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1 INTRODUCTION

The ITELab Monitoring Reports form part of work package 2 (WP2) ‘Case Studies and Monitoring of ICT within Initial Teacher Education (ITE)’.

The objective of WP2 is to ‘stimulate the flow and exchange of knowledge between higher education and enterprises’ as required by the Call for Proposals by:

- Improving the knowledge and research base on which this Knowledge Alliance project will carry out its work;
- Identifying evidence on the current integration of ICT within ITE and student teacher preparedness;
- Providing case studies on successful implementation of ICT within ITE curricula;
- Providing recommendation on the competences required of teacher educators involved in ITE based on experienced gained within the projects and recommendations on how ITE institutions can ensure these competences.

This is the first ITELab Monitoring Report 1 (D2.2.1) covering the activity in the first six months of the project (January – June 2017). The monitoring of ICT within ITE will be built up over the duration of the ITELab project, and published in subsequent ITELab Monitoring Report 2 (D2.2.2 June 2018), and the Final Report (D2.2.3 December 2019).

The Monitoring Reports cover:

- An analysis of the main institutional framework for the integration of ICT in teacher curricula;
- The main areas of ICT in the curricula of the respective ITE providers;
- Challenges for the integration of ICT in training programmes in ITE;
- Details of existing continuing professional development (CPD) resources for qualified teachers that could be adapted for use in the project (report 1 only);
- Summary of reports 1 and 2, plus recommendations for ITE institutions on how to ensure ICT competences for teacher educators (final report).

ITELab Monitoring Report 1 brings together the key findings published in the D2.1 Literature Review Report (March 2017), coupled with early information gathered through surveys and interviews with project partners and wider stakeholders. This activity has informed the development and design work on ITELab modules (WP3) and the student teacher MOOC (WP4). Three university initial case studies will be published separately in Autumn 2017 (D2.3.1, October 2017).

This report begins with a short introduction to the project, to set the WP2 monitoring of ICT within the wider context of this Knowledge Alliance project.

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1 ITELab project partners: European Schoolnet (coordinator), University College Dublin, University of Newcastle, Polytechnic Institute of Santarém, University of Agder, University of Perugia, The Julius Maximilian University of Würzburg, Steelcase, IRIS Connect, Smart Technologies, Microsoft.
2 ITELAB - A KNOWLEDGE ALLIANCE PROJECT

**ITELab** (Initial Teacher Education Lab) is a project coordinated by European Schoolnet and co-funded under the European Commission’s (EC) Erasmus+ Programme from January 2017 to December 2019. It is a three year Knowledge Alliance project between higher education institutions and industry to foster innovation and knowledge exchange in initial teacher education. The project is organised around six work packages plus a work package that is responsible for project co-ordination and management.

The ITELab Consortium includes 11 partners from eight countries (BE, FR, DK, IE, IT, NO, PT, UK) and is in line with the strategy of the European Commission which, for some time, has recognised the need for European cooperation related to ITE and that the modernisation of education requires close links between higher education, business, research and policy development.

The ITELab Project through cooperation at European level aims to help higher education institutions and ICT suppliers work with education ministries to innovate initial teacher education to ensure that future teachers are equipped to meet the 21st century needs of pupils and schools. Future teachers should also be empowered to competently and confidently seek ICT and digital technology opportunities in the learning and teaching in their classrooms.

Information and Communication Technology (ICT) has a key role in education. Teachers use ICT to enhance the delivery of the curriculum and to create new learning experiences for their students. The integration of ICT in learning and teaching is a priority across Europe and the EC’s “Digital Agenda for Europe” identifies the enhancing of digital literacy and skills as one of its main pillars.

While ICT is included in regulations on the initial education of teachers in European countries, most institutions have a great deal of autonomy to determine the types of ICT skills student teachers should learn during their initial teacher education. As the classroom teacher is the key individual to helping pupils develop ICT skills, it is critical that all teachers receive the training they need to help their pupils to use digital technologies to learn and communicate.

In order to harness the potential of ICT, there is a need to embed digital competence in the curriculum for pupils. Therefore, providing student teachers with the knowledge and competences they need to make pedagogical use of ICT tools, should be a core objective for ITE providers and policy makers, with closer connection between ITE and the continuing professional development (CPD) of teachers in schools.

ITELab will support on-going knowledge exchange and discussions between ITE providers, industry and policy-makers through the establishment of the ITELab Industry Forum in Autumn 2017. Wider stakeholders will be invited to join as associate partners to exchange best practices in the pedagogical use of ICT in initial teacher
education and develop recommendations to support how ITE providers can successfully prepare future teachers for the 21st century classroom.

2.1 PRACTICAL AND INNOVATIVE RESOURCES FOR ITE

The ITELab Project sets out to develop new approaches to incorporating training on the pedagogical use of ICT within initial teacher education.

- The project will provide case studies that highlight new approaches to integrating ICT within existing ITE courses. The initial case studies focus on current innovative practice in three partner countries: Norway, Italy and Germany. Further case studies will be developed over the three years of the work of ITELab;

- Based on the work of the project, new open source course modules that can be freely adapted by teacher educators across Europe for student teachers will be developed. These will be piloted with students enrolled on courses in the project’s ITE institutions in six different European countries. The aim is to improve innovation of ITE curricula and to improve how student teachers are taught on their ITE courses;

- A MOOC (a Massive Open Online Course), “An Introduction to Digital Pedagogy” will also be created and delivered to thousands of student teachers; it will be the first of its kind developed for pre-service teachers from across Europe;

- Finally, a new ITE University-ICT Industry Forum will be created and will work with a wider group of stakeholders online. Here ICT suppliers who are actively involved with continuing professional development (CPD) can come together with ITE institutions, education ministries, education policy makers and other stakeholders to provide ideas and approaches related to ITE and CPD. The ITELab Forum will foster innovation and knowledge exchange in ITE and will develop more strategic thinking at a policy level as to the training needed at all stages of a teachers’ career. It will become a permanent knowledge exchange network under the umbrella of EUN’s independently funded Future Classroom Lab (https://fcl.eun.org) initiative.

2.2 INFORMATION GATHERING

The ITE Monitoring Report is designed to provide ITE institutions, Ministries of Education, CPD providers, ICT providers and education policy makers with information about current best practice in developing and applying pedagogical ICT competences, innovations and examples from ITE institutions in Europe.

The methodology used to collect data includes: a literature review drawing on the findings of research funded by governments and groups of governments and published academic papers; interviews with ITELab members, policy makers in national Ministries of Education and regional education authorities; interviews with ITELab ICT Industry partners; an ITELab partners’ online survey, and discussions and interviews with each ITE institution.
3 MAIN INSTITUTIONAL FRAMEWORKS FOR THE INTEGRATION OF ICT IN TEACHER CURRICULA

3.1 European Policy

3.1.1 School development and excellent teaching for a great start in life

This communication from the European Commission, published in May 2017, is likely to shape European and national policy for some years to come.

The document sets out the European strategy to support high quality, inclusive and future-oriented education. The Communication stems from the identification of key challenges in education: student’s difficulties to develop some basic competences, problems to promote equity and social mobility, and the need to equip young people with the skills they will need in a digital world. Creativity, critical thinking and entrepreneurial mindset are seen as complementary to basic skills and knowledge.

The Communication establishes three main areas of action to face the above challenges:

1) Raising the quality and inclusiveness of schools;
2) Supporting excellence in teachers and school leaders;
3) Improving the governance of school education systems.

Schools need to support all learners and respond to their specific needs, especially referring to gender gaps, pupils with disabilities, students that do not speak the language of instruction, and ethnic minorities. All young people should acquire the eight key competences for lifelong learning established by the European Union in 2006. Connecting lessons with real-life experiences and introducing digital technologies in the classroom could enhance this learning.

Cooperation with other social actors can also lead to a more inclusive education. Education must be a shared effort of society as a whole. Cooperation between schools, local institutions, community organizations, business and universities will enrich the learning experience of young people.

ITE-related actions that the Commission commits to are:

- Make the Erasmus+ programme more accessible.
- Promote participation in eTwinning.
- Develop a self-assessment tool on digital capacity for schools.
- Promote best practices in STEM.
- Support policy experimentation on multilingual pedagogies and diverse

classrooms.
- Implement education provisions for people with disabilities.
- Support member states in providing high quality early childhood education and care.

The Communication argues that teachers are the heart of excellent education. However, there are staff shortages and a decline in the prestige of the profession in many countries. Governments should provide different incentives: for example, salary rises and better career prospects. This would attract better qualified candidates to the profession. Selection and recruitment processes could be improved to identify the most suitable candidates and attract professionals with different profiles.

According to the Commission teachers’ education requires more attention. Countries should provide classroom practices before starting a professional career, offer special support during the early stages and develop Continuing Professional Development for those already working. On the teachers’ side, it is important to be open to peer collaboration and team working. Digital technologies can enhance collaborative environments and help overcome barriers to participation.

To support teachers and school leaders, the Commission will:

- Offer expert seminars.
- Simplify the access to teaching experiences abroad through Erasmus+.
- Develop online communities and resources for school professionals, including online courses (e.g. MOOC) and exchange of best practice with ITE providers. This area of action, is where ITELab can make an important contribution to helping the Commission implement the actions it intends to take.
- Produce joint comparative data on school staff.

The Commission will organize an Education Summit in early 2018 to trigger a discussion on the future of European cooperation in education.

3.2 Competence Frameworks and Self-Assessment Tools

Teacher competences are at the heart of effective education systems and yet the European Commission’s Opening Up Education⁴ (2013) highlights that six teachers out of ten have not received any training on how to use ICT in the classroom. The EC’s Survey of Schools: ICT in Education⁵ (2013) recommends that ICT training should be made a compulsory part of all initial teacher education (ITE) programmes.

Although ICT training is included in initial teacher education in over half of all EU countries, implementation varies according to the higher education institutions providing the training, and a large portion of EU countries still have complete institutional autonomy in this area. In view of today’s digital society

and consequently teachers’ need to integrate ICT into their daily teaching practice, countries might be wise to ensure that ICT training is made a compulsory component of all initial teacher education programmes.

The OECD’s TALIS study⁶ (2013) showed that 18% of trainers and teachers feel that they need more development of ICT skills for teaching so providing future teachers with pedagogical digital competence is essential if they are to be better prepared for the classrooms of today and tomorrow.

A 2014 survey in Norway of newly qualified teachers⁷ to capture the voice of students found that:

- Teachers do not believe that the ICT training provided in their teacher education programmes was particularly effective in a teaching context.
- Teachers believe there to be little correspondence between their own teacher education and the demands that are imposed on them in the use of ICT in teaching.

The way in which student teachers currently receive training on ICT is seen as a roadblock to the mainstreaming of innovative pedagogical practice. EUN’s large scale iTEC project 2010-2014 http://itec.eun.org piloted future classroom scenarios in 2,600 classrooms in 17 countries. Its consultations with Ministries of Education, industry partners and ITE organisations confirmed that initial teacher education does not adequately address innovation and change management involving ICT or technology-supported pedagogical practices.

The Commission Staff Working Document: Supporting the Teacher Professions for Better Learning Outcomes⁸ (2012) highlights that: “in-service education is increasingly required to equip staff with vital competences that they did not acquire during Initial Teacher Education” and that many teachers feel ill-prepared to deal with “ICT teaching skills”. Such a situation is neither cost effective nor sustainable. There are limits to how far CPD programmes can compensate for the fact that ITE is not providing the teaching profession in Europe with newly qualified practitioners that have adequate training in the pedagogical use of ICT.

The literature review analysed 70 research studies and its report Training in the pedagogical use of ICT in ITE Curricula was published March 2017. It discovered that few research studies focus on ICT in the ITE curriculum and there is little evidence of follow-through from government policy to implementation in ITE in most countries. ICT is usually implicit within broader ambitions for example digital competence for all citizens or the teacher as a researcher. Some Member States have ITE policies

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⁶ OECD (2014) TALIS 2013 Results: An International Perspective on Teaching and Learning.
leading to certification such as EPIC\textsuperscript{9} certification while others have digital competence as a core competence e.g. Norway. ITE providers, which in most cases are universities, set their own curricula for ITE and the Literature Review found that the training of student teachers in the pedagogical use of ICT is highly variable and develops on an ad hoc basis in most countries.

### 3.2.1 DigCompEdu and DigCompOrg

A number of digital competence frameworks are emerging in 2017. For school students, a revision of the 2006 Key Competences Framework which currently includes digital competence is likely to be published later in 2017. For teachers and schools, two frameworks have been developed in an initiative of the European Commission, Directorate General for Education and Culture carried out by the Joint Research Centre - Institute for Prospective Technological Studies. They are likely to impact on ITE and could well become an important tool to support school development.

The Digital Competence Framework for Educators\textsuperscript{10} “could reinforce national and/or regional initiatives by providing a common understanding of the digital competence needs for educators. The objective of DigCompEdu is to identify and describe the key components of educators’ digital competence and to provide an instrument for (self-assessment), based on research and stakeholder consultations.” An associated self-assessment tool is under development.

![Figure 1: Overview of DigCompEdu](https://ec.europa.eu/jrc/en/digcompedu)

\textsuperscript{9} [http://www.epict.org](http://www.epict.org)

The European Framework for Digitally Competent Educational Organisations (DigCompOrg\textsuperscript{11}) framework can be used by educational organisations “to guide a process of self-reflection on their progress towards comprehensive integration and effective deployment of digital learning technologies.”

The ‘SELFIE’ tool of DigCompOrg\textsuperscript{12} is under development and testing and is likely to be a useful means for schools to self-assess their progress towards being a digitally ready organization.

### 3.2.2 TET-SAT

DigCompEdu draws on work by other organisations and projects, including the Technology-Enhanced Teaching Self-Assessment Tool (TET-SAT\textsuperscript{13}), developed in the MENTEP policy experiment. The domains covered are digital pedagogy, digital content use and production, digital communication and collaboration and digital citizenship. For each domain there are five levels, from starter to expert. Once the

\textsuperscript{11} https://ec.europa.eu/jrc/en/digcomporg
\textsuperscript{12} https://ec.europa.eu/jrc/en/digcomporg/selfie-tool
\textsuperscript{13} http://mentep-sat-runner-test.eun.org/dashboard.html (restricted access currently)
test questions are answered, users receive feedback and suggestions for activities to further develop competence in specific areas. They can also see how their own score compares to others nationally and to all users.

![Figure 3: Comparing my results with others' in my country and those of all respondents](image)

### 3.2.3 TPACK

TPACK\(^{14}\) (technological, pedagogical and content knowledge) is another tool to assess teachers’ digital competence. Unlike the other frameworks, it is already well documented in studies, reporting positive results from its use, and fully documenting its development. Research showed that the three elements of TPACK can predict TPACK, that is the interplay of technological, pedagogical and content knowledge. TPACK can be used as a basis for an ICT in teaching programme.

\(^{14}\) [http://www.tpack.org](http://www.tpack.org)
3.3 **Highlights from the ITELab Literature Review**

A review of research studies in early 2017 as part of the ITELab project looked at two aspects of ITE, training in the pedagogical use of ICT and training student teachers in ICT use. Reference [D2.1 Literature Review Report](March 2017)

On the topic of training in the pedagogical use of ICT in curricula the results showed that:

- Few studies focus on ICT in the ITE curriculum;
  - Those that do may be out of date and provide few details on how training in the pedagogical use of ICT is reflected in ICT curricula.
- Studies mention two countries with ICT in ITE policies;
  - Austria: EPICT; France: C2i.
- Other countries (e.g. Norway) include digital competence as a core competence;
- Even so, there is often no follow-through from government policy to implementation in ITE;
- ICT is often implicit within a broader ambition, e.g. digital competence for all citizens, teacher as researcher and innovator (Finland).
• In some countries ITE providers (usually universities) set their own curricula for ITE (e.g. Netherlands);
  o However, they are difficult or impossible to access.
• Where ICT is mentioned in curricula it tends to be vaguely worded and aspirational;
• In the absence of ICT in the curriculum ICT use develops on an ad hoc basis;
  o Via social collaborative networks, for example;
  o Teachers are expected to pick up digital skills in addition to the prescribed curriculum, in their own time.

On the topic of training student teachers in ICT use, the review found the following:

• Studies about student teachers’ digital competence:
  o There is little training in general, little on new technologies, little integration into teaching;
  o Student teachers’ own competences and beliefs important are important predictors of ICT competence;
  o Agency and self-responsibility can lead to student teachers committing to develop their competences in classroom ICT;
  o It is important for student teachers to see ICT use modelled and then learn by doing;
  o Digital judgment and more discerning ICT use should be encouraged
• Studies about teacher educators’ digital competence:
  o Generally speaking, they lack up-to-date knowledge of ICT use in teaching and learning;
  o While they include role models for new teachers, they lack digital role models.
• Studies report on a range of digital applications and tools used during training:
  o Video, for observing, coaching, conferencing and recording;
  o The interactive whiteboard;
  o Virtual classrooms;
  o Subject-specific tools, particularly for mathematics.
• Studies about pedagogy cover:
  o Rethinking learning spaces;
  o Collaborative learning;
  o Communities of enquiry;
  o Deeper learning: critical thinking, problem-solving, collaboration, self-directed learning;
  o Hybrid solutions;
  o A horizontal model of learning based on collaborative processes;
Little research was found on inclusion and ICT:

- One reported that student teachers have few opportunities to use and reflect on ICT for all.

3.4 **Example of Use: ITELAB ITE Partner’s Use of Institutional Frameworks**

In the national education policies of the ITELab providers there is a wide range of approaches to defining the role of ICT in teacher training or the pedagogical digital competences of teachers. It ranges from a ‘light touch’ approach to detailed complex descriptions.

Nordic researchers\(^{15}\) have identified three basic dimensions to pedagogical or professional digital competence:

1. General digital competence - being able to understand and use ICT and digital media in everyday life.
2. Didactic digital competence – being able to use ICT and digital media to develop student knowledge and skills.
3. Professional digital competence – being able to use ICT and digital media to plan lessons, perform administrative tasks, communicating with parents, collaborate with colleagues.

3.4.1 **United Kingdom**

The Department of Education’s ‘Teacher Standards’\(^{16}\) do not at any point mention digital technology or ICT, but its use is implied. Although the University of Newcastle does not use a digital competence framework in its work, it demonstrates innovative digital use and pedagogy embedded in its one year Postgraduate Certificate in Education (PGCE) programme.

3.4.2 **Portugal**

Guidelines from the Ministry of Education in regard to the integration of ICT, inform the work of the Polytechnic Institute of Santarém [which provides initial teacher education for primary teachers]. All their ITE programmes must include four components which include ICT but they do not apply a pedagogical digital competence framework to define their programme or courses.

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[https://www.idunn.no/dk/2014/04/professional_digital_competence_in_teacher_education](https://www.idunn.no/dk/2014/04/professional_digital_competence_in_teacher_education)

3.4.3 Ireland

The Teaching Council’s *Initial Teacher Education: Criteria and Guidelines for Programme Providers (2011)* delineate ICT in Teaching and Learning as a mandatory element of all ITE programmes. There is however no pedagogical digital competency framework applied to University College Dublin’s initial teacher education programme and owing to the autonomy of ITE institutions in Ireland and the number of faculties across institutions delivering ITE, how ICT in teaching and learning is approached and applied, varies considerably.

3.4.4 Norway

In 2006 Norway became the first European country to develop a national curriculum that made ‘digital skills’ one of the five core general education competences: oral skills, reading, writing, digital skills and numeracy. This laid the foundation for all teachers to become digitally literate. *The National Regulations for Norwegian Teacher Education* state:

“The graduate shall have achieved learning outcomes that enable them to evaluate and use relevant teaching materials, digital tools and resources in their teaching, and teach the pupils digital skills.”

In May 2017, a new *Framework for Teachers’ Digital Competence* was published by The Norwegian Centre for ICT in Education. Having conducted a meta-analysis of more than 40 different national and international frameworks they aligned their competence areas with general teacher competences as defined by the Ministry of Education in order to underline that digital competence is an integrated part of teachers' professional competences and affects all parts of the profession.

The main purpose of the Framework is to establish a common ground and a common vocabulary for describing teachers’ professional digital competence. The aim is for the framework to be used by national, regional and local authorities, by teacher education institutions and teacher educators as a reference in the development of national guidelines for the different teacher education programmes, of the institutions’ own study programmes and curricula, of CPD programmes and courses and of local competence development plans.

The framework consists of seven competence areas. Each competence area consists of a title and a short description, followed by 7-10 knowledge, skills and competence descriptions. The focus is on the teacher’s professional digital competence, i.e. that competence which is specific for the teaching profession. Basic competences which are covered in the national curriculum and which form a common basis for all citizens were not necessary to cover and were largely omitted.

Compared to DigCompEdu, this new Framework is more general and the structure is different. In terms of content, the Framework puts more weight on ethics and social factors than DigCompEdu does. There are many parallels and similarities in the
competence areas though the Norwegian framework describes competences in more general terms, it does not specify different competence levels and does not provide specific indicators. Also, it is not meant to be used for assessment purposes.

At the University of Agder, a new 5-year Masters Programme is being created. Digital Competence (ProDig Course) is one of six strands in the Programme. ITE students will have one online ProDig module per semester and the pedagogical use of ICT in integrated across the many other elements of the Masters Programme.

3.4.5 Italy

Italy is bound by *Italian Digital School National Plan (PNSD 2015)* to provide digital competence in their ITE courses. The ITE curriculum is prescribed by law with special reference to enabling inclusion and accessibility to special educational needs students.

The University of Perugia uses the TPACK Model and, while they believe that the DigCompEdu framework can fit well to TPACK, they would like “content knowledge” to be enhanced.

“Teaching mathematics to Year 5 learners requires different pedagogical uses of ICT than teaching history in secondary school or literacy in the early years. In each case, the expert teacher needs to make creative links between what is being learned (content), how it is taught (pedagogy), and the appropriate tools (technology).”

http://www.ttf.edu.au/17

As an ITE primary education provider, the university offers teacher training in inclusive education and although TPACK provides an accessible model (framework) for teachers, DigCompEdu as a competence framework for all educators, including special education needs educators, could provide some synergy.

3.4.6 Germany

A national framework “Pedagogical media competencies of student teachers” (M³K) is being applied in the seven faculties offering initial teacher education in The Julius Maximilian University of Würzburg. While DigCompEdu is directed towards educators at all levels of education and could provide a general reference frame for developers of Digital Competence models, M³K concentrates on student teachers in ITE.

DigCompEdu differentiates between six competence areas whereas M³K has three areas:

- Teaching with media;
- Teaching about media, and
- Developing concepts for school development.

17 http://www.ttf.edu.au/ Teaching Teachers of the Future What is TPACK?
Aspects of all three areas can be found in DigCompEdu to a varying degree.

In terms of different competence levels, DigCompEdu applies six proficiency levels whereas M³K includes competency aspects with regard to learning taxonomies.

While there are differences in both approaches, the University of Würzburg considers that the contents of their curriculum of ICT in education could be integrated to some degree into the DigComEdu Framework. M³K is applied throughout the seven university faculties offering ITE training.

### 3.4.7 Future Monitoring

In year two and three of the project, University of Agder will work with all partners to propose recommendations related to the level of ICT skills and competences required by student teachers and teacher educators. An initial paper on this issue will be presented in November 2018 at a workshop for wider stakeholders, drawing on discussions with project partners and associate partners in the ITE University-Industry Forum that is being launched in November 2017.
4 MAIN AREAS OF ICT IN THE CURRICULA

An information gathering activity was conducted that included all the ITELab partners (industry and universities), as well as wider stakeholder groups linked to EUN’s Future Classroom Lab (FCL) initiative the FCL industry partners, Ministries of Education linked to the FCL working groups e.g.: Regio Policy Group, Interactive Classroom Working Group, and the FCL Ambassadors.

The literature review helped inform the online survey undertaken with both the ITE and ICT partner providers and during March and April of 2017 each of the six ITE institutions were individually interviewed. Transcripts of the interviews were returned to each interviewee for comment and then three initial teacher education institutions were selected to be the focus on initial case studies.

Each of the four ICT industry partners Microsoft, SMART, Steelcase, IRIS Connect also took part in interviews. The focus of discussion was the pedagogical use of ICT in the courses, resources, solutions and software offered by each ICT provider. Each offers a different programme of different scale for example: self-paced educational courses, platforms and educator communities, solution-based, pedagogy-based, certification. All have made significant investment in educational solutions, and content. In most cases they have created international teacher communities and a wealth of ideas for knowledge exchange especially in regard to CPD resources and materials for teachers. There are of course some issues to be addressed including intellectual property issues and access and alignment of their differing platforms.

4.1 ITE PROVIDERS: ICT IN THE CURRICULA

Each of the six ITE providers work to integrate ICT across their institutions in innovative ways.

4.1.1 Germany: University of Würzburg

At the University of Würzburg, the School of Education (of which School Pedagogy is an element) coordinates ITE but the responsibility of planning and conducting the ITE programme lies within the seven different faculties which are responsible for the different subject disciplines. All student teachers must study at least two subject disciplines as well as Education Studies. While ICT is integrated in the ITE programmes of each faculty providing ITE, it is in School Pedagogy that the most specific and innovative use of ICT and pedagogical digital competence skills are studied. School Pedagogy fully integrates digital media education across its courses and in its methodologies.

In Module Two ‘‘Advanced Studies in School Pedagogy’’ for example groups of 30 students attend one of the 26 parallel courses on ‘Teaching and Learning with and about Digital Media in the Classroom’ or one of a variety of courses on digital media topics such as ‘Classroom Management’, ‘Video-Based Reflection in Teaching and...’
Learning’ or from next year ‘Teaching and Learning with Augmented and Virtual Reality in the Classroom’.

These courses are delivered to a maximum number of 30 students to allow for ‘flipped learning seminars’ and hands-on practical experiential learning in the Media Education Lab. All courses offer a broad overview of digital media pedagogy and many are ground-breaking and innovative like their new course, ‘Teaching and Learning with Augmented and Virtual Reality in the Classroom’.

4.1.2 Italy: University of Perugia

ICT is seen as a tool for facilitating teaching and learning throughout the primary curriculum. At the University of Perugia, the pedagogical use of ICT is framed by the TPACK model and is emphasised across all ITE subject disciplines and in addition to Education Technologies courses student teachers have practical hands-on courses in The Educational Technology Lab over the course of their five years of ITE training. Both the Education Technologies Courses and the Educational Technologies Lab Courses are ECTS accredited.

Primary student teachers of the university learn their skills using the same methodologies they will use to help their future students to learn – in an ICT integrated cross-curricular, collaborative, active and discovery learning manner. Their future pupils’ digital competence will develop through their use of ICT as an integrated resource for teaching and learning throughout the curriculum. In the Educational Technologies Lab courses students explore interactive whiteboards and their use in the teaching and learning process. They also undertake Syllabus 5 of the European Computer Driving Licence as an ICT skills competency course. They take ‘An Introduction to Computational Thinking’ course in their fifth year of ITE training and create collaborative multi-disciplinary projects with Scratch and Minecraft.

Digital literacy and digital citizenship skills in addition to those listed above are seen as important skills for future teachers for their own life-long learning and to bring to their classrooms.

4.1.3 Norway: University of Agder

At the University of Agder, digital skills are an important element of teacher pedagogy and ICT and digital skills are integrated in each subject discipline. As part of the development of the university’s new master’s degree they are developing a structured progressive five-year programme. Sample themes include: Digital Study Skills; Tools for Collaborative Learning; Digital Judgement; Digital Skills and Teaching Practice; Technology for Research Purposes; Tools for Administration Work. ITE students will undertake a module each semester.

The new digital competence framework will frame their work and because digital skills and digital literacy is so integrated into their education system, in both the university and in schools, they are planning to offer some of their new modules to
teacher educators, school placement tutors and classroom teachers as well as to the ITE students.

4.1.4 Ireland: University College Dublin

At University College Dublin, the Professional Master of Education is a two-year, full-time Level 9 programme. As well as their Education Studies students undertake study in Subject Pedagogy, their curriculum subject discipline. Pedagogical digital competence and digital literacy, while not formally part of the ITE programme is dispersed throughout courses and programmes delivered by the teacher educators who teach the various elements of the ITE programme.

Student teachers at the university are expected to be able to use technology to aid pupil learning in their subject disciplines and each student teacher creates and maintains a professional portfolio containing class teaching and other school experiences, professional reflections, recording of pupils’ work, video, audio and planning documents. As ICT is not a centralised element within the ITE programme and is distributed across the various curriculum specialists it is difficult to quantify to what degree pedagogical ICT competence is integrated throughout the programme.

As well as formal learning UCD encourages non-formal and in-formal ICT-related learning activities such as Teachmeets, Twitter Chats and eTwinning as playful, interactive learning opportunities.

4.1.5 Portugal: Polytechnic Institute of Santarém

The Polytechnic Institute of Santarém integrates ICT into and across its initial teacher primary education programmes. All providers of pre-service teaching training in Portugal are obliged by law to provide four components which include ICT.

At the Polytechnic Institute of Santarém, the General Education component integrates ICT across specific didactics and teaching practice. ICT is integrated into all the primary curriculum subject studied e.g. Physical Science, Mathematics and so on.

In addition, a Digital Educational Resources Course is accredited under the European Credit Transfer and Accumulation Scheme (ECTS) and all student teachers study digital literacy, digital resources in teaching and learning, creation of educational resources, web safety and the use and creation of eBooks. Cross-curricular and enquiry-based learning projects are encouraged and of course as future primary school teachers, students become proficient in the use of interactive whiteboards.

4.1.6 United Kingdom: University of Newcastle

In the University of Newcastle’s Postgraduate Certificate in Education Programme, digital technology is embedded in all subject disciplines.
Its ITE courses are based on collaborative inquiry and action research models. They promote problem-based learning with a strong technology component e.g. Digital Mysteries, Bootlegger, SOLES, Skype in the Classroom.

The university has embedded the use of video throughout their ITE curriculum and innovative research programmes include the use of VEO - Video Enhanced Observation, VERP - Video Enhanced Reflective Practice and VIG - Video Interaction Guidance.

University of Newcastle developed the VEO\textsuperscript{18} App, a Video Enhanced Observation App used by ITE students and which has been adopted by many ‘teaching schools’ using video to support teachers to see inside their own classrooms. All student teachers are asked to video record their own teaching and to then use the video as a means of review and reflection. The use of video is an integral part of Module One; in Module Two ‘Lesson Study’ it might be used again and Module Three is an Action Inquiry module. Students whose ‘teaching school’ uses IRIS Connect technology enjoy and benefit from it.

Student teachers collect and curate a portfolio of evidence to demonstrate that they have met each of the National Teaching Standards over the course of their studies. The portfolio will include all the reports that are written about them by their school colleagues and by mentor teachers as part of the evidence base. While on school placement, (each student has two school placements), a student may be surrounded by practising teachers who actively use innovative ICT pedagogical techniques or may not experience that in either placement. Placements can sometimes be hard to come by such is the nature of the demand on schools and ITE providers are not always able to guarantee that students will gain experience of a digitally enhanced pedagogy.

4.1.7 Three Initial Case Studies

The six project ITE institutions were selected as being highly innovative initial teacher education providers. Of the five ITE universities who will pilot the ITELab Modules in the project, University College Dublin and the University of Newcastle train secondary teachers; University of Agder provides secondary and primary education, while the University of Perugia and the Polytechnic Institute of Santarém provide primary teacher education. University of Würzburg, who will be responsible for the evaluation of the ITELab Modules and MOOC, was also interviewed. University of Würzburg provides ITE training for three forms of secondary teachers, primary teachers and special education teachers.

Three initial case studies have been developed and will be published online (D2.3.1, October 2017) to highlight innovative approaches to embedding ICT training within ITE curricula. They capture new and creative methods of training to ensure student teachers understand the place and importance of ICT in teaching and learning.

\textsuperscript{18} http://www.veo-group.com/education/how-it-works/
University of Agder was selected for its innovative holistic approach in providing initial teacher education programmes that prepare newly qualified teachers to meet the curriculum’s and the school’s requirements in regard to pedagogical digital competence in the ever-changing education environment.

University of Perugia as a provider of primary initial teacher training was chosen as it sees that the use of ICT and digital technologies are essential skills for future teachers and prepare them for its use in all aspects of schooling from delivery of curriculum, through assessment and feedback, administration and the progression to integrated learning.

University of Würzburg was chosen for the third case study as not only does it provide teacher training for large numbers of primary, secondary and special needs student teachers, (approximately 1,400 per academic term in School Pedagogy), but it also does so in creative, innovative and imaginative ways. Traditional School Pedagogy lectures have been ‘flipped’ with close to 600 multi-disciplinary students in a lecture hall taking part in interactive multi-discipline participatory ‘lectures’.
The following challenges draw on the information gathering activity that has taken place in the first six months of the project. As challenges are often opportunities, they are representative of the inputs to the design thinking guiding the current development of the initial ITELab modules and student teacher MOOC.

### 5.1.1 Developing a Vision and Common Purpose

Having a national vision and policy on the ICT pedagogical training of student teachers is regarded as an important factor for promoting competent and confident future teachers. University of Agder and the University of Perugia acknowledge the clarity and purpose that a national policy brings; it provides a focus for creating courses for effective pedagogical integration of ICT. The independence and autonomy of the various institutions remains but a national vision enables a systematic and institution-wide provision for ICT pedagogical training.

Curricular integration of ICT across all the faculties and disciplines of ITE is accepted as the most effective way to demonstrate to future teachers how, why and when to employ ICT in their subject disciplines and classrooms. Primary ITE institutions, such as the partners from Italy and Portugal, consider themselves at an advantage as they easily adopt a cross-curricular and collaborative teaching and learning approach throughout the institution. ITE providers for secondary school teachers know they must integrate ICT across all disciplines rather than only in specific subjects like Geography and Science.

Without an institution-wide vision and policy for the integration of ICT and a digital competence framework it is difficult to achieve unity of purpose when seven faculties, as in the case of Germany for example, deliver initial teacher training. Norway as we have seen is working to integrate digital technologies as a cross-disciplinary topic in all the traditional subject disciplines.

The ability to draw on an ICT pedagogical competence framework for teachers is acknowledged by the partners as one of the enablers of the integration of ICT across the institution as it provides a common understanding and a common language of the digital competence needs for educators. University of Agder is aligning all courses and programmes to The Norwegian Centre for ICT in Education’s recently published “Teachers’ Professional Digital Competence Framework” believing the focus must be on the pedagogy rather than the technology. For the University of Perugia, digital competence is compulsory and TPACK [http://www.tpack.org/](http://www.tpack.org/) is the framework they use. In Germany, The Conference of the Cultural Ministers of the Länder’s new guidelines for initial teacher education and a new national framework “Pedagogical Media Competencies of Student Teachers” (M³K) guides the University of Würzburg’s work on initial teacher programmes.
5.1.2 Digitally Competent Teacher Educators to train tomorrow’s teachers

Teacher educators have a unique role in the education of student teachers. Effective role modelling of the pedagogical use of ICT by their teacher educators is essential for student teachers. All teacher educators should be able to regularly model ICT and digital technologies in a relaxed, creative and competent way if they are to give new teachers an understanding and develop competence in the use of ICT for pedagogical purposes. University of Agder teacher educators will participate in the same new pedagogical digital competence coursework ‘ProDig’ as the student teachers.

Future teachers need to have specialist knowledge of the subjects they teach with the necessary pedagogical skills to teach them, including making effective use of ICT to help pupils to acquire the set of knowledge, skills and attitudes important to success in today’s world. The role of the subject discipline specialists at the ITE institution is key to a student teacher’s own understanding and enthusiasm for the role and importance of the pedagogical use of ICT in the teaching and learning of their subject discipline.

University College Dublin recognises that subject tutors and specialists need to be confident users of ICT in their classrooms and so employ experienced teachers as subject ‘methods’ specialists for their ITE programmes. Other partners like University of Agder and University of Newcastle also find that many schools are more experienced and advanced than ITE institutions in regard to the integration and pedagogical use of ICT in learning and teaching. As a result, University of Agder teacher educators have undertaken in-school training provided by school teachers alongside their student teachers.

5.1.3 Integrating ICT into School Curricula

Digital literacy and the integration of ICT across the primary and post primary curricula of schools is also seen as a clear enabler of the pedagogical use of ICT by existing teachers and student teachers alike. ITELab partners report that ICT must no longer be seen as an optional “add-on” or merely used as a presentation tool in traditional teaching practices; it must be a core part of learning and teaching both in ITE institutions and in schools. In Norway, the ability to use digital tools and “digital judgement” has been a core skill required of pupils since 2006. Teaching digital skills is a core objective in primary and secondary education as ICT is fully integrated across the curriculum and teachers naturally provide learning opportunities in digital competences for their pupils.

5.1.4 Integrating eTwinning

Since beginning the ITELab project, the University of Perugia and Polytechnic Institute of Santarém have decided to ‘twin’ their respective primary student teachers in an eTwinning initiative. University College Dublin also promotes and encourages eTwinning projects with their ITE students.
eTwinning\textsuperscript{19} - the Community for schools in Europe – is an action for schools funded by the European Commission under the Erasmus+ programme. It is the largest community of teachers and schools in Europe, with over 477,000 teachers in more than 180,000 schools (July 2017). eTwinning offers teachers and pupils a safe online environment for cross-border education projects. Following a successful pilot, in January 2017, eTwinning launched an eTwinning-Teacher Training Initiative aimed at providing student teachers with an experience of eTwinning as part of their initial teacher training.

As some of the ITElab partner universities already embrace eTwinning, the design thinking for the development of the ITElab modules and MOOC units is looking to include elements of eTwinning’s accessible tools to enhance digital learning and intercultural and cross-border collaborations among student teachers. The European Commission\textsuperscript{20} calls for the development of new eTwinning opportunities for student teachers and ITElab could meet this call by including the use of eTwinning in ITElab Modules and/or MOOC Units. This would help mainstream its use and would help future teachers boost digital competences in schools throughout Europe, open up classrooms and aid European and digital citizenship.

5.1.5 Making Education Inclusive

All Member States have a shared vision for inclusive education systems where learners of any age are provided with meaningful, high-quality educational opportunities. Student teachers need an understanding of digital resources and tools, including adaptive and assistive technologies, that can support the participation and learning of students with disability and SEN. ITElab could adopt the successful programmes, resources and methodologies of ITE providers of primary education like University of Perugia and Polytechnic Institute of Santarém to develop teacher competences and pedagogies in ICT which prove particularly successful to support SEN learners.

5.1.6 Innovating Assessment and ePortfolios

A number of the ITE providers use portfolios as a learning tool in their ITE programmes. Some have created innovative apps for this purpose, e.g. the MOSO App in University of Agder and the VEO App in University of Newcastle, that enable students to capture, record and store artefacts and documents serving as evidence of their teaching placement and their learning.

An ePortfolio will chart the student teachers’ professional development and encourage reflective practice. University of Agder explained that the MOSO App enables students over the course of their years of study provide opportunities to

\textsuperscript{19} \url{www.etwinning.net}

\textsuperscript{20} European Commission (2017) School development and excellent teaching for a great start in life. COM(2017)
engage in reflection and critical analysis of their own learning. Their portfolio is used by them to self-assess and peer-assess their knowledge and its application to practice.

The ITELab providers of primary education, Polytechnic Institute of Santarém and University of Perugia, use portfolios as cross-curricular assessment tool and ITE students at University College Dublin are required to create a professional portfolio. This portfolio may include class teaching and other school experiences; planning for teaching, learning and assessment; personal and professional reflections and a variety of artefacts. Artefacts may include samples of pupils’ work, written, audio, video or digital work. To become lifelong learners, student teachers need to be able to assess their own progress; make adjustments to their understandings and take control of their own learning and a portfolio will aid them in this process.

An ePortfolio can serve as an authentic assessment tool but for assessment to be meaningful it must be aligned to the type of learning that is valued and so mapped to pedagogical digital competences in the context of ITELab. University of Würzburg suggests that ePortfolios be introduced faculty-wide in ITE institutions where student teachers can show their competence improvement with work and artefacts to future employers and as a tool and repository for their life-long learning.

5.1.7 Moving forward with Digital Accreditation

Most of the Industry Partners use a Digital Badges or a micro-credentials crediting system for their CPD courses. They are seen as a means of recognising achievement and effort and accepted by learners as of value in continuing professional development and staff training. Badges are associated with competence with specific skills or knowledge and would fit well with the pedagogical skills and competence attainments of the proposed MOOC. Digital badges are collected to those completing EUN Academy MOOC course modules and the partners would like that this form of recognition will also be given to student teachers taking the ITELab MOOC.

5.1.8 Working in Partnership

There are innovative examples of good technological cooperation between some of the ITE providers and ICT providers in the Project. University of Würzburg has an innovative and well equipped Media Education Lab arising out of such co-operations and by using exciting pedagogy and digital technology has ‘flipped’ the concept of the traditional lecture hall. Selecting suitable technologies was the result of intensive market research and visiting conferences and exhibitions with technology providers. They believe that partnerships and cooperation with ITE companies can develop a ‘win-win’ situation for both the institution and the company, as student teachers take forward their knowledge and experience of using the solutions in the Media Lab into their future schools and classrooms.
Those ITE institutions which work closely in partnership with partner schools, teacher bodies, ICT providers and CPD providers, with agreements and contracts in place also show effective ICT integration.

University of Agder recognises that its progress on the integration of ICT is facilitated by having a National Regulations Framework for initial teacher education; a Teachers’ Professional Digital Competences Framework; a National Schools Digital Competence Framework, and a national policy of integration of ICT in school curricula. In addition University of Agder feels it also benefits from the formal agreements it has in place with all stakeholders, i.e schools, teacher unions, municipalities.

The ITELab ICT Industry Partners are actively involved in working in partnership. During interviews they highlighted the fact that some technical challenges, among others, will have to be overcome to enable future ITELab students to use materials and resources that are currently behind login screens and which require a licence on a variety of platforms. They are nevertheless working to find solutions to these issues.

The Industry Partners are also willing to share materials and services which can be useful for ITELab. All are very flexible and will work to find solutions to either transfer their materials to the ITELab MOOC or to give access from the ITELab platform to a selection of materials, by creating a dedicated ITELab MOOC interface.
6 EXISTING CPD RESOURCES FOR TEACHERS

There is a wealth of existing CPD resources for qualified teachers. The challenge is to identify training resources and tools which are Open Educational Resources and can easily be adapted (e.g. language, education phase, context).

Repurposing and adapting existing resources is fundamental to the content of the ITELab modules and student teacher MOOC. The project is looking to ‘find, sharpen and shape’ existing content in new and innovative ways for the ITELab modules and student teacher MOOC.

During the first six months of the project, there has been extensive dialogue with all the ITELab project partners, including interviews and surveys to gain greater insights into good practice examples, resources and communities encompassing initial teacher education. The results of this information gathering activity were published in an internal document “Summary based on the initial information gathering activity (WP2)”, which was circulated to all ITELab project partners in advance of the partners’ design workshop 29th/30th May 2017.

As mentioned at the start of this section, there is an abundance of resources and solutions, available in different languages, with different access and reuse permissions, and tailored to different curricula and phases. Resources vary from supporting the development of digital skills, to the support of digital competences. The summary highlighted sources of open education resources (eg from EC-funded projects coordinated by EUN), as well as the wide range of different resources developed by the universities themselves in support of their curricula, and by the industry partners in support of their education solutions and teacher communities. (reference examples on pp 30 and 31).

This internal document was used to support help inform their thinking prior to the workshop which was focusing on the development of the ITELab modules (WP3) and the ITELab student MOOC (WP4). Filtering down this information, to identify the gaps and areas for priorities for the training of future teachers was the discussion of the partners’ design workshop on 29th/30th May 2017. Working in mixed groups of industry and university partners, the partners exchanged best practices and how they could be incorporated in ITELab. Themes for the initial ITELab modules and MOOC started to emerge from this process.

The outputs from workshop are being taken forward and written up in the internal ‘Course Module Development Plan’ which is being produced by partner, University College Dublin to inform the next stage of the design process to deliver the first outline modules and MOOC. This will be discussed with associate partners at the capacity development workshop in November 2017. Once the ‘Course Module Development Plan’ is shared, this in turn will inform the requirements report for the student teacher MOOC which will be published in October 2017. Both these documents, will be used to refine the information gathering activity to focus on targeting existing training resources for the initial modules and MOOC. In this first cycle of development, existing training resources from ITELab partners will be used.
As the associate partners join the project and participate through the ITELab Forum, they will be invited to join the second cycle of development of the modules and MOOC, identifying and drawing on the much wider pool of existing training resources to incorporate best practice examples.

As part of next phase in the process of identifying existing resources to be used in the project, Creative Commons licences will need to be investigated to satisfy the open, educational resources remit of the project. It is likely that the use of already published resources that are not already under open Creative Commons licences will be limited. A negotiation process will be required where partners are asked to make proprietary resources more widely available under a Creative Commons licence that permits adaption. The search of existing resources will be prioritised by direct relevance to the ITELab modules and MOOC. Limited translation will be carried out of key resources into English, with additional translation support funded within the project for Portuguese, Norwegian and Italian.
Example of range of OER resources available through EC-funded projects, coordinated by European Schoolnet

### EUN LINKED INITIATIVES FOCUSING ON INITIAL TEACHER EDUCATION

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Funding</th>
<th>Timeframe</th>
<th>Partners</th>
<th>Targeting</th>
<th>Countries</th>
<th>Key outputs</th>
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<tbody>
<tr>
<td>eTwinning – TTI</td>
<td>Erasmus+</td>
<td>Service contract</td>
<td>Open – all NSS Incl ITELab ptnr – P.I. Santarem (PT)</td>
<td>ITE: incl eTw in ITE and involve students in collaborative project</td>
<td>20+ (vary stages)</td>
<td>Training support (ppts, videos, online ITE community. eTw-TTI Projects (implementation models)</td>
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<td>Better Internet for Kids</td>
<td>EC DC Information</td>
<td>ongoing</td>
<td>MoE of all Member States InSafe, InHope, Helplines</td>
<td>Teachers, parents, young people, children ‘Digital Agenda for Europe’</td>
<td>All Member States</td>
<td>eSafety multi-language lesson banks, tools, resources for teachers &amp; students. eSafety MOOC. SaferInternetDay</td>
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<td>TeachUP</td>
<td>Erasmus+</td>
<td>Mar 17-Feb 20</td>
<td>MoE and ITE</td>
<td>Schools –teachers ITE - student teachers</td>
<td>AT, EE, PT, LT, TU, MT, ES, HU, SK, GR</td>
<td>Policy experimentation (RCT) 4 MOOCs in 2018/2019: teacher collaboration; formative assessment; personalising learning; creative thinking,</td>
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<tr>
<td>NextLab - inquiry-based</td>
<td>H2020</td>
<td>Jan 17-Dec 19</td>
<td>Universities, Coord: U of Twente, NL</td>
<td>Schools, plus ITE</td>
<td>Ambassadors: BE, HR, CZ, DE, HU, IL, IT, LV, MK, MT, PL, RS, SI, SL, SW, CZ, TU</td>
<td>open authoring (Graasp) and sharing (Golabz) platforms, learning apps</td>
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<td>Erasmus+</td>
<td>2016-2018</td>
<td>Regions - Trento, Gottenburg, Catalonia</td>
<td>Schools – head teachers, teachers</td>
<td>Trento, Gottenburg, Catalonia</td>
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<td>Erasmus+</td>
<td>Jan 16- Dec 18</td>
<td>MoE/agencies</td>
<td>Schools, IE – schools and ITE.</td>
<td>AT, BE-FL, EE, IE, PL, PT,</td>
<td>MOOC; collaborative learning (videos, 21C rubrics)</td>
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<td>Various MOOCs – ref next slide</td>
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<td>EC Lifelong Learning</td>
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<td>Special education needs</td>
<td>30 + coordination</td>
<td>Content, videos, DGE PT online modules, MOOC</td>
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Example of range of ITELab partner university resources:

University of Agder: MOSO (UoA Mentoring & Observation App) via tablets used by student, tutor & classroom teacher as a supervision & learning tool. Digital video library to support digital skills.

University of Newcastle: Video Enhanced Observation Tablet App VEO (U.NEW) available to school placement supervisors & any teacher for own CPD and improvement (free demo & subscription versions)

University of Perugia: Educational Technologies Programme: 150 hours study leading to six ECTS (equal to 36 hours) in Pedagogical ICT Competence. Includes study of eBooks, eBoards, Mobile devices, LMS, digital citizenship, SEN, classroom management, administration. (1 ECTS on eBoard competence)

University College Dublin: Student’s digital portfolio part of General Pedagogy submitted digitally & assessed in digital format. Lesson plans, research, podcasts, videos, blogs part of portfolios.

Polytechnic Institute of Santarém: offers four MOOCs as in-service for any teacher: Digital Literacy for All; eBooks; eSafety and Bullying in Schools

University of Würzburg: currently developing SEN course for mainstream teachers & Quantitative & Qualitative ICT pedagogical competency measurement tools. ‘Flipped learning’ scenarios used in initial teacher education are available for translation.

Example of range of ITELab partner industry resources:

Iris Connect offers a platform where students can share videos and have social interaction around it. Mentors and peers can comment the videos (of classroom activities). Holders of a license can create groups and give access to members. Example: https://europe.irisconnect.com

Microsoft has invested heavily in education, with much content and many self-paced educational courses. https://education.microsoft.com

Smart Technologies provides materials aimed at users who want to use the Smart solutions, and has a library of videos on their Youtube Channel: https://www.youtube.com/user/smarted2ed

Steelcase has created interesting resources in the field of Active Learning https://www.steelcase.com/discover/information/education
7 CONCLUSION

The literature review and information gathering activity carried out during the first six months of the project reconfirms both the need and the premise for this European Commission-funded Knowledge Alliance project.

The literature review confirms that training of student teachers in the pedagogical use of ICT is highly variable and develops on an ad hoc basis in most countries:

- Few research studies focus on ICT in the ITE curriculum (70 research studies analysed);
- There is little evidence of wide-spread follow-through from government policy to implementation in ITE;
- ICT may be implicit within broader ambitions (e.g. digital competence for all citizens, teacher as a researcher);
- ITE providers (usually universities) set their own curricula for ITE

The information gathering activity reveals that ITE providers tend to work independently of each other:

- **Ministries of education and regional education authorities** are mainly responsible for schools and therefore focus on continuous professional development (CPD) rather than ITE, with a range of different resources for in-service teacher education;
- **Universities** are largely autonomous, under separate departments and funding and ITE programmes rarely provide comprehensive pedagogical digital competence training, leading to a continuing high demand in schools for ICT-related CPD;
  - ITElab university partners have a diversity of innovative approaches including, for example, use of Teachmeets, development in media education labs and virtual classrooms, increasing use of video for self-reflection and observation while out on placement, interdisciplinary collaboration on projects which could be introduced into the Modules and/or MOOC;
- **ITElab industry partners** offer a range of solutions to education, with training materials and communities primarily for serving teachers: self-paced educational courses, content, platforms and educator communities, certification.

Such ‘silo-working’ underlines the need for the project’s ITE Forum to be launched in November 2017, a new opportunity for universities, industry and policy-makers to come together for some strategic, ‘joined-up’ thinking with regard to the challenges and opportunities identified in section 5.

The monitoring also reconfirms the need for the work in the project, to take place in 2018-2019, on defining competences for teacher educators. The DigCompEdu framework is being used in the design and development of the ITElab modules and student MOOC as a ‘north star’ reference point, viewed alongside the existing
TPACK and national frameworks that are in use by the universities today. University of Agder will lead on the work on ICT skills and competences of student teachers and teacher educators. The ITE University-Industry Forum will be used to present and discuss ideas, and ultimately shape the recommendations that will be published in the third, and final ITE monitoring report (December 2019).

The publication of the European Commission’s ‘School development and excellent teaching for a great start in life’ (Brussels, 30.5.2017) provides further endorsement for the work that will be carried out in the ITELab project. The project will support the work of the Commission through the ITE University-Industry Forum to increase dialogue and exchange best practices, a focus on digital competence, and through the development of the ITELab training modules and the online course for tomorrow’s teachers, helping them prepare young people for tomorrow’s world.

The second issue of the Monitoring Report (planned publication date, July 2018) will report further on these challenges and developments.
ITELab (Initial Teachers Education Lab) is a Knowledge Alliance project between higher education institutions and industry to foster innovation and knowledge exchange in initial teacher education (ITE). Project number: 575828-EPP-1-2016-1-BE-EPPKA2-KA. It is co-funded under the European Commission’s Erasmus+ Programme from January 2017 to December 2019.

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