sustainability and impact increases.
- Further activity of the iTEC High Level Group to guide and support the strategic approach to wider scale adoption of iTEC outputs.

This is a formidable agenda for the challenging and ambitious iTEC project.
ITEC PROJECT PARTNERS

European Schoolnet (EUN)
Belgium | www.europeanschoolnet.org

Promethean
United Kingdom | www.prometheanworld.com

University of Namur (FUNDP)
Belgium | www.fundp.ac.be

SMART Technologies
Germany | smarttech.de

Institute of Education of University of Lisbon
Portugal | http://www.ie.ul.pt/

Direcção-Geral da Educação (DGE)
Portugal | dgicd.min-edu.pt

Bundesministerium für Unterricht, Kunst und Kultur (BM:UKK)
Austria | www.bmus.gv.at

Centre of Information Technologies in Education (ITC)
Lithuania | www.ipc.lt

National Ministry of Education
Turkey | www.meb.gov.tr

Aalto University
Finland | www.aalto.fi

Agenzia Nazionale per lo Sviluppo dell’Autonomia Scolastica (ANSAS)
Italy | www.indire.it
# GLOSSARY OF TERMS

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>apps</td>
<td>software applications, typically small, specialized programs downloaded onto mobile devices.</td>
</tr>
<tr>
<td>dotLRN (.LRN)</td>
<td>An open source enterprise elearning platform (or VLE) being used in iTEC as the basis for one of the customisable learning environments.</td>
</tr>
<tr>
<td>FP7</td>
<td>‘Framework programmes’ (FPs) have been the main financial tools through which the European Union supports research and development activities covering almost all scientific disciplines. FP7 runs for seven years from 1 January 2007 and will expire in 2013.</td>
</tr>
<tr>
<td>interoperable</td>
<td>This refers to the ability of software and hardware on different machines from different vendors or sources to work together.</td>
</tr>
<tr>
<td>learning story</td>
<td>Learning stories are groups of activities “packaged together” to provide a holistic learning experience. Learning stories are used by teachers to help them produce lesson plans that include the principles of innovation, derived from iTEC Learning Scenarios.</td>
</tr>
<tr>
<td>Moodle</td>
<td>Moodle is an open source elearning platform (or VLE). It has become very popular among educators around the world as a tool for creating online dynamic web sites for their students. It is also being used as the basis for one of the customisable learning environments.</td>
</tr>
<tr>
<td>podcast</td>
<td>A type of digital media consisting of a series of digital files subscribed to and downloaded or streamed online to a computer or mobile device. The word is derived from “broadcast” and &quot;pod&quot; from the success of the iPod, as podcasts are often listened to on portable media players. (adapted from Wikipedia)</td>
</tr>
<tr>
<td>scenarios</td>
<td>Scenarios are relatively abstract descriptions of a learning and teaching experience describing the interactions of the learners and teachers with each other, tools and resources, the learning context and environment, etc. They are intended include innovation in technology supported learning and teaching, in one form or other.</td>
</tr>
<tr>
<td>social constructivism</td>
<td>Social constructivism is a theory of knowledge wherein groups construct knowledge for one another, collaboratively creating a culture of shared artefacts with shared meanings. (adapted from Wikipedia)</td>
</tr>
<tr>
<td>user interface</td>
<td>An interface controls and visual display through which a user communicates with a software application. The user interface determines how easily you can make the program do what you want. A powerful program with a poorly designed user interface has little value. Graphical user interfaces (GUIs) that use windows, icons, and pop-up menus have become standard on personal computers. (adapted from Webopedia)</td>
</tr>
<tr>
<td>VLE</td>
<td>Virtual Learning Environment: an education system based on the Web that models conventional real-world education by integrating a set of equivalent virtual concepts for tests, homework, classes, classrooms, and the like, and perhaps also other external academic resources. Virtual learning environments are the basic component of contemporary distance learning. (adapted from Wikipedia)</td>
</tr>
<tr>
<td>widget</td>
<td>An ICT based software application or tool that provides a user with useful data or a function. Often widgets are small user interfaces that give access to information on the internet, or make use of information on the internet.</td>
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<tr>
<td><strong>webinar</strong></td>
<td>Short for <em>web-based seminar</em>, a presentation, lecture, workshop or seminar that is transmitted over the Web. <em>A key feature of a webinar is its interactive elements - the ability to give, receive and discuss information.</em> <em>(adapted from Webopedia)</em></td>
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<tr>
<td><strong>web 2.0</strong></td>
<td>A term given to describe a second generation of the World Wide Web that is focused on the ability for people to collaborate and share information online. Web 2.0 basically refers to the transition from static Web pages to a more dynamic Web that is more organized and is based on serving Web applications to users. Other improved functionality of Web 2.0 includes open communication with an emphasis on Web-based communities of users, and more open sharing of information.* <em>(adapted from Webopedia)</em></td>
</tr>
<tr>
<td><strong>wiki</strong></td>
<td>A collaborative website comprising the collective work of many authors. A wiki allows groups of individuals to collaboratively edit, delete or modify content that has been placed on the Web site, including the work of previous authors.* <em>(adapted from Webopedia)</em></td>
</tr>
<tr>
<td><strong>WP</strong></td>
<td><strong>Work package</strong> – the programme of work carried out within one part of a larger project, to generate results and outputs called deliverables.</td>
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</tbody>
</table>
The following deliverables have been produced within the first two years of the iTEC project. They describe the project activities and outputs in greater depth, and are available on the iTEC website at: http://itec.eun.org/web/guest/deliverables

<table>
<thead>
<tr>
<th>Num.</th>
<th>Title of deliverable</th>
<th>Work Package</th>
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<td>D1.3.1</td>
<td>Intermediate public report</td>
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<td>D1.3.2</td>
<td>Final public report</td>
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<td>D2.1</td>
<td>1st Summary Report of scenario development process</td>
<td>WP2</td>
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<td>PDF</td>
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<tr>
<td>D2.2</td>
<td>2nd Summary Report of scenario development process</td>
<td>WP2</td>
<td>M20</td>
<td>PDF</td>
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<tr>
<td>D2.3</td>
<td>3rd Summary Report of scenario development process</td>
<td>WP2</td>
<td>M27</td>
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<td>D2.4</td>
<td>4th Summary Report of scenario development process</td>
<td>WP2</td>
<td>M48</td>
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<td>D3.1</td>
<td>1st Report on Design prototypes and design challenges for education</td>
<td>WP3</td>
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<td>D3.2</td>
<td>2nd Report on Design prototypes and design challenges for education</td>
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<td>D3.3</td>
<td>3rd Report on Design prototypes and design challenges for education</td>
<td>WP3</td>
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<td>D3.4</td>
<td>Final Report on iTEC prototyping</td>
<td>WP3</td>
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<tr>
<td>D3.5</td>
<td>Teachers guide to innovative tools for education</td>
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<td>Teacher skills and competence development for classrooms of the future</td>
<td>WP4</td>
<td>M12</td>
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<td>D4.2</td>
<td>1st Validation Report on large-scale piloting</td>
<td>WP4</td>
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<td>2nd Validation Report on large-scale piloting</td>
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<td>3rd Validation Report on large-scale pilots</td>
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<td>D4.5</td>
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<td>Set of modules and guidelines for teachers according to the school level</td>
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<td>D4.7</td>
<td>Critical review of developments strategies and activity in communities of practice</td>
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<td>D4.8</td>
<td>Final report on iTEC large-scale pilots</td>
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<td>iTEC Evaluation plan</td>
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<td>D5.2</td>
<td>Evaluation Interim Report 1</td>
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<td>iTEC Final Evaluation Plan</td>
<td>WP5</td>
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<td>WP6 M8 PDF</td>
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<td>D6.2</td>
<td>iTEC environments manual V1</td>
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<td>iTEC environments manual V2</td>
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<td>D6.4</td>
<td>iTEC environments manual V3</td>
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<td>D6.6.2</td>
<td>Examples of shared practice iTEC environments</td>
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<td>D8.1</td>
<td>Initial investigate summary of tools and development of mash-up connectors</td>
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<td>Information model of services/tools/plugins and enrichments of mash-up shells</td>
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<td>D8.3</td>
<td>Technology evaluation report with demonstrator maintenance and support procedures</td>
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<td>D8.4</td>
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<td>Analysis and Design documents for the directory</td>
<td>WP9 M12 PDF</td>
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<td>D9.2</td>
<td>Release of the directory</td>
<td>WP9 M21 PDF</td>
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<td>D9.3</td>
<td>Report on metrics for the directory deployment and use</td>
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<td>D9.4</td>
<td>Report on lessons learned from directory maintenance</td>
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<td>D10.1</td>
<td>Support implementing iTEC Engaging Scenarios V1</td>
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<tr>
<td>D10.2</td>
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