Adult Learners in Digital Learning Environments (EAC-2013-0563)

Final Report

BertelsmannStiftung

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EUROPEAN COMMISSION

Directorate-General for Employment, Social Affairs and Inclusion
C5 – Vocational training and adult education

Contact: Angela Andersson

E-mail: angela.andersson@ec.europa.eu

European Commission
B-1049 Brussels

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Abbreviations

AE	Adult Education
AES	Adult Education Survey
AL	Adult Learning
ALADIN	Adult Learning Documentation and Information Network
ALIS 2020	Adult Literacies in Scotland 2020
ALNCI	French National Agency of Fight against Illiteracy
ANQEP	Portuguese National Agency for Qualification and Vocational Education and Training
CALST	Computer-Assisted Listening and Speaking Tutor
CEDEFOP	European Centre for the Development of Vocational Training
CoEU	Council of the European Union
CoL	Commonwealth of Learning
CoR	Committee of the Regions
CSR	Country Specific Recommendations
CVET	Continuing Vocational Education and Training
CVT	Continuous Vocational Training Participation
DG EAC	Directorate General for Education and Culture
DG SANCO	Directorate-General for Health and Consumers
EACEA	Education, Audiovisual and Culture Executive Agency
EAEA	European Association of Adult Education
ECAS	European Commission Authentication Service
ECAS	European Commission Authentication Service
EFTA	European Free Trade Association
eILP	Electronic Individual Learning Plan
EIT	European Institute for Innovation and Technology
ELI	Enabled Learning Innovation
ELL	English Language Learning
ELLI	European Lifelong Learning Indicators
EPALE	Electronic Platform for Adult Learning in Europe
ESF	European Social Fund
ESL	English as a Second Language

ESOL	English for speakers of other languages
EU	European Union
EUCEN	European University Continuing Education Network
FELTAG	Further Education Learning Technology Action Group
FOSS	Free and Open Source Software
GDLL	General Directorate of Lifelong Learning
HE	Higher Education
ICDE	International Council for Open and Distance Education
ICT	Information and Communications Technology
IDEAL	Impact of Distance Education on Adult Learning
ILE	Innovative Learning Environments
IPR	Intellectual Property Rights
IPTS	Institute for Prospective Technological Studies
JRC	Joint Research Centre
LCP	Large Class Pedagogy
LFS	Labour Force Survey
LLL	Lifelong Learning
MATEL	Mapping and Analysing Prospective Technologies for Learning
MS	Member States
MOOCs	Massive Open Online Courses
NARIC	National Academic Recognition Centre
NETP	US National Education Technology Plan
NEETS	Not in Education, Employment, or Training
NGO	National Governmental Organisations
NIACE	National Institute of Adult Continuing Education
NRP	National Reform Programmes
ODL	Open and Distance Learning
OECD	Organisation for Economic Cooperation and Development
OEP	Open Educational Practices
OER	Open Educational Resources
OPAL	Open Educational Quality Initiative
POERUP	Policies for OER Uptake
PIAAC	Programme for the International Assessment of Adult Competencies

RARPA	Recognising and Recording Progress and Achievement
SciELO	Scientific Electronic Library Online
TALIS	Teaching and Learning International Survey
UIL	UNESCO Institute for Lifelong Learning
VCM	Variable Cost Minimisation
VET	Vocational Education and Training
VLE	Virtual Learning Environment
VOX	Norwegian Agency for Lifelong Learning

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Executive Summary

Ecorys and Bertelsmann Stiftung were commissioned by the European Commission Directorate General for Education and Culture (DGEAC), to provide a detailed picture of the current provision and take up of ICT-enhanced learning, including open educational resources (OER), in adult learning.

Aims of the Study

The study aimed to contribute to the work of the Commission and Member States in achieving the objectives set out in the Education and Training 2020 Strategy (ET 2020), which aims (inter alia) to raise the currently largely static rates of adult participation in learning towards the ET 2020 target of 15%, thus contributing to smart, sustainable and inclusive growth. The study in particular focused on ICT-enhanced learning, including OER, in adult education/learning (AL):

- Providing the Commission with a detailed description and analysis of the state-of-play of the use of ICT-enhanced learning, including OER, in adult education, sampling across Member States, EFTA States and Candidate States;
- Providing policy-relevant analysis and advice;
- Developing policy conclusions and recommendations, for relevant policy makers in Member States, and for adult learning providers; and
- Developing an approach for a (self) assessment-toolkit for adult learning institutions as well as policy makers for analysing their state of the art when it related to ICT/OER usage in adult learning.

Country Research

A detailed comparative analysis was undertaken of evidence gathered on the state-of-play and take-up of OER among adult learners across a range of countries. Countries were selected through an analysis of statistics from Eurostat (Adult Education Survey, Internet statistics, Labour Force Survey) and OECD (PIACC - Programme for the International Assessment of Adult Competencies), relating to levels of adult learning, the adoption of ICT-enhanced learning among adults, levels of ICT skills in adults, and participation in lifelong learning (LLL). The selection identified countries across a range of adult learning using ICTs and OER, from countries with advanced practice to those experiencing significant challenges in developing adult learning.

Subsequent country level investigation involved an online survey and country-specific research. The online survey gathered information on how providers of adult learning used ICTs and OERs in their provision. The country research involved approximately 100 in-depth interviews with policy makers and adult education providers. Three clusters of countries were identified.

The analysis of the results identified that countries in a **future-oriented cluster** (Sweden, Netherlands, Estonia, UK, Norway, Brazil, and the USA) are characterised by four elements that drive the successful implementation of ICT in adult learning:

- They have an integrated strategy for lifelong learning and ICT;
- Public and private actors collaborate with municipalities and local providers of adult education;
- They display innovative ICT approaches; and
- They actively address barriers that prevent the development of ICT-enhanced adult education.

Countries in a **tentative cluster** (Spain, Germany, France, and Portugal) are characterised by four elements:

- Strategies for lifelong learning do not fully integrate the use of digital technologies;
- Strong markets for adult education exist, but there is not a coordinating body for ICT-enhanced adult learning projects;
- A strong role for universities in ICT-enhanced learning; and
- Barriers, such as the insufficient access to digital networks and low ICT skills, prevent the wider development of ICT-enhanced adult education.

Countries in a **traditional cluster** (Czech Republic, Hungary, Greece, Poland, and Turkey) are characterised by four elements:

- The absence of lifelong learning strategies that integrate the use of digital technologies;
- Uncoordinated actions by Ministries, and no coordinating body for ICT-enhanced adult learning projects;
- A strong role for universities in ICT-enhanced learning; and
- Significant barriers preventing use of ICTs in adult learning.

Benefits of ICT and OER in Adult Learning

An analysis of policy documents and the research literature confirmed that benefits of ICT and OER in adult learning are widely acknowledged amongst policymakers and practitioners. ICTs and OER can be used to:

- Extend and diversify the provision of learning;
- Enable provision to be tailored in terms of content (by making learning available in smaller units), and time and place (by disconnecting learning from traditional learning settings); and
- Widen access, building on conventional distance learning techniques and providing new forms of non-traditional learning.

However, there are wide variations in the diffusion of hardware and software and content, the spread of their usage across the adult learning community, and their effect on the development of teaching and learning. Overall:

- First-generation ICT tools still dominate;
- Widespread and major effects on teaching and learning are still awaited;
- There are particularly strong challenges for OER development and take-up;
- Full potential for enhancement, engagement and wider access is still to be realised;
- A 'digital divide' exists amongst adult learning institutions; and
- Informal learning provision is under-developed.

Adult Learning Providers

The findings of the study have informed the conclusions and recommendations, and helped to shape the proposed online **self-assessment toolkit** which will be hosted on the EPALE (Electronic Platform for Adult Learning in Europe) platform, enabling AL providers to:

- Self-assess their practice; and
- Explore good practice in making effective use of ICT and OER in adult learning.

Conclusions

There are **16 overall conclusions** from the Study.

For learners:

- A. **Basic skills**. Literacy, numeracy and ICT skills are fundamental enablers for adult learners. PIAAC 2012 statistics report that about 20% of adults in the EU have low literacy and numeracy skills, and 25% have low ICT skills;
- B. Adult learning can benefit significantly from **access to adult learning resources** made available using ICT tools (Internet, software, content and devices), and with well-focused learning content; and
- C. **Individualisation** of learning is beneficial. Digitally delivered learning has the potential to individualise learning.

For providers and educators:

- D. **Educators need digital and pedagogic skills**. Adult educators need to be provided with training in the effective use of ICTs and OER, and to be fully involved in the design of programmes;
- E. **Benefits of adult learning are not effectively communicated and understood**. Communicating the particular benefits of ICT-enabled learning can better motivate adults to learn, and to help adults and businesses understand the rewards and benefits of adult learning;
- F. Learning **providers and organisations need appropriate organisational and support structures** to enable educators to use ICTs and OER effectively in the development of adult learning;
- G. Learning **providers and organisations need better sustainable institutional strategies** for the use of ICTs and OER in the development of adult learning; and

- H. Learning **providers need more extensive networking**, the sharing of good practice and partnerships to create targeted and high-quality ICT-enabled learning content for their adult learners.

For policy initiatives:

- I. ICTs, especially mobile ICTs, can be used to **access learning at any time**;
- J. **Access to ICT infrastructure** is not adequately ensured for all learners;
- K. **Vulnerable adults** need particular support. For example those who have low basic skills, including ICT-skills, low levels of formal qualifications, or are otherwise marginalised;
- L. **Awareness** needs raising further about the availability of ICT-enabled adult learning resources. Coherent and pan-European information and resources about adult learning can help;
- M. Benefits of flexible and personalised ICT-enabled learning can be enhanced through **transparency and recognition tools**. Adult learners can be motivated to learn through providing the conditions to validate and recognise learning obtained from multiple online learning resources;
- N. Licensing and copyright conditions can be further developed to **open up access to digital education resources** (OER) and enable their effective use in adult learning;
- O. Policy can be well-informed by **continuing to develop a pan-European evidence base** to monitor and analyse developments in ICT-enhanced adult learning; and
- P. There are **variations across Member States** in the levels of participation in adult learning, and the extent of ICT and OER developments for adult learning. The broad clusters that were identified show a wide range of adult learning developments using ICTs and OER.

Recommendations

Governments and adult learning providers across the EU can contribute to developing innovative adult learning using ICTs and OER. This can be achieved through effective organisational strategies, ensuring that their educators are fully skilled and knowledgeable in the innovative use of ICTs and OER, and that the institutional ICT infrastructure focuses on a sustainable development of ICTs and OER oriented around the specific needs of their adult learners. An enriched evidence base for adult learning across Europe can better inform policy development.

Recommendations

European Union Policy Level

I. Support the sharing of good practice on the use of ICTs and OERs in adult learning

1. Support European **network-building and communities of practice** of adult learning providers and educators in sharing good practice on the use of ICTs and OERs in adult learning (ET 2020, Erasmus+, and the European Social Fund - ESF).
2. Support national/international **policy-makers in peer learning and peer review** to better assist national adult learning policy development (ET 2020 Working Group on Adult Learning). Focus on clusters of Member States: for example, Member States with particular ICT and OER needs for adult learning, and clusters that can develop further excellence in developments in adult learning with ICTs and OER.
3. Build **evidence, and commission research,** on adult learning using ICTs and OER, and **evaluate (ICT-enhanced) adult learning impacts** - collaborating with OECD, UNESCO and the Council of Europe.
4. Support the **dissemination of good practice on the use of ICTs and OERs in adult learning**. Continue to develop integrated access to resources (especially OER), information and knowledge relating to (ICT-enhanced) adult learning (EPALE, and self-assessment toolkit). Facilitate wider understanding and acceptance of pan-European frameworks and tools for accreditation, quality assurance, assessment and recognition of adult learning.

II. Create the environment for the effective pan-European use of ICTs and OERs in adult learning

5. Continue to establish **a European regulatory environment** for open access to content, ubiquitous access to high-speed broadband, and 'ICTs designed for all' (Digital Agenda).
6. Continue to mandate that **learning and learning-related content** developed through Commission funding is openly licensed and available as OER.

Member State Policy Level

III. Build national information and resources to promote the value of adult learning using ICTs and OER

7. Establish national governance frameworks (sharing good practice – see Recommendation 2) which enable an integrated approach to be developed for adult learning using ICTs and OER.
8. Develop **national guidance** to adult learning providers on the effective pedagogic use of ICTs and OER in adult learning.

Recommendations

9. Establish **awareness-building campaigns**, promoting the benefits of different (ICT-enhanced) types of adult learning, addressed at providers, educators, learners, and employers.
10. Develop **integrated access to resources** (especially OER in national languages), along with information and knowledge relating to adult learning, and ensure that these complement and link to the EPALE platform.

IV. Develop policies and strategies to enable the development and take-up of innovative adult learning using ICTs and OER

11. Establish national regulatory conditions for **open access to content**, availability of high-speed **broadband infrastructure,** and 'ICTs designed for all'.
12. Develop a **digital literacy strategy** which helps adults to acquire basic competences and skills (literacy, numeracy, digital literacy) to effectively use, and benefit from, ICT-based adult learning resources.
13. Provide **funding opportunities for sustainable innovation in adult learning,** using ICTs and OER, for the adult education sector (particularly for disadvantaged learners).

Adult Learning Providers

14. **Develop new institutional strategies**. At the organisational level, develop adult learning strategies for using ICTs and OER that maximise the individualisation of learning for adults. Build, and use, networks of practice to share good practice.
15. **Educator education**. Provide systematic and continuous training for educators in the development and implementation of innovative learning environments which use ICTs and OER.
16. **Establish an institutional IT infrastructure** that enables effective innovative adult learning using ICTs. Secure funding to enhance organisational capacity in the use of ICTs and OER for adult learning.

Much is going on, but there remain considerable differences across Member States in adult skill levels, access to ICTs, the availability of relevant content, and in the developments of innovative learning skills and competencies in educators. Learning providers need to adapt their institutional strategies to facilitate the wider use of ICTs and OER. Overall the above recommendations highlight the value of stronger coordination and policy exchange, to drive faster developments at MS level. They promote the more integrated use of ICTs and OER in developing targeted and innovative learning for all adults, with more synergies across the learning spectrum.

Résumé analytique

La Direction générale pour l'éducation et la culture de la Commission européenne (DGEAC) a mandaté Ecorys et Bertelsmann Stiftung pour élaborer une représentation détaillée de l'offre et l'utilisation actuelles de l'apprentissage renforcé par les TIC, y compris les ressources éducatives libres (REL) dans la formation des adultes.

Objectifs de l'étude

L'étude visait à contribuer au travail de la Commission et des États membres, en réalisant les objectifs fixés dans le cadre stratégique Éducation et formation 2020 (ET 2020). Celui-ci avait pour but (entre autres) de faire remonter les taux actuels plutôt stationnaires de la participation adulte à la formation pour atteindre les 15 % prévus par le cadre stratégique « Education et formation 2020 », tout en contribuant à une croissance intelligente, durable et inclusive. L'étude s'est particulièrement concentrée sur l'apprentissage renforcé par les TIC, y compris les REL, dans l'éducation/l'apprentissage des adultes :

- en fournissant à la Commission une description et une analyse détaillées de l'état d'avancement de l'utilisation de l'apprentissage renforcé par les TIC, y compris les REL, dans l'éducation des adultes, avec un échantillonnage dans les États membres, les États de l'AELE et les pays candidats,
- en apportant une analyse et des conseils politiquement pertinents,
- en développant des conclusions et des recommandations politiques, pour les décideurs politiques compétents dans les États membres et pour les prestataires de formations pour adultes,
- en développant une approche pour la création d'une boîte à outils d'(auto-) évaluation à destination des institutions de formation des adultes, ainsi que des décideurs politiques pour leur permettre d'analyser l'état de leurs connaissances liées à l'utilisation des TIC/REO dans l'apprentissage des adultes.

Recherche nationale

Une analyse comparative détaillée a été entreprise à partir des informations recueillies concernant l'état d'avancement et l'adoption des REL parmi les apprenants adultes dans un ensemble de pays. Les pays ont été sélectionnés par le biais d'une analyse des statistiques d'Eurostat (Enquête sur l'éducation des adultes, Statistiques Internet, Enquête sur la population active) et de l'OCDE (Programme pour l'évaluation internationale des compétences des adultes ou PIAAC) concernant les niveaux de formation des adultes, l'adoption de l'apprentissage renforcé par les TIC parmi les adultes, les niveaux de compétences en TIC chez les adultes, ainsi que la participation à l'apprentissage tout au long de la vie. Le processus de sélection a permis d'identifier différents pays selon leur degré d'utilisation des TIC et des REL dans les formations, allant de pays ayant une pratique avancée de ces outils à des pays éprouvant de grandes difficultés à développer la formation des adultes.

Ensuite, les recherches au niveau national comportaient un sondage en ligne et une recherche par pays. Le sondage en ligne regroupait des informations relatives à l'utilisation des TIC et des REL par les prestataires de formation pour adultes. La recherche par pays impliquait approximativement 100 interviews approfondies avec des décideurs politiques et des prestataires de formation pour adultes. Trois groupes de pays ont été identifiés.

L'analyse des résultats a montré que les pays appartenant à un **groupe orienté vers l'avenir** (Suède, Pays-Bas, Estonie, Royaume-Uni, Norvège, Brésil et États-Unis) sont caractérisés par quatre éléments conduisant à la réussite de la mise en place des TIC dans la formation pour adultes :

- ils possèdent une stratégie intégrée en matière d'apprentissage tout au long de la vie et de TIC,
- les acteurs publics et privés collaborent avec les municipalités et les prestataires locaux d'éducation pour adultes,
- ils déploient des approches innovantes en termes de TIC,
- ils cherchent activement à surmonter les obstacles empêchant le développement de l'éducation des adultes renforcée par les TIC.

Les pays appartenant à un **groupe plus hésitant** (Espagne, Allemagne, France et Portugal) sont caractérisés par quatre éléments :

- les stratégies pour un apprentissage tout au long de la vie n'intègrent pas complètement l'utilisation des technologies numériques,
- des marchés vigoureux pour la formation des adultes existent, mais il manque un organisme coordinateur des projets d'apprentissage pour adultes renforcé par les TIC,
- un rôle fort des universités dans l'apprentissage renforcé par les TIC,
- des barrières, telles qu'un accès insuffisant aux réseaux numériques et un faible niveau de compétences en TIC, empêchent le développement plus large de l'éducation pour adultes renforcée par les TIC.

Les pays appartenant à un **groupe traditionnel** (République tchèque, Hongrie, Grèce, Pologne et Turquie) sont caractérisés par quatre éléments :

- l'absence de stratégies d'apprentissage tout au long de la vie intégrant l'utilisation des technologies numériques,
- des actions non-coordonnées par les ministères et aucun organisme coordinateur des projets d'apprentissage pour adultes renforcé par les TIC,
- un rôle fort des universités dans l'apprentissage renforcé par les TIC,
- d'importantes barrières empêchant l'utilisation des TIC dans l'apprentissage pour adultes.

Avantages des TIC et des REL dans la formation des adultes

Une analyse des documents de politique et de la documentation de recherche a confirmé que les avantages des TIC et des REO dans la formation des adultes sont largement reconnus parmi les décideurs politiques et les professionnels. Les TIC et REO peuvent être utilisées pour :

- étendre et diversifier l'offre de formation,
- permettre la personnalisation des prestations en termes de contenu (en rendant la formation accessible dans des unités de plus petite taille), de temps et de lieu (en déconnectant la formation des cadres de formation traditionnels),
- élargir l'accès en s'appuyant sur les techniques d'enseignement à distance conventionnelles et en offrant de nouvelles formes de formations non-traditionnelles.

Cependant, de grandes variations existent dans la diffusion du matériel, des logiciels et du contenu, dans la démocratisation de leur utilisation au sein de la communauté apprenante adulte, ainsi que de leur effet sur le développement de l'enseignement et de la formation. Globalement :

- les outils TIC de première génération continuent de dominer,
- des effets généralisés et majeurs sur l'enseignement et la formation sont encore attendus,
- des défis de taille sont à relever pour le développement et l'adoption des REL,
- il faut encore tirer profit au maximum du potentiel en faveur d'une amélioration, d'un engagement et d'une meilleure accessibilité,
- une « fracture numérique » existe dans les institutions de formation pour adultes,
- l'offre de formation informelle est sous-développée.

Prestataires de formations pour adultes

Les constats de l'étude ont guidé les conclusions et recommandations. Ils ont aussi permis d'élaborer la **boîte à outils d'auto-évaluation** en ligne proposée qui sera hébergée sur la plate-forme EPALE (Plate-forme électronique pour la formation des adultes en Europe) et qui permettra aux prestataires de formation pour adultes :

- d'évaluer eux-mêmes leurs pratiques,
- d'explorer les bonnes pratiques en faisant un usage efficace des TIC et des REL dans la formation pour adultes.

Conclusions

Cette étude permet de tirer **16 conclusions générales**.

Pour les apprenants :

- A. **Compétences de base**. La maitrise suffisante de la lecture, de l'écriture et du calcul, ainsi que des compétences numériques, constituent un vecteur fondamental pour les apprenants adultes. Les statistiques PIAAC 2012 rapportent qu'environ 20 % des adultes dans l'UE possèdent des compétences faibles en lecture et calcul et 25 % ont des compétences numériques faibles.

- B. La formation pour adultes peut bénéficier de façon significative de l'**accès aux ressources de formation pour adultes** mises à disposition par le biais d'outils TIC (Internet, logiciels, contenu et appareils) et grâce à un contenu d'apprentissage bien ciblé.

- C. **La personnalisation** de l'apprentissage est bénéfique. Un apprentissage proposé sous format numérique peut potentiellement être personnalisé.

Pour les organismes de formation et les formateurs :

- D. Les **formateurs ont besoin de compétences numériques et pédagogiques**. Les formateurs d'adultes doivent être formés pour utiliser efficacement les TIC et les REL et être complètement impliqués dans la conception des programmes.

- E. **Les avantages de la formation pour adultes ne sont pas communiqués efficacement et compris**. Communiquer sur les avantages spécifiques de la formation renforcée par les TIC peut mieux motiver les adultes à apprendre et les aider, ainsi que les entreprises, à comprendre les récompenses et avantages de la formation pour adultes.

- F. Les **prestataires et organisations de formation ont besoin de structures organisationnelles et de soutien appropriées** afin de permettre aux formateurs d'utiliser efficacement les TIC et REL dans le développement de la formation pour adultes.

- G. Les **prestataires et organisations de formation ont besoin de meilleures stratégies institutionnelles durables** pour l'utilisation des TIC et REL dans le développement de la formation des adultes.

- H. Les **prestataires de formation ont besoin de réseaux plus étendus,** de partager les bonnes pratiques et de partenariats pour créer des formations renforcées par les TIC ciblées et de haute qualité pour les apprenants adultes.

Pour les initiatives politiques :

- I. Les TIC, notamment les TIC mobiles, peuvent être utilisées pour **accéder à la formation à tout instant**.

- J. L'**accès à l'infrastructure TIC** n'est pas garanti de manière adéquate pour tous les apprenants.

- K. Les **adultes vulnérables** ont besoin d'un soutien particulier, par exemple ceux qui possèdent de faibles compétences de base, y compris en TIC, ou de faibles qualifications officielles ou qui sont marginalisés d'une manière ou d'une autre.

- L. Une plus grande **sensibilisation** est nécessaire en ce qui concerne la disponibilité de ressources de formation pour adultes renforcées par les TIC. Des informations et ressources cohérentes et pan-européennes en matière de formation des adultes peuvent constituer une aide.

- M. Des **outils de transparence et de reconnaissance** peuvent accroître les avantages d'une formation renforcée par les TIC flexible et personnalisée. On peut motiver les apprenants adultes en leur offrant les conditions de validation et de reconnaissance de la formation obtenue à partir de multiples ressources d'apprentissage en ligne.

- N. Les conditions liées aux contrats de licence et a la propriété intellectuelle peuvent être encore développées afin d'**ouvrir l'accès aux ressources éducatives numériques** (REL) et de permettre leur utilisation effective dans le cadre de la formation pour adultes.

- O. La politique peut être bien renseignée en **continuant de développer une base factuelle pan-européenne** pour enregistrer et analyser les développements dans la formation des adultes renforcée par les TIC.

- P. Il existe des **variations entre les États membres** en termes de niveaux de participation dans la formation des adultes et de diffusion des développements TIC et REO pour la formation des adultes. Les principaux groupes identifiés indiquent une grande variété de développements de formation pour adultes utilisant les TIC et les REL.

Recommandations

Les gouvernements et les prestataires de formation pour adultes dans l'UE peuvent contribuer au développement de formations innovantes pour adultes en utilisant les TIC et les REL. Ils peuvent y parvenir grâce à des stratégies organisationnelles efficaces, en s'assurant que leurs formateurs possèdent toutes les compétences et sont bien informés sur l'utilisation innovante des TIC et des REL et en garantissant que l'infrastructure institutionnelle des TIC se concentre sur un développement durable des TIC et REL orienté sur les besoins spécifiques de leurs apprenants adultes. Une base factuelle enrichie relative à la formation des adultes à travers l'Europe peut mieux guider l'élaboration des politiques.

Recommandations

Niveau de la politique de l'Union européenne

I. Soutenir le partage de bonnes pratiques concernant l'utilisation des TIC et REL dans la formation des adultes

17. Soutenir l'**élaboration d'un réseau et les communautés de pratique** au niveau européen des prestataires et formateurs de formation pour adultes, en partageant les bonnes pratiques relatives à l'utilisation des TIC et des REL dans la formation des adultes (ET 2020, Erasmus+ et le Fonds social européen - FSE).
18. Soutenir les **décideurs politiques nationaux/internationaux dans l'apprentissage et l'examen entre pairs** pour mieux assister le développement national des politiques de formation pour adultes (ET 2020 - Groupe de travail sur la formation des adultes). Se centrer sur les groupes d'États membres : par exemple ceux avec des besoins spécifiques en TIC et REL pour la formation des adultes et les groupes pouvant poursuivre le développement de l'excellence dans la formation pour adultes avec les TIC et REL.
19. Recueillir des **preuves et engager des recherches** concernant la formation des adultes utilisant les TIC et REL et **évaluer les impacts de la formation des adultes (renforcée par les TIC)** en collaborant avec l'OCDE, l'UNESCO et le Conseil de l'Europe.
20. Soutenir la **diffusion des bonnes pratiques sur l'utilisation des TIC et des REL dans la formation des adultes**. Continuer à développer l'accès intégré aux ressources (en particulier les REL), aux informations et au savoir en lien avec la formation des adultes renforcée par les TIC (EPALE et boîte à outils d'auto-évaluation). Faciliter une plus grande compréhension et une acceptation plus répandue des cadres pan-européens et des outils d'accréditation, d'assurance de la qualité, d'évaluation et de reconnaissance de la formation des adultes.

II. Créer l'environnement nécessaire pour une utilisation pan-européenne efficace des TIC et des REL dans la formation des adultes

21. Continuer à établir **un environnement réglementaire européen** en faveur d'un accès ouvert au contenu, d'un accès omniprésent au haut débit et aux « TIC élaborées pour tous » (agenda numérique).
22. Continuer à exiger que **le contenu d'apprentissage et lié à l'apprentissage** développé par le financement de la Commission soit sous licence libre et disponible en tant que REL.

Recommandations

Niveau de la politique des états membres

III. Créer des informations et ressources nationales pour promouvoir la valeur de la formation des adultes utilisant les TIC et les REL

23. Établir des cadres de gouvernance nationaux (partage des bonnes pratiques, voir Recommandation 2) qui permettent le développement d'une approche intégrée pour la formation des adultes utilisant les TIC et les REL.
24. Développer des **directives nationales** pour les prestataires de formation pour adultes se basant sur une utilisation pédagogique efficace des TIC et REL.
25. Établir des **campagnes de sensibilisation**, en promouvant les avantages des différents types de formation pour adultes (renforcée par les TIC) en s'adressant aux prestataires, formateurs, apprenants et employeurs.
26. Développer un **accès intégré aux ressources** (en particulier les REL en langues nationales) accompagné d'informations et de connaissances relatives à la formation des adultes et s'assurer qu'elles se complètent et qu'elles soient connectées à la plate-forme EPALE.

IV. Élaborer des politiques et stratégies permettant le développement et l'adoption de formation pour adultes innovante utilisant les TIC et REL

27. Établir des conditions réglementaires nationales en faveur d'un **accès ouvert au contenu**, d'une disponibilité de **l'infrastructure haut débit** et des « TIC élaborées pour tous ».
28. Développer une **stratégie en matière de culture numérique** qui permettrait aux adultes d'acquérir les compétences et le savoir de base (lecture, calcul, compétences numériques) pour utiliser efficacement et tirer profit des ressources de formation pour adultes basées sur les TIC.
29. Fournir les **opportunités de financement favorisant une innovation durable de la formation des adultes** utilisant les TIC et REL, pour le secteur de la formation pour adultes (en particulier les groupes d'apprenants défavorisés).

Prestataires de formations pour adultes

30. **Développer de nouvelles stratégies institutionnelles**. Au niveau organisationnel, développer des stratégies de formation des adultes pour une utilisation des TIC et des REL qui maximisent la personnalisation de l'apprentissage des adultes. Élaborer et utiliser les réseaux de pratiques pour partager les bonnes pratiques.
31. **Formation des formateurs**. Assurer une formation systématique et continue des formateurs en matière de développement et de mise en place d'environnements de formation innovants qui utilisent les TIC et les REL.
32. **Établir une infrastructure informatique institutionnelle** permettant une formation innovante efficace des adultes utilisant les TIC. Garantir le financement en vue d'améliorer la capacité organisationnelle dans l'utilisation des TIC et des REL pour la formation des adultes.

Plusieurs développements sont en cours, mais des différences majeures demeurent entre les États membres en matière de niveau de compétences des adultes, d'accès aux TIC, de disponibilité du contenu pertinent et de développements de compétences innovantes en formation chez les formateurs. Les prestataires de formation doivent adapter leurs stratégies institutionnelles pour faciliter une utilisation plus large des TIC et des REL. Globalement, les recommandations ci-dessus soulignent l'importance d'une meilleure coordination et d'un échange politique pour accélérer les développements au niveau des États membres. Ils promeuvent l'utilisation plus intégrée des TIC et des REL dans l'élaboration d'une formation ciblée et innovante pour tous les adultes, avec plus de synergies entre différents secteurs et types de formation.

Kurzdarstellung

Ecorys und die Bertelsmann Stiftung wurden von der Generaldirektion für Bildung und Kultur (GD EAC) damit beauftragt, einen detaillierten Überblick über das aktuelle Angebot und die Nutzung des IKT-unterstützten Lernens, einschließlich offener Bildungsressourcen (OER), im Bereich der Erwachsenen- und Weiterbildung zu erstellen.

Ziele der Studie

Die Studie ist ein Beitrag zur Arbeit der Kommission und der Mitgliedstaaten, um die Ziele der Strategie „Allgemeine und berufliche Bildung 2020" (ET 2020) zu erreichen. Diese Ziele umfassen unter anderem eine Erhöhung der derzeit stagnierenden Teilnahmequote Erwachsener am Lernen auf den in der ET 2020 angestrebten Anteil von 15 Prozent. Durch diese Erhöhung soll ein intelligentes, nachhaltiges und integratives Wachstum ermöglicht werden. Die Studie konzentriert sich insbesondere auf das IKT-unterstützte Lernen, einschließlich OER, in der Erwachsenen- und Weiterbildung:

- Erstellung einer detaillierten Beschreibung und Analyse der gegenwärtigen Nutzung IKT-unterstützten Lernens, einschließlich OER, in der Erwachsenen- und Weiterbildung, anhand von Daten aus den Mitgliedstaaten, EFTA-Ländern und Kandidatenländern
- Bereitstellung politisch relevanter Analysen und Beratung
- Entwicklung von politischen Schlussfolgerungen und Empfehlungen für zuständige politische Entscheidungsträger in den Mitgliedstaaten sowie für Anbieter von Erwachsenen- und Weiterbildung
- Entwicklung eines Ansatzes für ein (Selbst-)Bewertungs-Toolkit für Anbieter von Erwachsenen- und Weiterbildung sowie für politische Entscheidungsträger, mit dem analysiert werden kann, welcher Stand bei der Nutzung von IKT/OER in der Erwachsenen- und Weiterbildung erreicht ist

Länderspezifische Untersuchungen

In einer Auswahl von Ländern wurde eine detaillierte vergleichende Analyse der gesammelten Daten zur gegenwärtigen Nutzung von OER durch erwachsene Lernende durchgeführt. Die Länder wurden auf Basis einer Auswertung statistischer Daten von Eurostat (Adult Education Survey, Eurostat-Internetstatistik, Labour Force Survey) und der OECD (PIAAC – Programme for the International Assessment of Adult Competencies) ausgewählt. Maßgebliche Faktoren der Auswahl waren das Angebot an Erwachsenen- und Weiterbildung, die Nutzung von IKT-unterstütztem Lernen durch Erwachsene, das Niveau der IKT-Fertigkeiten von Erwachsenen und ihre Beteiligung am lebenslangen Lernen (LLL). Die ausgewählten Länder bilden dabei ein Kontinuum der Nutzung von IKT sowie OER in der Erwachsenen- und Weiterbildung ab, von Ländern mit fortgeschrittener Praxis bis hin zu Ländern, in denen die Entwicklung der Erwachsenen- und Weiterbildung in diesem Bereich beträchtlichen Herausforderungen gegenübersteht.
Die anschließenden Untersuchungen auf Länderebene umfassten eine Online-Umfrage und länderspezifische Recherchen. In der Online-Umfrage wurden Informationen dazu gesammelt, wie Anbieter von Erwachsenen- und Weiterbildung IKT sowie OER in ihren Angeboten nutzen. Die Länderuntersuchung umfasste etwa 100 Experteninterviews mit politischen Entscheidungsträgern und Anbietern von Erwachsenen- und Weiterbildung. Drei Ländergruppen wurden dabei ermittelt.

Die Analyse der Umfrageergebnisse ergab, dass Länder in der **zukunftsorientierten Gruppe** (Schweden, Niederlande, Estland, Vereinigtes Königreich, Norwegen, Brasilien und USA) durch vier Aspekte gekennzeichnet sind, die die erfolgreiche Umsetzung von IKT in der Erwachsenen- und Weiterbildung fördern:

- Sie haben eine integrierte Strategie für lebenslanges Lernen und IKT.
- Öffentliche und private Akteure arbeiten mit Kommunen sowie örtlichen Anbietern von Erwachsenen- und Weiterbildung zusammen.
- Sie haben innovative Konzepte, entlang derer IKT eingesetzt wird.
- Sie gehen aktiv gegen Barrieren vor, die die Entwicklung einer IKT-unterstützten Erwachsenen- und Weiterbildung verhindern.

Länder in der **vorsichtigen Gruppe** (Spanien, Deutschland, Frankreich und Portugal) sind durch vier Aspekte gekennzeichnet:

- In die Strategien für lebenslanges Lernen ist die Nutzung digitaler Technologien nicht in vollem Umfang integriert.
- Ein starker Markt für die Erwachsenen- und Weiterbildung ist vorhanden, aber es gibt keine koordinierende Stelle für IKT-unterstützte Projekte der Erwachsenen- und Weiterbildung.
- Universitäten nehmen eine führende Rolle beim IKT-unterstützten Lernen ein.
- Barrieren, wie beispielsweise ein unzureichender Zugang zu digitalen Netzwerken und geringe IKT-Kompetenzen, verhindern die umfassendere Entwicklung der IKT-unterstützten Erwachsenen- und Weiterbildung.

Länder in der **traditionellen Gruppe** (Tschechien, Ungarn, Griechenland, Polen und Türkei) sind durch vier Aspekte gekennzeichnet:

- Es fehlen Strategien für lebenslanges Lernen, welche die Nutzung digitaler Technologien integriert mitdenken.
- Es gibt unkoordinierte Maßnahmen von Ministerien, zugleich ist keine koordinierende Stelle für IKT-unterstützte Projekte der Erwachsenen- und Weiterbildung vorhanden.
- Universitäten nehmen eine führende Rolle beim IKT-unterstützten Lernen ein.
- Erhebliche Barrieren verhindern die Nutzung von IKT in der Erwachsenen- und Weiterbildung.

Vorteile von IKT und OER in der Erwachsenen- und Weiterbildung

Eine Analyse von Strategiepapieren und Forschungsarbeiten bestätigte, dass die Vorteile von IKT sowie OER in der Erwachsenen- und Weiterbildung von politischen Entscheidungsträgern und Fachleuten allgemein anerkannt werden. IKT und OER können für folgende Zwecke eingesetzt werden:

- Erweitern und Diversifizieren der Bereitstellung von Lernangeboten
- Bereitstellen individuell zugeschnittener Angebote im Hinblick auf Inhalt (Lernangebote in kleineren Einheiten), Zeit und Ort (durch Trennung des Lernangebots vom herkömmlichen Lernumfeld)
- Ausweiten des Zugangs durch Auf- und Ausbau gängiger Methoden des Fernlernens sowie Bereitstellung neuer Formen nicht-traditionellen Lernens

Es gibt jedoch große Unterschiede bei der Verbreitung von Hardware, Software und Inhalten, der Verteilung ihrer Nutzung im Feld der Erwachsenen- und Weiterbildung und ihrer Wirkung auf die Entwicklung von Lehren und Lernen. Insgesamt gilt:

- Digitale Technologien der ersten Generation sind weiterhin vorherrschend.
- Weitreichende und größere Auswirkungen auf das Lehren und Lernen stehen noch aus.
- Die Entwicklung und Nutzung von OER steht besonders großen Herausforderungen gegenüber.
- Das volle Potenzial von IKT für Verbesserung, motivierende Gestaltung sowie breitere Zugangsmöglichkeiten zur Erwachsenen- und Weiterbildung muss noch realisiert werden.
- Es gibt eine „digitale Spaltung" zwischen den Anbietern von Erwachsenen- und Weiterbildung.
- Das Angebot für informelles Lernen ist unterentwickelt.

Anbieter von Erwachsenen- und Weiterbildung

Die Ergebnisse der Studie sind in die Schlussfolgerungen und Empfehlungen eingeflossen und wurden bei der Gestaltung des vorgeschlagenen **Selbstbewertungs-Toolkits** berücksichtigt, das auf der Elektronischen Plattform für Erwachsenen- und Weiterbildung in Europa (EPALE) bereitgestellt werden wird und Anbietern von Erwachsenen- und Weiterbildung Folgendes ermöglicht:

- Selbstbewertung ihrer Praxis
- Exploration bewährter Vorgehensweisen zum wirkungsvollen Einsatz von IKT und OER in der Erwachsenen- und Weiterbildung

Schlussfolgerungen

Die Studie liefert **16 Schlussfolgerungen**.
Für Lernende:

- A. **Grundlegende Kompetenzen**. Lese- und Schreibfertigkeiten, Rechenfertigkeiten und IKT-Fertigkeiten sind grundlegende Voraussetzungen für erwachsene Lernende. Gemäß den statistischen Angaben des PIAAC 2012 haben 20 Prozent der Erwachsenen in Europa geringe Lese-, Schreib- und Rechenfertigkeiten, 25 % haben geringe IKT-Fertigkeiten.
- B. Erwachsene Lernende können von einem **Zugang zu Angeboten der Erwachsenen- und Weiterbildung** erheblich profitieren, wenn diese über digitale Technologien (Internet, Software, Inhalt und Geräte) und mit zielgruppenorientierten Lerninhalten verfügbar gemacht werden.
- C. Eine **Individualisierung** des Lernens ist vorteilhaft. Digital bereitgestellte Bildungsangebote bieten das Potenzial, das Lernen zu individualisieren.

Für Anbieter und Lehrende:

- D. **Lehrende benötigen digitale und pädagogische Kompetenzen**. Lehrende in der Erwachsenen- und Weiterbildung benötigen Trainingsangebote, die ihnen die wirksame Nutzung von IKT und OER nahe bringen, und müssen in vollem Umfang in die Gestaltung von Programmen einbezogen werden.
- E. **Die Vorteile der Erwachsenen- und Weiterbildung werden nicht wirksam vermittelt und verstanden**. Die Vermittlung der besonderen

Vorteile des IKT-unterstützten Lernens kann Erwachsene in einer stärkeren Weise zum Lernen motivieren und Erwachsene sowie Unternehmen dabei unterstützen, die Vorteile der Erwachsenen- und Weiterbildung besser zu verstehen.

- F. **Bildungsanbieter und Organisationen benötigen geeignete Organisations- und Unterstützungsstrukturen**, die es den Lehrenden ermöglichen, IKT und OER wirkungsvoll bei der Entwicklung der Erwachsenen- und Weiterbildung einzusetzen.
- G. **Bildungsanbieter und Organisationen benötigen bessere nachhaltige institutionelle Strategien** für den Einsatz von IKT und OER in der Entwicklung der Erwachsenen- und Weiterbildung.
- H. **Bildungsanbieter benötigen eine stärkere Vernetzung**, den Austausch bewährter Vorgehensweisen und Partnerschaften, um zielgruppenorientierte und qualitativ hochwertige IKT-unterstützte Lerninhalte für ihre erwachsenen Lernenden zu entwickeln.

Für politische Initiativen:

- I. IKT, insbesondere mobile IKT, können genutzt werden, um **jederzeit Zugang zu Lernangeboten zu schaffen**.
- J. Der **Zugang zur IKT-Infrastruktur** ist nicht für alle Lernenden angemessen sichergestellt.
- K. **Schutzbedürftige Erwachsene** brauchen besondere Unterstützung. Dies sind beispielsweise Personen mit geringen Basiskompetenzen, einschließlich IKT-Fertigkeiten, mit geringer formaler Qualifikation oder Personen, die in anderer Weise benachteiligt sind.
- L. Die **Wahrnehmung** der Verfügbarkeit von IKT-unterstützten Lernangeboten für Erwachsene muss weiter gesteigert werden. Einheitliche und gesamteuropäische Informationen und Ressourcen zur Erwachsenen- und Weiterbildung können dies unterstützen.
- M. Die Vorteile des flexiblen und personalisierten IKT-unterstützten Lernens können durch **Instrumente zur Transparenz und Anerkennung** verstärkt werden. Erwachsene Lernende können zum Lernen motiviert werden, indem Möglichkeiten für eine Validierung und Anerkennung des Lernens aus verschiedenen Online-Lernangeboten geschaffen werden.
- N. Lizenz- und Urheberrechtsbestimmungen können weiterentwickelt werden, um **den Zugang zu digitalen Bildungsressourcen (OER) zu öffnen** und ihren wirkungsvollen Einsatz in der Erwachsenen- und Weiterbildung zu ermöglichen.
- O. Die **Weiterentwicklung einer gesamteuropäischen Evidenzbasis** zur Überwachung und Analyse der Entwicklungen in der IKT-unterstützten Erwachsenen- und Weiterbildung sorgt dafür, dass politische Entscheidungsträger gut informiert werden.
- P. Es gibt **Unterschiede zwischen den Mitgliedstaaten** bei der Teilnahmequote an der Erwachsenen- und Weiterbildung und beim Umfang der Entwicklung von IKT und OER für die Erwachsenen- und Weiterbildung. Die Ländergruppen, die ermittelt wurden, zeigen eine große Bandbreite bei der Entwicklung von Angeboten der Erwachsenen- und Weiterbildung unter Nutzung von IKT und OER.

Empfehlungen

Regierungen und Anbieter von Erwachsenen- und Weiterbildung in der ganzen EU können zur Entwicklung innovativer Angebote unter Einsatz von IKT und OER beitragen. Dies kann einerseits durch wirksame Organisationsstrategien erreicht werden, mit denen sichergestellt wird, dass die Lehrenden gute Kompetenzen hinsichtlich der innovativen Nutzung von IKT und OER erwerben und diese sachkundig einsetzen, und andererseits dadurch, dass der Schwerpunkt der institutionellen IKT-Infrastruktur auf der nachhaltigen Entwicklung von IKT und OER, unter Berücksichtigung der besonderen Bedürfnisse der erwachsenen Lernenden, liegt. Eine umfangreichere Evidenzbasis für die Erwachsenen- und Weiterbildung in ganz Europa kann die Politikentwicklung mit mehr Informationen versorgen.

Empfehlungen

Politik auf Ebene der Europäischen Union

I. Unterstützung des Austauschs von bewährten Vorgehensweisen beim Einsatz von IKT und OER in der Erwachsenen- und Weiterbildung

1. Die Bildung von europäischen **Netzwerken und Anwendergemeinschaften**, die Anbietern und Lehrenden der Erwachsenen- und Weiterbildung den Austausch bewährter Vorgehensweisen beim Einsatz von IKT und OER ermöglichen, sollte unterstützt werden (ET 2020, Erasmus+ und Europäischer Sozialfonds – ESF).
2. Das **Peer-Learning und Peer Review auf Ebene** nationaler/internationaler **politischer Entscheidungsträger** sollte mit dem Ziel, die nationale Erwachsenen- und Weiterbildungspolitik besser zu fördern (ET 2020 Arbeitsgruppe Erwachsenenbildung), unterstützt werden. Der Schwerpunkt sollte auf bestimmten Gruppen von Mitgliedstaaten liegen, beispielsweise Mitgliedstaaten mit besonderen IKT- und OER-Bedürfnissen bei der Erwachsenen- und Weiterbildung, und Mitgliedstaaten, die ihre Exzellenz bei der Entwicklung der Erwachsenen- und Weiterbildung mit IKT und OER noch weiter ausbauen können.
3. Der Aufbau einer **Evidenzbasis und die Durchführung von Forschungsarbeiten der Kommission** zur Erwachsenen- und Weiterbildung unter Einsatz von IKT und OER, sowie die **Evaluation der Auswirkungen der (IKT-unterstützten) Erwachsenen- und Weiterbildung** – in Zusammenarbeit mit der OECD, der UNESCO und dem Europarat – sollten gefördert werden.
4. Die **Verbreitung bewährter Vorgehensweisen beim Einsatz von IKT und OER in der** Erwachsenen- und Weiterbildung sollte unterstützt werden. Die Entwicklung eines integrierten Zugangs zu Ressourcen (insbesondere OER), Informationen und Wissen zur (IKT-unterstützten) Erwachsenen- und Weiterbildung (EPALE und Selbstbewertungs-Toolkit) sollte fortgesetzt werden. Ein breiteres Verständnis und die Akzeptanz eines gesamteuropäischen Rahmens und von Instrumenten für die Zulassung, Qualitätssicherung, Bewertung und Anerkennung des Lernens Erwachsener sollte gefördert werden.

II. Schaffung eines Umfeldes für die wirksame gesamteuropäische Nutzung von IKT und OER in der Erwachsenen- und Weiterbildung

5. Die Schaffung **eines europäischen Regelungsumfeldes** für den offenen Zugang zu Inhalten, den flächendeckenden Zugang zu Hochgeschwindigkeits-Breitband und zu einer „für alle geeigneten IKT" (Digitale Agenda) sollte fortgesetzt werden.
6. Das Bestreben, **Lernen und lernbezogene Inhalte**, die mithilfe von Finanzmitteln der Kommission entwickelt werden, mit einer offenen Lizenz zu versehen und als OER verfügbar zu machen, sollte fortgeführt werden.

Empfehlungen

Politik auf Ebene der Mitgliedstaaten

III. Aufbau nationaler Informationen und Ressourcen, um den Wert der Erwachsenen- und Weiterbildung unter Einsatz von IKT und OER zu fördern

7. **Nationale Governance-Strukturen** (Austausch bewährter Vorgehensweisen – siehe Empfehlung 2), die die Entwicklung eines integrierten Ansatzes für die Erwachsenen- und Weiterbildung unter Einsatz von IKT und OER ermöglichen, sollten eingerichtet werden.
8. N**ationale Leitlinien** für die Anbieter von Erwachsenen- und Weiterbildung hinsichtlich des wirkungsvollen pädagogischen Einsatzes von IKT und OER im Rahmen des Lernens Erwachsener sollten entwickelt werden.
9. **Informationskampagnen**, die für die Vorteile der verschiedenen (IKT-unterstützten) Typen des Lernens Erwachsener werben und an Anbieter, Lehrende, Lernende und Arbeitgeber gerichtet sind, sollten durchgeführt werden.
10. Ein **integrierter Zugang zu Ressourcen** (insbesondere OER in den Landessprachen), zusammen mit Informationen und Wissen hinsichtlich des Lernens Erwachsener, sollte entwickelt werden. Dabei ist sicherzustellen, dass diese die EPALE-Plattform ergänzen und mit dieser verknüpft werden.

IV. Entwicklung von Maßnahmen und Strategien, die die Entwicklung und Nutzung innovativer IKT-unterstützter und OER-basierter Angebote der Erwachsenen- und Weiterbildung ermöglichen

11. Nationale Regelungsbedingungen, die **einen offenen Zugang zu Inhalten ermöglichen („Open Access")**, eine Hochgeschwindigkeits-**Breitbandinfrastruktur** bereitstellen und eine „für alle geeignete IKT" ermöglichen, sollten geschaffen werden.
12. Eine **Strategie zur Verbesserung der digitalen Kompetenzen**, die Erwachsene dabei unterstützt, Grundkenntnisse und -fertigkeiten zu erwerben (Lesen und Schreiben, Rechnen, digitale Kompetenzen), damit sie IKT-unterstützte Angebote der Erwachsenen- und Weiterbildung wirkungsvoll nutzen und Vorteile daraus ziehen können, sollte entwickelt werden.
13. Finanzierungsmöglichkeiten **für nachhaltige Innovationen im Bereich der** Nutzung von IKT und OER für das **Lernen Erwachsener** (insbesondere für benachteiligte Personen) sollten bereitgestellt werden.

Anbieter von Erwachsenen- und Weiterbildung

14. **Entwicklung neuer institutioneller Strategien**. Auf Organisationsebene sollten Strategien zum Einsatz von IKT und OER in der Erwachsenen- und Weiterbildung entwickelt werden, mit denen eine möglichst starke Individualisierung des Lernens für Erwachsene ermöglicht wird. Hier gilt es, Praxisnetzwerke zum Austausch bewährter Vorgehensweisen aufzubauen und zu nutzen.
15. **Weiterbildung der Lehrenden.** Systematisches und kontinuierliches Training für Lehrende in der Entwicklung und Umsetzung innovativer Lernumgebungen, die IKT und OER nutzen, sollte bereitgestellt werden.
16. **Schaffung einer institutionellen IT-Infrastruktur**, die eine wirkungsvolle innovative Erwachsenen- und Weiterbildung unter Nutzung von IKT ermöglicht. Hier gilt es, die Finanzierung zur Verbesserung der organisatorischen Kapazitäten bei der Nutzung von IKT und OER in der Erwachsenen- und Weiterbildung sicherzustellen.

Obwohl sich vieles tut, gibt es zwischen den Mitgliedstaaten weiterhin beträchtliche Unterschiede beim Qualifikationsniveau von Erwachsenen, beim Zugang zu IKT, bei der Verfügbarkeit relevanter Inhalte und bei der Entwicklung innovativer Lernfähigkeiten sowie den Kompetenzen der Lehrenden. Bildungsanbieter müssen ihre institutionellen Strategien im Hinblick auf eine umfassendere Nutzung von IKT und OER anpassen. Insgesamt gesehen zeigen die oben aufgeführten Empfehlungen, wie wichtig eine stärkere Koordination und mehr politischer Austausch sind, um die Entwicklung auf der Ebene der Mitgliedstaaten zu beschleunigen. Sie betonen die Wichtigkeit einer stärker integrierten Nutzung von IKT und OER bei der Entwicklung von zielgruppenorientierten und innovativen Bildungsangeboten für alle Erwachsenen, mit mehr Synergien über alle Bereiche des Lernens hinweg.

1.0 Introduction

In December 2013 Ecorys, in partnership with Bertelsmann Stiftung, were commissioned by the European Commission Directorate General for Education and Culture (DGEAC) to provide a detailed picture of the current provision and take up of Information and Communications Technology (ICT) enhanced learning, including Open Educational Resources (OER), in adult learning (AL).

This report presents the findings of this study.

1.1 Study Context

This study explores the scope of what is a wide-ranging area of education and learning. Adult learning can span all age ranges that start after the end of compulsory education. It involves all types of learning, from informal to formal, from learning that adds value to an individual's quality of life, and workplace learning that focuses on increasing productivity, to formally recognised learning that results in accredited outcomes. It ranges from learning that is formally structured (curriculum and content) and delivered (by a learning 'provider'), to learning that is informally structured (ad-hoc content that meets a particular purpose), and which uses freely-available resources (particularly OER) that can be quickly moulded to particular needs. Learning can be place-based (delivered at physical locations), or delivered through distance learning (particularly using digital channels).

The Council Recommendation (Council 2012b) on recognition and validation of non-formal and informal learning provides concise definitions of all three forms of learning as follows:

- **Formal learning** takes place in an organised and structured environment that is specifically dedicated to learning, and typically leads to the award of a qualification, such as a certificate or a diploma. It includes systems of general education, initial vocational training and higher education;

- **Non-formal learning** takes place through planned activities (with learning objectives, learning time) where a form of learning support is present (e.g. student-teacher relationships). It may cover programmes to impart work skills, adult literacy or basic education for early school leavers; and

- **Informal learning** means learning resulting from daily activities related to work, family or leisure and is not organised or structured in terms of objectives, time or learning support.

This study focusses on the use of ICT and OER in formal and non-formal learning, and explores the extent to which ICT are being used in informal learning to engage adults back into learning. Due to the broad elements of adult learning activities that can be classified as informal learning, the study mainly considers informal learning in terms of its role of leading into or supporting non-formal or formal learning.

The next section discusses the definitions used for the study.

1.1.1 Defining adult learning

Adult learning includes both vocational and general components but in practice boundaries are often blurred. The same institution or provider may provide both types (especially in the case of formal learning), or may focus only on general adult learning. Further, in an era of 'key competences', the issue of where to draw the boundary between vocational and non-vocational is increasingly contested. For example, basic literacy and numeracy skills for disadvantaged learners may be a first stepping stone for improved employability and their motivations for participation may be vocational; and all learners may be able to develop work-related competencies through what is ostensibly non-vocational learning.

Adult learning also includes Continuous Vocational Education and Training (CVET) which covers any

"*Education or training after initial education and training – or after entry into working life aimed at helping individuals to:*

- *Improve or update their knowledge and/or skills;*
- *Acquire new skills for a career move or retraining; and*
- *Continue their personal or professional development".* (Cedefop 2008)

CVET, as emphasised by Cedefop, is "*crucial to reaching the Education and training 2020 (ET 2020) target of 15% average participation by adults (age 25-64) in lifelong learning by 2020"* (Cedefop 2008).

It has also been argued that adult general and vocational learning are complementary and should be available in combination, tailored to an individual's needs (Commission 2011).

Adult learning in general therefore encompasses the following:

- **Remedial functions** – helping individuals who failed to succeed in their initial education and training to obtain further learning and qualifications;
- **Developmental functions** – upgrading or updating skills across the population; and
- **Social and civic functions** – supporting community solidarity and welfare functions (e.g. through art and culture programmes), and providing opportunities for social interaction.

These functions vary depending on national and local policy and practice and individuals' needs, with adult learning having different meanings in different cultures. Provision is highly varied in terms of the size and type of providers, the nature of their governance and finance, their client groups, and the types of learning they provide. A study on adult education providers in Europe found that the average number of enrolments per provider ranged from more than 8,000 in Sweden, Greece and Germany to less than 100 in Poland (NIACE 2006). A multiplicity of different types of public and Non-Governmental Organisations (NGOs) are therefore involved in the delivery of adult learning.

This study has focused on **the provision of adult learning and the types of ICT and OER used to support the take up and delivery of that learning with a view to assessing what works and why, and what does not.**

Under the umbrella of this definition, the main focus was on the purpose of the provision and those accessing it. The term 'Adult' in this study is defined as 'anyone who is no longer in initial education'. This includes those who have finished initial education; those who are involved in second chance education; those who have dropped out of formal education; young adults; and adults on the other end of the scale – that is, the retired population and over 65s, often working on a voluntary basis.

1.1.2 The characteristics of adult learners of interest to this study

Prior to discussing the aims and objectives of the study, this section notes the adult learners of interest to this study, their characteristics, and how this study aims to address some of the barriers faced by these learners.

Research by Corley discusses the different ways that adult learners learn from young learners, citing Malcolm Knowles' (1980) concept of andragogy ("*the art and science of helping adults learn*"), as opposed to pedagogy ("*the art and science of teaching children*"). This is based on a number of assumptions that an adult learner:

- *"Moves from dependency to increasing self-directedness as he/she matures and can direct his/her own learning;*
- *Draws on his/her accumulated reservoir of life experiences to aid learning;*
- *Is ready to learn when he/she assumes new social or life roles;*
- *Is problem-centred and wants to apply new learning immediately; and*
- *Is motivated to learn from internal, rather than external, factors".* (Corley 2008)

All of the above have implications for how adult learners are taught, according to Corley, "*because adults need to know why they are learning something"*. In addition, "*adults learn through doing, effective instruction focused on tasks that adults can perform, rather than memorization of content*". (Corley 2008)

Christopher Pappas, the founder of eLearning Industry Network further develops Knowles's ideas on andragogy (Smith 2002) and his assumptions on the characteristics of adult learners which set them apart from young learners, these include:

- **Self-direction -** "*the need to take responsibility for their lives and decisions'* and thus why it is '*important for them to have control over their learning"*;
- **Being practical and results-oriented -** adult learners are "*practical, resent theory, need information that can be immediately applicable to their professional needs*'; they 'generally *prefer practical knowledge that will improve their skills, facilitate their work and boost their confidence";*
- **Being less open-minded and therefore more resistant to change -** *"Maturity and profound life experiences"* as quoted in the article often leads to *"rigidity",* which can often be a barrier to learning;
- **Being slower to learn** in this aspect 'aging' is said to affect learning, "*adults tend to learn less rapidly with age"*;
- **Using personal experience as a resource** - personal experience often means that adults *"have the tendency to link their past experiences to anything new and validate new concepts based on prior learning"*;
- **Motivation -** motivation is a key factor in all research linked to adult learning. Learning with respect to adults is usually "*voluntary",* it is often *"a personal choice to attend school, in order to improve job skills and achieve professional growth"*;

- **Having multi-level responsibilities -** adult learners also have other responsibilities such as juggling family, friends and work, and needing *'personal quality time';* hence it is difficult for them to *'make room for learning';* and
- **High expectations -** adult learners, perhaps in relation to time constraints around juggling other responsibilities "*want to be taught about things that will be useful to their work, expect to have immediate results, seek for a course that will be worth their while and not be a waste of their time or money";* therefore they have higher expectations than younger learners. (Pappas 2013)

Research by Cross also cites three key barriers that prevent adults from participating in learning as follows:

- "***Situational*** *- barriers that arise from one's situation or environment at a given point;*
- ***Institutional -*** *practices and procedures that exclude or discourage adults from participating in organised learning activities; and*
- ***Dispositional*** *- barriers related to the attitudes and self-perceptions about one-self as a learner".* (Cross 1981)

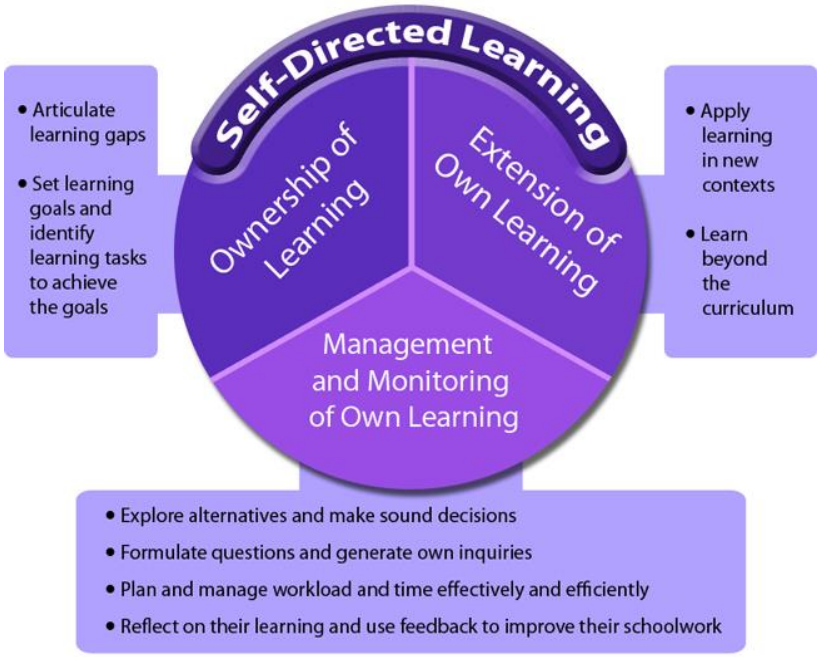
Other research that examines education for older adults also identifies a need to both acknowledge that their learning experience and competences are based in previous generations of schooling, and that they need to be helped to learn new ways of learning:

> "*Older adults should be given technology-based instruction that (1) is highly structured, (2) provides feedback and adaptive guidance, (3) includes metacognitive prompts, (4) incorporates principles derived from cognitive load theory and cognitive theory of multimedia learning, and (5) includes a user interface that is simple and consistent throughout the course.*" (Wolfson, Cavanagh, and Kraiger 2014)

How adults learn is therefore an important contextual consideration when developing learning opportunities using ICT and OER. This context includes taking into account how different types of adults learn and the conditions that need to be facilitated to encourage, in particular, those with low skills back into the education system. The characteristics of adult learners described above also suggest a need to adopt teaching and learning strategies that take into account their lifestyle and choices.

However, in doing so, and as mostly discussed in relation to ICT, adults will need to be able to 'self-direct' their own learning; that is, be motivated enough to be able to manage their own learning. This requires a number of attributes (Figure 1.1).

Figure 1.1 'Self-directed' learning attributes



Source: The ICT Connection [http://ictconnection.edumall.sg]

The use of ICT and OER, and the flexibility these approaches offer in allowing adults to learn in their own time, is often seen as a route to motivating adults to re-engage with the learning process. However, there is a need to look at who the target users of these ICT-enhanced learning systems are. Equally, there is a need to consider whether they have the skills to manage their own learning, for example in cases where the ICT approach involves an element of blended or distance learning.

This study explores how ICT and OER are used in adult learning, and also examines whether these approaches can be used for all adult learners, and the support measures used for those who do not have the skills to 'self-direct' their own learning.

1.1.3 Defining ICT-enhanced learning in the context of the study

Prior to discussing the use of ICTs in adult learning, it is important to distinguish between *"ICT-supported learning" and "ICT-enabled learning"* (Reddi 2007).

ICT-supported learning refers to the use of ICT tools in supporting learning content, usually in a formal learning context, for example providing supplementary multi-media content. ICT-enabled learning refers to any educational programme that is purely delivered through ICT, or with ICT-delivered content, as the primary method of the learning approach. This form of learning requires ICT access: for example, in respect of online courses where interaction with course tutors and other students takes place in a virtual learning environment.

This study works within the definition of *'ICT-enabled learning'* in order to draw a distinction between learning **how to use** ICT/OER and learning **with** ICT/OER. It also **focuses on all types of ICT-enhanced and OER-based adult education,** including innovative forms such as games, videos and webinars that might play a role in the future of ICT-enhanced and OER-based adult education.

In line with the issues discussed in the previous section on what motivates adults to learn, along with the adoption of strategies that support the learning process and the role that ICT can play, the study also considers the **extent to which ICT/OER were embedded in adult learning, the skills needed by teachers to enable them to use ICT effectively in the classrooms, and the link between staff competencies and the use of ICT-enhanced learning in adult education.**

1.2 Study aims and objectives

As set out in the Terms of Reference, the study aims were to contribute to the work of the Commission and Member States in achieving the objectives set out in ET 2020 in relation to ICT-enhanced learning, including OER in adult education/learning (AL), in particular through:

- Providing the Commission with a detailed description and analysis of the current state-of-play of the use of ICT-enhanced learning, including OER, in adult education in Europe, sampling across EU28 Member States, EFTA States and Candidate States;
- Providing policy-relevant analysis and advice;
- Developing policy conclusions and recommendations, for relevant policy makers in Member States, and for adult learning providers; and
- Developing an approach for a (self) assessment toolkit for adult learning institutions as well as policy makers for analysing their state of the art when it comes to ICT/OER use in adult learning.

In addition, the Terms of Reference outlined a number of specific outputs for the study, including:

- A review and analysis of EU and national level policies and research; of key academic literature as well as surveys on ICT-enhanced learning, including OER, in AL;
- A summary of the current use and take-up of ICT-enhanced learning, including OER, in different types of adult learning and where the potential is still unexploited;
- A detailed description of the types of providers of adult learning that are engaged in ICT-enhanced learning, including OER;
- A detailed description and analysis of the factors that contribute to improving the efficacy of ICT-enhanced learning, including OER within the adult learning provision;
- A detailed description and analysis of types of adult learners and their take-up of OER, including a description of their socioeconomic background;
- A detailed description of the types of OER (e.g. OER on higher education, basic skills, language learning) that different groups of adult learners are engaged in;
- An inventory of existing learner support measures required by non-users to take-up OER. This included a representative number of good practice examples for each of the target groups identified and an analysis of the success factors of the examples and conclusions on how these examples could be mainstreamed;
- Policy relevant conclusions and recommendations for actions to be taken by policy makers, other stakeholders in Member States and at the EU-level to make ICT-enhanced learning, including OER, a part of mainstream adult learning; and

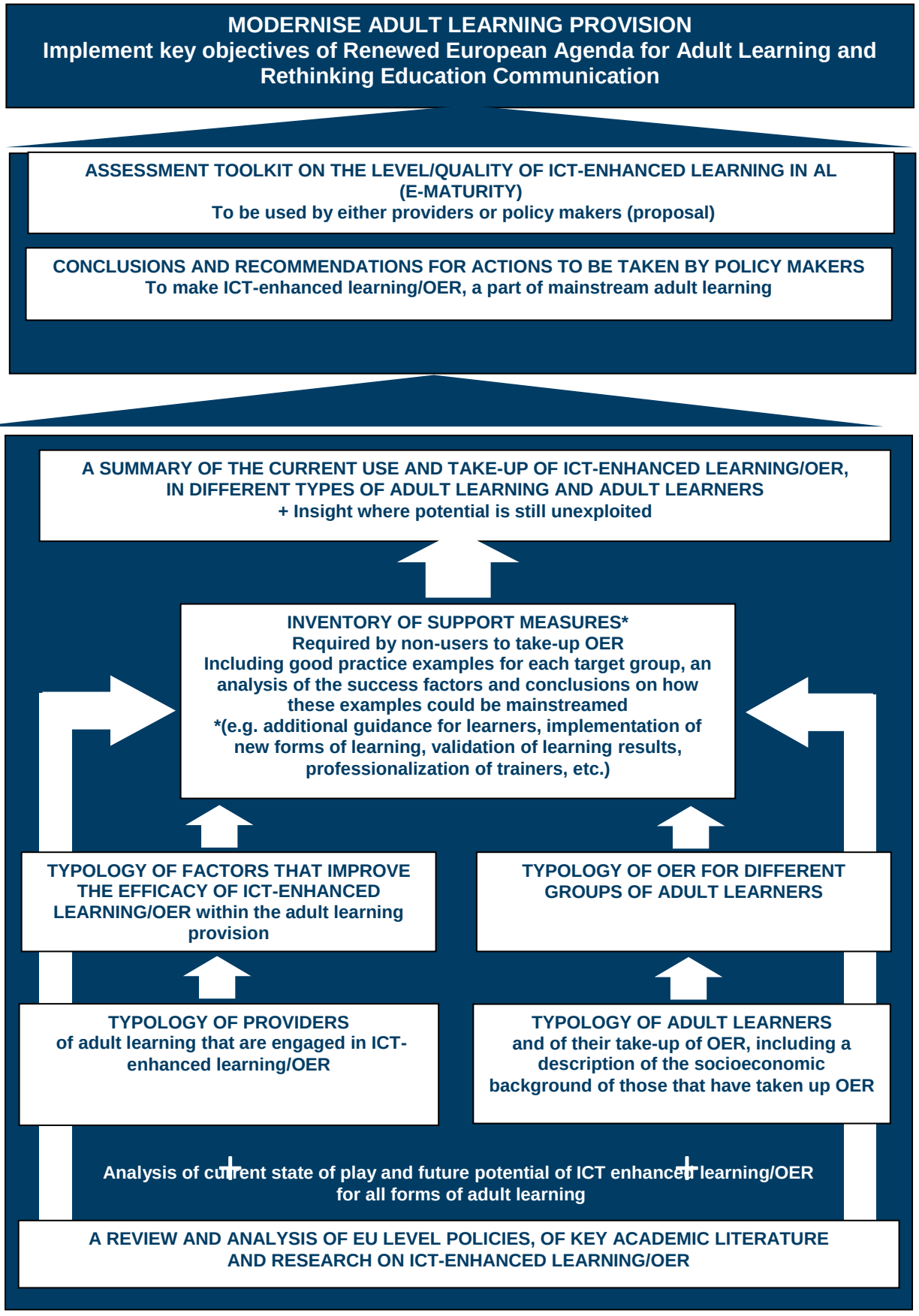
- A proposal for a toolkit for assessment on the level and quality of ICT-enhanced learning in adult learning (e-Maturity) to be used by either providers or policy makers.

The study in particular aimed to provide:

- In-depth insights into the largely unexplored area of ICT-enhanced and OER-based adult education, thus complementing the basic research work the Institute for Prospective Technological Studies (IPTS) has already undertaken*: What impact do ICT and OER have on adult education provision and uptake?*
- An analysis of the potential of ICT-enhanced and OER-based adult learning to raise the currently largely static participation rates towards the ET 2020 target of 15%, thus contributing to smart, sustainable and inclusive growth: *What potential have ICT-enhanced and OER-based adult learning to improve provision and increase uptake of adult education?*
- Recommendations on how to support the development of ICT-enhanced and OER-based adult education: *What can be learned from the outcomes of projects on ICT-enhanced and OER-based adult education and how can the sustainability of future projects be assured?*

An 'outputs hierarchy' below summarises how the study builds incrementally on the outcomes of previous work packages (Figure 1.2).

Figure 1.2 Outputs hierarchy



At the outset a review of EU policies, and the broader academic and research literature, provides a structured overview of the existing policy landscape, and understanding of adult learners and their needs, of the providers and provision, and insights into the role of ICT and OER in developing adult learning. The understanding of providers and learners identifies key barriers, and factors that can improve the efficacy of adult learning through the use of ICT and OER, and helps to structure the approach taken in the country level research. The analysis and synthesis of the country research provides a detailed inventory of policies and adult learning activities that lead to conclusions, and a structured toolkit with examples of best practice, accompanied by recommendations to European and National policy actors, and to adult learning providers.

The key research questions that were designed to help address the above objectives are appended in Annex One.

1.3 Methodology

This section sets out the methodology used to address the aims and objectives of the study. It gives the rationale behind the approach to the study, the activities carried out under it, and the challenges faced in addressing some of its key objectives.

1.3.1 Rationale behind our approach to the study

The study contained six work packages starting from a detailed literature review through to in-depth country level work. Two important methodological considerations were taken into account in developing the approach to this study.

First, the recognition that the adult learning sector across Europe was very diverse: This approach informed the selection of countries included in the study.

Second, that the use of ICT in adult learning was complex and multifaceted: the overall approach was therefore based on systematically identifying the different types of ICT/OER used in the delivery of adult learning provision in relation to three key aspects of adult learning, namely: curriculum (content), pedagogy (teaching and learning methods) and assessment (which also includes the relationship to qualifications).

1.3.1.1 Country selection approach

To reflect the diversity of the adult learning sector in Europe, an initial country selection was based on a two-step, data-driven process combining quantitative data (cross-sectional and time-series) with data on the participation rates in adult education in the country, as well as the country's status regarding the degree of digitalization in general and the use of ICT in adult learning.

While 'participation' was operationalised using a single benchmark indicator, 'digitalization' was represented by four indicators on the use of ICT (in general and in adult learning) which were combined to one single indicator through factor analysis (Table 1.1).

Table 1.1 Approach for the preliminary country selection

Dimension 1: Participation in lifelong learning	
Indicator 1: Participation in lifelong learning	The Indicator provides a value on the status quo of adult-learning within a country and maps the percentage of Individuals who participated in education and training 4 weeks prior to the survey.
Dimension 2: Digitalization and the use of ICT in adult learning	
Indicator 1: Digital Inclusion (in the age group 25-64 years)	The indicator maps the percentage of individuals who access Internet once a week up to every day. As a EU Key performance indicator it describes the degree of digital inclusion, which is a precondition for the usage of ICT in training and education.
Indicator 2: E-Skills (in the age group 25-64 years)	The indicator gives insight into the number of Individuals who have carried out 5-6 of the Internet related activities as percentage of all individuals in a country. This indicator describes the level of e-skills of a population, which are also a precondition for the usage of ICT in training and education.
Indicator 3: Percentage of Individuals who used Internet, in the last 3 months, for training and education (in the age group 25-64 years)	This indicator provides information about the take-up of ICT in training and education in a country.
Indicator 4: Percentage of Individuals who have used Internet, in the last 3 months, for looking for information about education, training or course offers (in the age group 25-64 years)	This indicator gives an insight into the role ICT may play for widening access to training and education in a country.

Source: Eurostat. | BertelsmannStiftung

The **first** step of the selection process used Eurostat statistics to map European countries according to these two dimensions (participation and digitalization). Based on this, three preliminary clusters of countries were identified that resembled each other with respect to the status of adult learning and the adoption of ICT-enhanced learning among adults: 1) 'traditionalist cluster' with both low participation in adult learning and low levels of digitalization 2) 'tentative cluster' with medium levels of participation and slightly above average levels of digitalization and 3) 'future-oriented cluster' with high levels on both dimensions. The grouping of countries into these clusters by quantitative indicators was validated by a country analysis based on desk-research.

The **second** step of the selection process used time series data (2009 and 2012) on the development of the countries in terms of the two dimensions of participation and digitalization. This allowed the identification of countries which were especially dynamic and would be of particular interest for the country research. Based on these dynamics, the countries were grouped again, distinguishing countries with a 'dynamic', 'static' or 'regressive' development. Dynamic countries displayed positive development in both dimensions; static countries showed no clear development in either one of the dimensions; regressive countries showed negative development in both dimensions.

To ensure that the sample of countries selected was well balanced, approximately three or four countries from each of the three clusters identified (traditional, tentative and future) were included in the selection process, mostly focussing on the 'dynamic' and the 'regressive' countries as these were likely to be the most interesting for the country research. To ensure that the sample was representative, the following additional criteria were also added across cluster and dynamic types: country size, geographic location of the country (e.g. central, northern, eastern Europe), and country status (e.g. EU-member, EU-candidate, EFTA state).

On the basis of the above approach, a preliminary sample of countries was identified, based on an analysis of their current status and recent developments around participation in adult learning, as well as the degree of digitalisation of that country. The final selection was further refined following from a meeting with the Commission; Spain was chosen to replace Bosnia Herzegovina because of the progress made in the use of ICT and OER in adult learning (Table 1.2).

Table 1.2 Final sample of countries

Cluster	Growth *	Static *	Regress *	Potential candidates (not in Database)	International (not in Database)
FUTURE-ORIENTED	**SE - Sweden**	DK - Denmark	LU - Luxembourg		**Brazil ****
	IS - Iceland (candidate)	FI - Finland	**NL - Netherlands**		**USA ****
	NO - Norway (efta)		**UK - United Kingdom**		
TENTATIVE	**EE - Estonia**	**ES - Spain**	**DE - Germany**	**Turkey ****	
		AT - Austria	**FR - France**		
			SI - Slovenia		
TRADITIONALIST	**CZ - Czech Republic**	HR - Croatia	BE - Belgium		
	LV - Latvia	IT - Italy	CY - Cyprus		
	HU - Hungary	LT - Lithuania	**PL - Poland**		
	MT - Malta	**EL - Greece**			
	PT - Portugal	BG - Bulgaria			
	SK - Slovakia	RO - Romania			
	IE - Ireland				

☐ = Country is selected in the representative Sample. Countries were selected in the sample, in order to represent the different clusters of countries defined by the dimensions "participation in lifelong learning" and "digitalization and the use of ICT in adult learning" („future-oriented", „tentative", „traditionalist") as well as the dynamic development in these dimensions (Growth, Static, Regress), European region, country size, Status (e.g. member State, candidate).

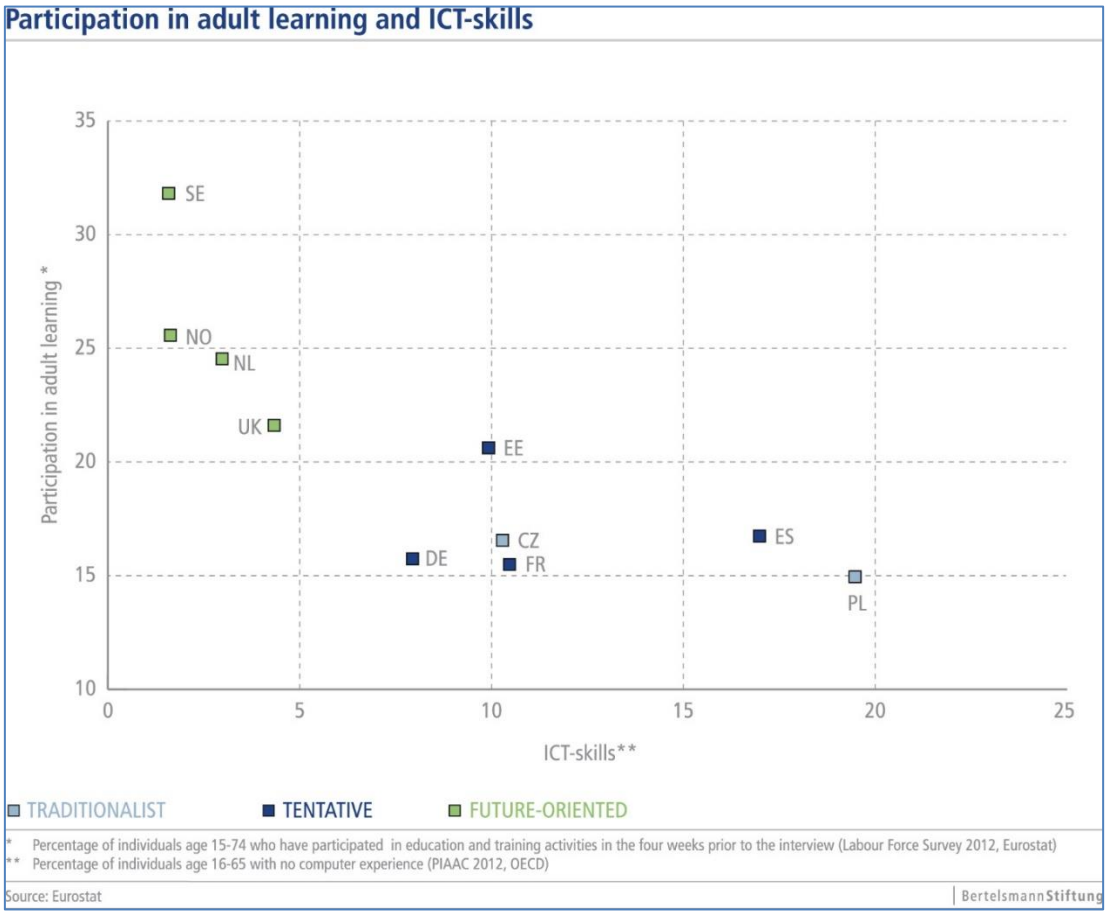
* Based on the dynamic development in both dimensions, participation in lifelong learning and digitalization/use of ICT in adult learning, countries were allocated to either one of the groups: a) Growth countries (positive development in both dimensions), b) static countries (no clear development in either one of the dimensions) c) regress countries (negative development in both dimensions).

** Quantitative data for this country is not available for all variables used in the analysis. The Country is assigned to either one of the clusters „future-oriented", „tentative", „traditionalist" based on a qualitative analysis.

Source: Eurostat. | BertelsmannStiftung

In addition, a **third** step of analysis using the Eurostat Labour Force Survey was added to the selection process to explore the 'participation in lifelong learning (LLL)' of the countries chosen by looking beyond the 25-64 year age range and including younger (15-24) and older (65-74) segments of the population. The findings at this stage highlighted that the three initial clusters (traditionalist, tentative and future-orientated countries) were well-represented, even with the additional data (Figure 1.3). SE, NO, NL and the UK all had a relatively high involvement of the population in adult education and relatively few people with no ICT skills. In these countries the study's approach was to find best practice examples on the use of ICT and OER in the delivery of adult learning provision. Chapter 5 of the report highlights some examples from these countries.

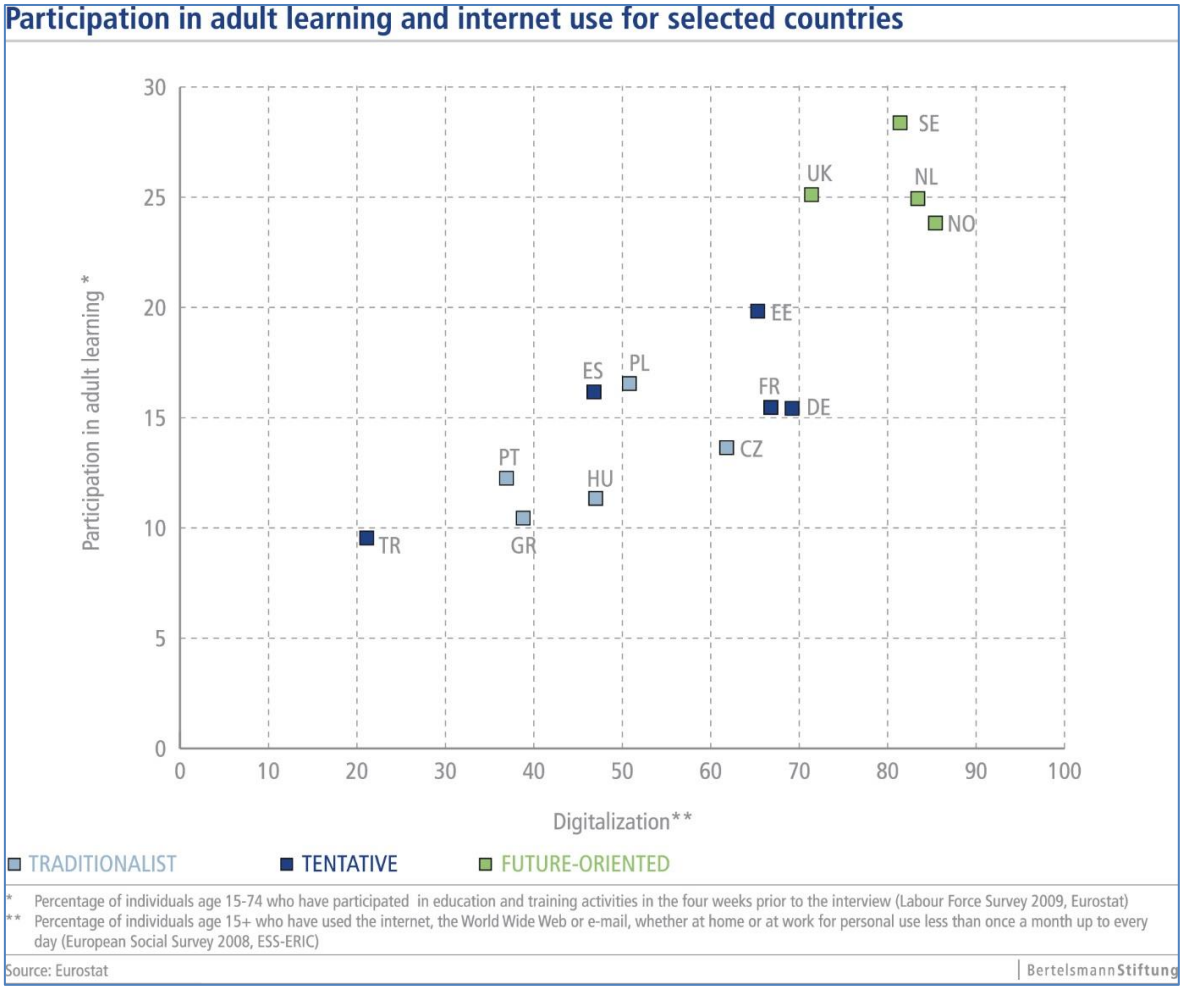
Figure 1.3 Participation in lifelong learning



EE, DE, FR and ES did not perform as highly on the two dimensions: 'participation in LLL' and 'ICT-Skills'. These countries were studied more closely in order to understand the extent to which ICT was used in adult provision, especially with regard to the involvement of specific target populations (e.g. those with low levels of formal qualifications), and what attempts were being made to widen participation. The study assumed that analysing these countries would help in highlighting a possible development path for those countries that had a longer way to go, such as HU, EL, PT, CZ and PL. CZ also scored better with regards to ICT-skills compared to the use of the internet for learning and training in our previous analysis under step one. The aim was to explore the reasons behind these differences. Chapter 5 discusses the findings linked to these countries.

However, when the European Social Survey - the second dataset - was added to the analysis this picture did not seem to hold (Figure 1.4). For instance, CZ showed fairly high use of the Internet in general. As well as transferring know-how on good practices across clusters, the study aim was to gather learning from the countries within each of these clusters.

Figure 1.4 Participation in adult learning and Internet use of selected countries



1.3.1.2 Changes to the initial cluster assignment

Following on from the country research, EE was moved to the future-oriented cluster as it was found to exhibit almost all the cluster characteristics, although most ICT initiatives have only recently been implemented. Although EE has a long way to go until it has benchmark results comparable to the other countries in the cluster regarding participation in lifelong learning, and digitalisation and the use of ICT in adult learning, it seemed to be on the right track.

PT was moved from the traditional to the tentative cluster for similar reasons. Here too, most of the characteristics of the more advanced cluster are present, though Eurostat benchmarks indicated a different story. PT might also be on the right path towards increasing its participation in lifelong learning, and digitalisation and the use of ICT in adult learning, although data from the country research is not as clear (as in the case of EE above).

TR was moved from the tentative cluster to the traditionalist cluster. Here, the assumption that the country analysis would reveal a similar progressive policy for the use of ICT in adult learning as is the case for schools and higher education in TR was proved incorrect. Whereas promising approaches of ICT-enhanced learning for adults exist, these were mostly singular projects located at universities.

1.3.2 Tasks carried out under the study

The study involved six work packages.

1.3.2.1 WP1: Inception and Scoping

A kick off meeting with the Commission was held on the 15th January 2014 to discuss the drivers behind the study, methodological issues, and to set the parameters for the study. The meeting reviewed the objectives of the study, key target audiences, discussed the country selection approach, and clarified definitions around adult learning and the scope of ICT-enhanced and OER-based learning.

Following the kick off meeting, a conference call was held with the core team and a panel of High Level Experts on 24th January 2014. This meeting reviewed the outcomes of the kick-off meeting and discussed the scope of the literature review as well as the study in general.

Following on from these series of meetings, the core team carried out a feasibility study to identify the type of documents and studies to be used for the literature review.

The preparation of an inception report in January 2014 represented the final task under this work package.

1.3.2.2 WP2: Desk Research

A detailed literature review was carried out to provide an overview of the current international debate in academia on ICT-enhanced learning and OER in AL. It aimed to provide a deeper understanding of the types of ICT and OER used in AL, and the benefits of such approaches in widening access and improving the quality of provision. It also aimed to identify policy level measures at the EU and national level, how adult skills needs were being addressed using ICT-enhanced methods, and the political commitment to up-scaling adult learning using ICT-enabled and ICT-enhanced technology. This element aimed to examine the level of awareness of policymakers or their perceptions of the benefits of ICT-enhanced learning and OER.

By drawing on international and EU level developments the review aimed to provide a foundation for the development of a typology of providers of ICT-enhanced adult learning, involving OER, as well as a typology of OER to inform the country research. It also aimed to provide a sound basis for the assessment and benchmarking of best practice in ICT-enhanced learning.

The main goal of developing typologies of ICT and OER used in adult learning was to show what good practice existed, the types of ICT used for different groups of learners, and why these approaches were used in order to inform and improve adult education practice.

The review also set out to explore the diversity of adult learning provision, and to identify common activities and themes (importantly, the focus was on providers rather than learners). This work took on an exploratory focus, to avoid enforcing a particular definition on 'adult learning'.

Whilst it was possible to gather some evidence on the types of ICT tools and OER initiatives used in adult learning from the literature review, it was clear that these approaches were less developed in the adult learning context, and more prevalent in other educational sectors, particularly schools and in higher education. Thus, beyond gaining some practical insights into interesting examples of where ICT and OER are used in adult education, it was clear at the end of this stage of the study that more work would need to be done in order to establish how ICT and OER were used in a practical context.

An online survey which was originally designed to test the typologies that emerged from the literature review, was therefore re-designed as a mapping tool to explore how different Member States used ICT and OER in their adult learning provision.

The literature review, however, highlighted a number of emerging themes which were used to develop a conceptual framework. This framework informed the questions used to design the survey questionnaire and the topic guides for the country research work. The framework is set out in more detail in Section 1.3.3.

The findings of the literature review are presented in Chapters 3 and 4.

1.3.2.3 WP3: Country level research

This work package involved two key tasks: an online survey and country-specific research.

The online survey gathered information on how providers of adult learning used ICT and OER in their provision. To support the development of the toolkit (one of the study deliverables) questions were included in the survey on what providers would expect to see in such a toolkit, and how it should be developed to encourage them to use it.

Prior to its roll out across Member States, the survey was piloted with six adult learning providers in four countries (EE, DE, NO, and UK). Following the piloting phase, the questionnaire was revised in collaboration with the Commission and formally launched on the 11th of June 2014. It generated 305 responses from 22 countries. This figure includes 14 respondents who started the survey but did not complete. However, they had covered over half of the survey and therefore it was judged to be valid to include their responses in the overall sample. In line with the research specification, two countries (Brazil and USA) outside the EU were also included in the survey because they demonstrate advanced practice in using ICT-enabled technologies and OER in adult education.

Due to the lack of a sampling frame on the number of institutions that provide adult learning across the EU, it is difficult to estimate whether the responses achieved for the online survey were representative. Thus there were limitations to this survey. It is also likely that, as the survey did not follow a structured sampling approach and was open to all relevant EU countries, it attracted respondents who were more likely to be pro-active in their use of ICT and OER. There may thus be a level of bias in the achieved sample.

However, the achieved sample was generally in line with the response received in the public consultation exercise carried out by the Commission with external stakeholders on innovative teaching and learning. This was carried out between August and November 2012 and targeted at a wider sample covering individuals, public authorities and organisations involved in education and training. This generated 222 responses. (Commission 2013a)

A breakdown of the responses to the survey is presented in Annex Two.

In addition to the survey, work-package three included research in 16 countries[1] to explore how ICT and OER were used in the delivery of adult learning provision. This strand of the work was carried out in September 2014. The country work involved approximately 100 interviews with policy makers and adult education providers. It aimed to provide insights into how ICT and OER were used to support adult learning.

The findings of this work-package are presented in Chapter 5.

[1] Brazil, Czech Republic, Estonia, France, Germany, Greece, Hungary, Netherlands, Norway, Poland, Spain, Sweden, Turkey, United Kingdom and United States.

1.3.2.4 WP4: Analysis and development of typologies

This work package involved a detailed analysis of all the information collected from the previous work packages: literature review, survey and country research.

It involved a detailed comparative analysis which has provided evidence-based information on the state-of-play and take-up of OER among adult learners across the selected countries.

Chapter 5 reflects the work carried out under this work-package.

1.3.2.5 WP5: Self-Assessment Toolkit

A toolkit has been designed as an output of the study to help adult learning institutions assess where they are in relation to benchmarks on best practice in the use of ICT and OER in adult learning. It includes good practice examples drawn from the countries involved in the study. The toolkit has been designed to help providers understand where their own practice fits along scales of best practice gathered in some of the countries that were studied in depth. It also aims to help providers improve the use of ICT and OER in adult institutions. The intention is to link the toolkit to the Commission's Electronic Platform for Adult Learning in Europe (EPALE). More information about the structure and content of this toolkit is presented in Chapter 6 and Annex Three.

1.3.2.6 WP6: Final reporting

Work package 6 involved the preparation of the final report. The results and work carried out under this strand are presented in this report.

1.3.3 The development of a conceptual framework to further inform the methodology

A framework was developed to help inform the research tools used. This framework was mainly based on a review of ICT-enhanced education (mainly for schools) in 2009 carried out by the EU Joint Research Centre (JRC) and OECD.

This review highlighted the need "*for a thorough, rigorous and multifaceted approach to analysing the impact of ICT on education and students' learning*" (Scheuermann and Pedró 2009). A conceptual framework was developed as part of this review to examine the various dimensions of ICT use in education and associated indicators of process and performance. The key components of the JRC and OECD framework informed the development of a conceptual framework for this study. These components are:

- **National level strategies.** How far national strategies focus on how ICT is implemented in terms of the concrete steps that need to be taken to develop ICT-enhanced learning, and overcome specific barriers such as legal, copyright or financial (rather than simply focusing on the importance of technology per se);
- **Local level strategies.** How national level strategies are being implemented at the local level, for example through infrastructure investment, support for training and the development of support structures;
- **Institutional level**. How far individual provider strategies incorporate an explicit focus on the use of ICT;
- **Teacher education level.** How far teacher education includes strategies that increase the competence of teachers in using ICT;
- **Learning environmental level.** The ways in which online environments are used for learning activities and their contribution to enriching the learning process;

- **Collective level**. The role of ICT in stimulating more collaborative work among students; the extent to which students and teachers upload content produced in schools to the Web and share it with others; and the extent to which they reuse content that they find on the Web as part of their own learning activities; and
- **Individual level**. Indications of the outcomes of ICT use on the individual level. In the context of adult learning these are the take up of adult learning opportunities (this builds on the OECD framework to measure the influence of ICT approaches on the engagement and participation of adults in learning) and contribution to successful outcomes, such as access to employment and up-skilling in the workplace.

The components of this framework informed the structure of the questionnaire for the survey with adult learning providers. The use of ICT-enhanced learning in adult learning provision was explored at three levels: *Institutional, Teacher Education* and *Learning Environment*. The country level research further explored the role of ICT-enhanced learning at all seven levels. At the stakeholder level, the country research was used to explore specific strategies of policy makers and related programmes that have impacted on ICT approaches in adult learning at the *National* and *Local* levels. The provider interviews on the other hand explored the use of ICT at five levels: *Institutional, Teacher education, Learning Environment, Collective* and *Individual.*

The framework was also used to support the implementation of a cross-national comparative study, identification of good practice, and the formulation of recommendations in Chapter 6.

1.4 Structure of the report

The rest of the report is structured in line with the TOR objectives as follows:

- **Chapters 2** reviews EU level policies on adult learning and links initiatives in this area to that of OECD and UNESCO.
- **Chapter 3** sets the scene for the study by presenting statistical evidence relating to the adult learning landscape, and the potential role that ICT and OER can play in addressing the challenges around low participation in adult learning.
- **Chapter 4** discusses key academic literature on ICT-enhanced learning, including OER, in adult learning. In addition it looks at the factors that can contribute to improving the use of ICT and OER in adult learning provision.
- **Chapter 5** presents the findings from the review of national level policy and strategic documents of the 16 countries selected for the study, and discusses the similarities and differences of these countries in relation to the implementation of ICT policies and strategies in adult learning. It then provides a detailed description of the types of institutions that are using ICT-enhanced learning systems, including OER in the adult learning provision. This includes examples of how ICT is used for different groups of adult learners. The section concludes by providing an analysis of the factors that contribute to improving the use of ICT-enhanced learning tools, including OER in adult learning provision based on consultations carried out across the 16 countries studied.
- **Chapter 6** offers policy relevant conclusions and recommendations for actions to be taken by policy makers, other stakeholders in Member States and those at the EU-level, and recommendations for a self-assessment toolkit.

One of the TOR objectives was to provide a detailed description and analysis of the take-up of OER by adult learners, including a description of the socio-economic background of adult learners that have taken up OER. Whereas the literature reviewed highlights many examples on the use of OER in the context of Massive Open Online Courses (MOOCS), these have mainly been in higher education. Hence, it has not been possible to set out a detailed description of the take-up of OER due to a lack of information in this area. In that same context, it has also not been possible to provide an inventory of the existing learner support measures required by non-users to take-up OER.

However, where relevant, some best practice examples have been provided from the 16 countries studied on the use of OER in adult learning.

2.0 Policy Context

2.1 Introduction

This chapter reviews the development of the European Union (EU) policies and actions relating to Adult Learning (AL), showing how education and training policy challenges have been identified and addressed. It then looks at the international context, specifically the international organisations with which the EU engages in close collaboration, namely UNESCO and the OECD.

2.2 EU Policy Developments related to Adult Learning

2.2.1 The development of EU Adult Learning Policy

Following the success of the European Year of Lifelong Learning in 1996, the Commission published its Memorandum on Lifelong Learning (LLL) in 2000 which asserted that Lifelong Learning "*must become the guiding principle for provision and participation across the full continuum of learning contexts*". This stressed that "*integrating learning more firmly into adult life is a very important part of putting lifelong learning into practice*" (Commission 2000).

In 2001 the Commission set out the vision for "***Making a European Area of Lifelong Learning a Reality*"** (Commission 2001), establishing a context for the development of a coherent strategy for LLL across the EU, aiming to connect the historical 'silos' of education, training and the labour market, and to make learning something that occurs throughout life, in many places (school, college, workplace, home etc.), and in many contexts (formal, informal, non-formal etc.).

The Communication identified specific priorities for action, identifying needs of better information about learning opportunities, guidance and advice to help motivate learners to engage with opportunities and invest their time and money in learning and to show that their learning would have 'value'. Basic skills needed to be improved, learners should benefit from new and innovative pedagogies, and that the Commission and Member States (MS) would need to collaborate in achieving the vision. A strong evidence base would be needed to inform and monitor the actions, including the development of meaningful indicators, and active cooperation would be undertaken with OECD, UNESCO, and the Council of Europe.

The pan-European collaborative focus of LLL was underlined in the **Copenhagen Declaration** of 2002 for "*enhanced European cooperation in vocational education and training*" (Commission 2002). Emphasising the voluntary and collaborative processes, it links education and training more closely. Enabling actions were identified to be undertaken between 2000 and 2004, including the "*Development of a single transparency framework, credit transfer in vocational education and training and development of quality tools"* (Commission 2002). The '**Lisbon Agenda**' Communication in 2005 built on the vocational education and training (VET) developments, placing VET in the context of wider goals to "*raise employment and productivity and strengthen social cohesion*" across the Single Market (Commission 2005).

The Lisbon Agenda underlined the importance of recognising professional qualifications,[2] and proposed the development of a European Qualifications Framework to help "*communication and comparison between qualifications systems in Europe*."[3] Looking ahead to a period of demographic change in ageing societies, it noted that people would need to work longer, to learn throughout life, and to be up-skilled for the new types of jobs anticipated, particularly those using ICT (Commission 2005).

A more specific focus on adult learning came with the Commission Communication "***Adult learning: It is never too late to learn***" (Commission 2006). Emphasis was put on: the financing of adult learning; on reforming programmes to take a coherent view of adult learning at the national level; on engaging with all stakeholders in the development of policies; and, on sharing policy maker experiences and practices (peer learning) across the EU. One year later the Commission followed with a Communication detailing a clear action plan "***Action Plan on Adult learning - It is always a good time to learn***" (Commission 2007). Five areas of activity were identified which could be supported through the European Social Fund (ESF) and Lifelong Learning (LLL) programmes. First, ongoing reforms across MS in the education and training systems needed to be analysed. Second, the quality of adult learning provision needed to be improved. Third, adult learners needed to see clear progression occurring in their learning. Fourth, the mechanisms to assess skills and competences, and to validate and recognise learning outcomes, needed to be faster operationally. Finally, the overall AL sector needed stronger and more consistent monitoring.

The following year the European Council adopted its conclusions on adult learning, "***Council conclusions of 22 May 2008 on adult learning*** *(2008/C 140/09)*" (Council 2008). It highlighted the need for: ongoing education system reform; improvements in the quality of provision of learning opportunities; opportunities to identify and share good practice; to further raise awareness and motivation for adult learning; and, to embed adult learning in LLL strategies.

The need to place education and training clearly in the context of how they contribute to economic growth, led to the EU Strategic **Framework for Education and Training (ET 2010)**. In Council conclusions (Council 2009) four strategic objectives were identified, all of which had direct relevance to adult learning:

- *Making lifelong learning and mobility a reality;*
- *Improving the quality and efficiency of education and training;*
- *Promoting equity, social cohesion, and active citizenship; and*
- *Enhancing creativity and innovation, including entrepreneurship, at all levels of education and training*.[4]

[2] http://ec.europa.eu/growth/single-market/services/qualifications/index_en.htm
[3] http://ec.europa.eu/ploteus/search/site?f%5B0%5D=im_field_entity_type%3A97
[4] http://ec.europa.eu/education/policy/strategic-framework/index_en.htm

ET 2010 was superseded by ET 2020[5]. Accompanying its strategic objectives were a set of benchmark targets to be met overall at the European level (the EU target being translated into National Targets). Two targets are of direct relevance to adult learning:

- At least 40% of people aged 30-34 should have completed some form of higher education; and
- At least 15% of adults should participate in lifelong learning.[6]

The target of 15% reflects uneven adult learning participation levels across MS. It also shows the size of the challenge to significantly widen adult participation in learning. 'Thematic Working Groups' of MS and other invited representatives, made recommendations regarding AL policies, specifically on Quality Assurance[7] and Financing.[8] These groups were replaced in 2014 by the **ET 2020 Working Group on Adult Learning** which will provide policy guidance specifically on: the effectiveness and coherence of AL policies, provision of basic skills for adults, and the effective use of ICT and OER in adult learning."[9]

The global economic crisis (from 2008 onwards) was fundamentally changing the economic landscape. The European response was the establishment of the "***Europe 2020. A strategy for smart, sustainable and inclusive growth.***"[10] The Commission Communication (Commission 2010b) took forward the first of the two ET 2020 targets above as one of the Europe 2020 benchmarks. In addition, in the following year the "**Council conclusions on the role of education and training in the implementation of the Europe 2020 strategy**" (Council 2011a) strongly emphasised the role of education in training in achieving the Europe 2020 jobs and growth objectives. Operationally ET 2020 was to become more synergistic with Europe 2020 (work cycles, reporting, and objective setting), and recommended action on LLL to ensure that skills and (especially digital) competences were meeting the needs of the European labour market, and that access to LLL was inclusive.

The **EU Renewed Agenda for Adult Learning** which was adopted by the Council (Council 2011b) identified five headline priorities, with specific actions under the priorities. In summary these were:

1. Making lifelong learning and mobility a reality: Stimulate demand and supply; motivate adult learners; workplace learning; flexible learning; validate informal and formal learning.
2. Improving the quality and efficiency of education and training: Quality assurance; training educators; transparent and viable funding mechanisms; effective linkage to labour market needs; strong stakeholder collaboration.
3. Promoting equity, social cohesion and active citizenship through adult learning: Improve skills in numeracy, literacy, and digital skills; improve inclusive access to adult learning in both disadvantaged groups (poverty, ethnicity etc.) and those in specific circumstances such as hospitals or prisons; encourage active learning by older adults.

[5] http://ec.europa.eu/education/policy/strategic-framework/index_en.htm
[6] http://ec.europa.eu/education/policy/strategic-framework/index_en.htm
[7] http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2659&NewSearch=1&NewSearch=1
[8] http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2660&NewSearch=1&NewSearch=1
[9] http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2995&NewSearch=1&NewSearch=1
[10] http://ec.europa.eu/europe2020/index_en.htm

4. Enhancing the creativity and innovation of adults and their learning environments: Transversal skills and competences; Involving cultural organisations; Using ICT; Collection by MS of comparable evidence at national, regional and local levels.
5. Improving the knowledge base on adult learning and monitoring the adult-learning sector: Analysis and communication of the Adult Education Survey (AES), the Continuing Vocational Training Survey (CVTS) and the Programme for the International Assessment of Adult Competencies (PIAAC); Monitoring of adult learning policies as part of the ET 2020 monitoring process.

The Renewed Agenda set a strong framework for subsequent activities. Adult learning was placed clearly within the Europe 2020 Strategy for 'Jobs and Growth', and it was being underpinned through a focus on stronger evidence and monitoring, and collaboration with other international actors in education and the labour market (OECD and UNESCO). The rest of this section details the subsequent developments that addressed the five priority areas of the Renewed Agenda.

In 2012 "***Council conclusions on education and training in Europe 2020***" (Council 2012a), recommended strengthening the peer review process and improving information availability (Council 2012a).

Referring to progress towards the Europe 2020 targets the Commission Communication "***Taking stock of the Europe 2020 strategy for smart, sustainable and inclusive growth***" (Commission 2014i) noted that educational outcomes were yet to translate fully into jobs and growth. The Communication reported significant divergences across MS, with the gap between regions widening. The "***Education and Training Monitor 2014***" (Commission 2014d), recommended the use of particular policy levers in response, including:

> "*Strengthening the offer of high-quality vocational education and training; Facilitating lifelong learning after initial education; Enabling the validation of qualifications and competences … The lack of lifelong learning creates a low skills trap for the seventy million adults without upper secondary education attainment that are most in need of up-skilling.*" (Commission 2014d)

The developments in statistical data, monitoring, and analysis provided stronger insights into specific needs of MS, and more effective comparability across the EU. The Europe 2020 targets, and their translation into national targets by MS, have been accompanied by a monitoring process within the European Semester where (since 2011) the Commission publishes Country Specific Recommendations (CSRs) for each MS[11]. Across the CSRs there are recommendations relating to:

- Skills linkage to the labour market: Belgium, Croatia, Denmark, Estonia, Finland, Hungary, Lithuania, Romania, Spain, UK;
- Policy and system reform and modernisation: Belgium, Bulgaria, Croatia, France, Hungary, Luxembourg, Spain;
- Quality and effectiveness: Bulgaria, Croatia, Denmark, Latvia, Portugal, Romania;
- Promote attractiveness of LLL and increase access and participation: Estonia, Lithuania, Poland, Portugal, Romania, Slovenia;
- Increase employability of older people: Finland, France, Germany, Netherlands;
- Recognition: Austria, Italy;
- Inclusion: Germany, Romania, Slovakia;

[11] http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index_en.htm

- Workplace training: Ireland, Italy, Slovakia; and,
- Stakeholder involvement: Slovenia, Spain.

For some MS there was emphasis on the inclusion of marginalised groups in learning, better workplace training, and more integrated engagement with stakeholders.

Thus the period from 2001 has seen a development from a broad EU vision for lifelong learning to a detailed agenda specifically for the development of AL policy and provision. The availability and quality of comparable statistics provided a basis for a more evidence-led approach to policy, as the CSRs show. Increasingly, the EC was active in bringing Member States and other actors together to share practices, evaluate evidence and thereby make progress in policy development.

2.2.2 Modernising Education and Training

The Commission Communication "***An Agenda for new skills and jobs: A European contribution towards full employment***" (Commission 2010c) had highlighted the need "*To make Europe's labour markets function better, equip people with the right skills for employment, improve job quality and working conditions, and create jobs*". This meant that the 'places' of learning needed to be more attuned to the needs of learners than providers, including the development of learner-friendly workplaces where learners could balance work and learning requirements, communicate and cooperate with other learners, as well as being able to learn independently (Cedefop 2013).

Important context was provided by the policy concern for inclusion, through the "***Council conclusions on the social dimension of education and training***" (Council 2010b). At-risk adults often were those with the least developed set of learning competencies, as the **High Level Group on Education and Training** reported when they expressed concern about a European "*literacy crisis"* (Commission 2012e; Commission 2012f). In this context research undertaken for the Commission aimed to better understand the barriers (noted in section 3) learners face to access learning resources, and the strategies that might be used to overcome "*structural, situational and psychological barriers*" (Commission 2012i).

Other policy developments have included "***The Bruges Communiqué on enhanced European Cooperation in Vocational Education and Training*** *for the period 2011-2020*" (Council 2010a). A Cedefop study identified remaining weaknesses of VET processes (Cedefop 2012).

To be accepted across borders, learning and training needed to be both validated at the source of provision (for example, quality assured learning resources), through quality assuring and accrediting providers (Commission 2013i), and at the outcome stage (recognition of learning achievements). Adult learning needed to be fully transportable across borders in ways that are transparent and understandable to employers and organisations. European transparency and recognition tools for VET include **ECVET** (European Credit system for Vocational Education and Training), EQARF and **EQUAVET** (European Quality Assurance Reference Framework) (Commission 2012c; Commission 2012d; Commission 2012g).

A Council recommendation on the "***validation of non-formal and informal learning***" highlighted the need for learning to be recognised effectively, (for example beyond formal education and training, through access to OER, or though mobility experiences) and agreed that by 2018 MS should have in place "*arrangements for the validation of non-formal and informal learning*" (Commission 2012b; Council 2012b).

Thus, the EU has taken significant steps in identifying the need for the mobility of learning and learning outcomes by adults. Learning outcomes needed to benefit both the adults and the economy, and to be relevant for the needs of the labour market at a time of significant demographic change and economic crisis. Accompanying these developments was a policy focus on how learning opportunities could be provided to more adults, to be more focused on their individual needs, to have high-quality content, and how the learning outcomes could contribute to the ET 2020 and Europe 2020 objectives.

That focus identified the potential of Information Communication Technologies (ICT) and Open Education Resources (OER), and the following material reviews the key policy developments. The development of Internet connectivity enabled learning resources to be accessible regardless of place. Building on and reflecting such advances, an EU Digital Agenda[12] was launched as the strategy to help citizens, governments and businesses to benefit from the latest ICT innovations, and to ensure that the core broadband infrastructure is ubiquitously available at capacities and speeds commensurate with their needs (Commission 2010a). The strategy contained seven key priorities, including establishing a regulatory environment to ensure full broadband availability, developing digital skills and jobs, and updating the copyright environment to liberate content.

If content could be consumed across the Internet regardless of place, then learning could be 'liberated'. However, to facilitate this, a clear regulatory context to enable content to flow (copyright conditions) was needed, along with an accompanying change in the mind-sets of content developers. They would need to relinquish their historical position of protecting their intellectual property with copyright and IPR (e.g. patents) protection. This would lead to openly sharing content (Open Education Resources) especially in the context of Massive Open Online Courses (MOOCs).

However, liberating content is one thing. Discovering it and assessing whether it can be used effectively (re-purposed) in enhancing learning resources is another. It means changing the ways in which teaching and learning systems and organisations needed to 'behave' towards learners, and in this context the Commission moved to consider fundamental 'modernisation' of education and training systems, and 're-inventing' the ways in which learning takes place. ICT is at the heart of these processes.

A Cedefop policy handbook on continuous vocational education and training (CVET) put into context the challenges of making learning and training accessible 'any time, any place', especially for the most vulnerable groups of learners (who as noted earlier were experiencing a growing gap in learning achievements compared to the most capable learners). It identified the need for quality assurance, collaboration of all stakeholders, cost-effective resources, and responsive and flexible organisational human resource policies which allow for flexible learning (Cedefop 2014).

The Commission Communication "***Rethinking Education: Investing in skills for better socio-economic outcomes***" (Commission 2012h) focused on enhancing collaboration between MS, on increasing the levels and quality of workplace learning, on funding mechanisms "*to strengthen commitment to a skilled and continuously trained and re-trained workforce*", and analysis of the impact to be gained from EU

[12] https://ec.europa.eu/digital-agenda/

support in increasing the take-up of ICT and OER. A public consultation[13] was undertaken in 2013-2014. Eurobarometer showed that teacher skills needed to be improved, and that just over half of respondents felt confident that their qualifications would be recognised in another country (Commission 2014c; Commission 2014h).

The Council of the EU subsequently presented its "***Conclusions on Rethinking Education***" (Council 2013) and further emphasised the need to develop partnerships at national and EU levels to accelerate the production and availability of OER in different languages (Council 2014a).

A major policy driver for the increasing access to learning resources was the Commission Communication "***Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources***" (Commission 2013c). Innovative teaching and learning using ICT was at the core of 'opening up'. The Communication noted that teachers and learners would need new skills, while highlighting digital literacy for consumers as an example of a mechanism to improve adult digital skills (Commission 2014a). A need for the broader development of e-skills for the modern labour market was also noted, given that the "*demand for jobs requiring digital skills is growing rapidly – and likely to create a skills shortage that may leave up to one million positions vacant by 2020 in Europe*" (Commission 2014b).

Opening up Education set ambitious challenges to develop and share OER, in making learning environments flexible and accessible, and in working with "*all stakeholders (teachers, learners, families, economic and social partners) to change the role of digital technologies at education institutions*" (Commission 2013c). Open Education Europa,[14] a multilingual portal, was developed to bring together information about OER (Commission 2014g). The portal also hosts a "*network[15] to foster web talent through Massive Open Online Courses (MOOCs)*" (Commission 2014e).

A study into MOOCs noted that while they were proliferating, there were significant challenges in their achieving widespread recognition in the labour market. Equally this study noted that, being largely virtual in their operation, learning with MOOCs required *"more practical, hands-on learning experiences grounded in real life*" (Commission 2014f).

Thus, the EU policy context shows a synergistic approach to adult learning in a lifelong context. Attention has been given to the removal of historical barriers between education and training policy domains. A clear need is stated for organisational change and system modernisation. Conditions are being developed for the liberation and sharing of intellectual property rights (IPR) in a more systematised way (for example through major portals). There is an understanding of the risks of the gap between the most educated and most vulnerable groups becoming greater, with this needing explicit policy attention and attention in funding programmes. Individualisation of learning is an important objective, but learning outcomes must have relevance to the Europe 2020 goal of sustainable jobs and growth.

[13] http://ec.europa.eu/dgs/education_culture/more_info/consultations/skills_en.htm
[14] http://openeducationeuropa.eu/
[15] http://openeducationeuropa.eu/groups/startup-europe-using-moocs-foster-web-talent-europe

2.3 International context

The EU is collaborating with other international actors, to share evidence and research. There is clear complementarity between the EU focus and those of OECD and UNESCO (Table 2.1).

Table 2.1 The EU Renewed Agenda for Adult Learning and Linkages to OECD and UNESCO Recommendations

Renewed Agenda Theme and Actions (2011)	Links to UNESCO, OECD
1. Making lifelong learning and mobility a reality	
Stimulating demand, and developing comprehensive and easily accessible information and guidance systems … with specific focus on disadvantaged groups …	"*A lack of literacy skills is often connected to poverty, which may restrict access to and the efficient use of those technologies.*" (UNESCO 2014a) Provide easy-to-find information about adult education activities. (OECD 2014c)
Promoting the engagement of employers in workplace-based learning …	Create more flexible labour market, working and learning arrangements enabling better participation by older workers, and those with special needs, care obligations and disabilities. (OECD 2014c)
Promoting flexible learning pathways for adults …	"*Flexible lifelong and life-wide learning opportunities should be provided through formal, non-formal and informal pathways, including by harnessing the potential of ICTs to create a new culture of learning.*" (UNESCO 2014a)
Putting in place fully functional systems for validating non-formal and informal learning and promoting their use by adults of all ages and at all qualification levels, as well as by enterprises and other organisations…	Recognise and certify skills proficiency. Ensure that qualifications are coherent and easy to interpret.(OECD 2014c)
2. Improving the quality and efficiency of education and training	
Developing quality assurance for adult-learning providers …	Modernise education and training policies. (UNESCO 2014a)
Improving the quality of adult education staff …	Train and actively involve educators and teachers in planning learning system. (UNESCO 2014a)
Ensuring a viable and transparent system for the funding of adult learning, based on shared responsibility with a high level of public commitment to the sector …	"*Establish effective and equitable arrangements as to who pays for what, when and how*" Adjust tax policies to reward learning investment by individuals and businesses. (OECD 2014c)

Renewed Agenda Theme and Actions (2011)	Links to UNESCO, OECD
Developing mechanisms for ensuring that educational provision better reflects labour market needs …	The modern labour market needs well-trained adults with well-focused VET. (OECD 2014a)
Intensifying cooperation and partnership between all stakeholders relevant for adult learning …	Policies work best where they are "*designed around students and learning, build teachers' capacity, and engage all stakeholders.*" (OECD 2014b)
3. Promoting equity, social cohesion and active citizenship through adult learning	
Improving adult literacy and numeracy skills …	"*Increasingly, reading, writing, language and numeracy are viewed as part of a broader conception of key competencies, including ICT skills, which require sustained learning and updating.*" (UNESCO 2014a)
Increasing the supply of and encouraging individuals' engagement in adult learning …	Convince adults that learning is beneficial, and that they can benefit from better skills and competences, and that their learning will be recognised. (OECD 2014c)
Enhancing learning opportunities for older adults in the context of active ageing …	"*The great potential of ICT for learning is also challenged by limitations. Especially for the older generation it is difficult to catch up with ICT skills, which is why they are at risk to be left behind.*" (UNESCO 2014a)
Addressing the learning needs of people with disabilities and people in specific situations of exclusion from learning …	Develop personalised learning for adults with disabilities using appropriate ICT. (UNESCO 2012a; UNESCO 2012b)
4. Enhancing the creativity and innovation of adults and their learning environments	
Promoting the acquisition of transversal key competences … in particular by applying the European Key Competence Framework within the adult-learning sector.	"*Ensure that the workforce in professional training institutions benefit from a strong blend of pedagogical skills, industry experience and academic knowledge. Adapt qualification requirements to that end.*" (OECD 2014a)
Enhancing the role of cultural organisations (such as museums, libraries, etc.), civil society, sporting organisations and other bodies as creative and innovative settings for non-formal and informal adult learning.	"*Lifelong learning is founded in the integration of learning and living … in all life-wide contexts (family, school, community, workplace and so on).*" (UNESCO 2014b)

Renewed Agenda Theme and Actions (2011)	Links to UNESCO, OECD
Making better use of ICT in the context of adult learning, as a means of widening access and improving the quality of provision, e.g. by exploiting new opportunities for distance learning and the creation of eLearning tools and platforms in order to reach new target groups, in particular those with special needs or who live in remote areas.	"*A virtually unrestricted access to learning materials.*" (UNESCO 2014a) Allow adults to adapt their learning to their lives. ICT facilitate self-directed and collaborative learning. (OECD 2014c; UNESCO 2014a)
5. Improving the knowledge base on adult learning and monitoring the adult-learning sector	
Participating actively in and implementing key messages resulting from major international surveys and studies such as the Adult Education Survey (AES), the Continuing Vocational Training Survey (CVTS) and the Programme for the International Assessment of Adult Competencies (PIAAC).	Strong coordination of media coverage, analysis and policy lessons. For example (Commission 2013f; Commission 2013h; Council 2014b)
Stepping up efforts to collect sufficient baseline data … Strengthening the monitoring and impact assessment … Intensifying research and in-depth analysis of issues relating to adult learning … Reporting on adult-learning policies as part of the joint progress report on 'ET 2020'.	The adoption of ICT into adult learning needs to be accompanied by evidence-led assessment of the impact of ICT-enhanced learning. (OECD 2014c; UNESCO 2014a) Collect timely information about demand for and supply of skills. (OECD 2014c) Eurydice research outputs. (Eurydice 2015) 2012 Joint Report on ET 2020. (Commission 2012a)

Chapter 3 outlines some of the challenges that the policies discussed in this section aim to address.

3.0 Setting the scene: current patterns in adult learning

Poor levels of educational attainment have a major effect on people's life chances. As the European Commission has noted *"the ability to understand and process written texts and numerical information as well as the ability to use information communication technologies (ICT) to solve problems are the basis for effective and successful participation in social and economic life". (Commission 2013g)*

In this context, adult learning potentially has a major contribution in raising skill levels in the population, especially for people with low educational attainment. In turn, ICT and Open Educational Resources (OER) have the potential to revolutionise the way in which people learn, opening up new opportunities for people who have failed to reach their potential in initial education.

This section sets the scene by looking at who takes part in adult learning at the moment, and then goes on to discuss the skill levels of the EU's adult population.

3.1 Who currently participates in adult learning

Three major data sources provide insights into participation in adult learning across Europe. The European Labour Force Survey (LFS) provides information on participation in education and training of adults aged 25-64. The LFS data is set out at the NUTS 2 level[16] and covers 254 sub-regional units in the EU. The European Adult Education Survey[17] (AES) has so far been undertaken in two 'waves' (2007, 2011-2012), with a further one planned for 2016[18]. It provides more detailed information on the type of education and training activities (formal, non-formal and informal learning) that adult learners participate in. Finally, the Continuing Vocational Training Survey (CVTS) covers work-based learning activities of adults. The following section uses findings from these three surveys to discuss participation patterns in adult learning.

3.1.1 Current participation patterns in adult learning

Approximately one in ten (10.5 %) of the European adult population (25-64) participated in some form of learning in the previous 4 weeks in 2013 according to the LFS. Participation rates vary greatly, ranging from 20% and above for Member States (MS) such as DK (31.4%), SE (28.1%), and FI (24.9%), to below 5% for EL (2.9%), RO (2.0%) and BG (1.7%) (Eurydice 2015).

Whilst there are differences in the way adult learning is recorded in the AES versus the LFS (the former uses a reference period of 12 months compared to 4 months for the latter), the AES also highlights significant variations in adult learning participation across the EU. The latest data (2011) reveals participation rates of 8% and 11.7% in RO and EL respectively through to 70.1% in LU and 71.8% in SE (Eurydice 2015).

[16] http://ec.europa.eu/eurostat/en/web/products-manuals-and-guidelines/-/KS-BD-04-005
[17] http://ec.europa.eu/eurostat/web/microdata/adult_education_survey
[18] It provides more detailed information about the type of learning activities that adults participate in compared to the LFS and is based on a reference point of 12 months rather than 4 weeks

The AES findings reported by Eurydice reveal that adult learners are more likely to participate in non-formal learning; highlighting the role that non-formal learning activities can play in increasing participation in adult learning. Participation in adult learning was highest in countries where there was a high participation in non-formal education and training. For example, in LU a significant proportion, 68%, of the adult population took part in non-formal learning compared with 6.9% in RO and 9.6% in EL (Eurydice 2015).

Eurydice citing AES findings also highlights that educational attainment, employment status and age are all key factors that determine whether an adult will participate in learning or not. For example:

- 61.3 % of the adults who had completed tertiary education had participated in learning compared to 37.7% of those who had medium level qualification as their highest educational attainment and 21.8% with lower secondary level qualifications;
- Adults who were employed were likely to participate in adult learning compared to those who were unemployed or economically active - the participation rate for those who were employed was 48.6%, compared to 26.9% for the unemployed and 19.6% for the economically inactive; and
- Participation in adult learning also appears to decline with age. The participation rate for adults in 25-34 age group was 48.5% compared with 26.6% for those aged 55-64.

The most recent statistics (taken from CVTS[19] relating to 2010) also highlights variations in CVET participation, ranging from 61% in the CZ to 16% in EL (Table 3.1).[20] However, despite the uneven distribution of CVET across different MS, the data suggests that employers play a key role in supporting adults to either up-skill or re-skill. Over a third of employees at enterprises in 23 out of the EU28 MS were involved in employer sponsored training.

The role that CVET plays in adult learning and in the employability and personal development of adults is also acknowledged in the Cedefop policy handbook (Cedefop 2014). Cedefop for example raises a number of concerns around access and participation in CVET across the EU and notes *"that Europe is not yet making full use of the many benefits of CVET"*. It also highlights that there is "*still unequal distribution of CVET opportunities, with the most vulnerable groups receiving the least training",* mainly as a result of barriers such as time and costs related to individual CVET participation, and a lack of awareness of the training needs of individuals. The handbook advocates the "*use of different forms of learning provision, such as non-formal learning and informal learning at the workplace, for example, through new models of learning-conducive work organisation"* (Cedefop 2014).

[19] Continuing Vocational Training Survey (CVTS) is an enterprise survey which is part of the EU statistics on lifelong learning
[20] http://eurofound.europa.eu/skills-learning-and-employability

Table 3.1 Employees in enterprises that participate in CVET courses

Percentage of employees (all enterprises) participating in CVT courses, by NACE Rev. 2, 2010
Eurostat

GEO/NACE_R2	Total - All NACE activities	Industry (except construction)	Construction	Wholesale and retail trade, transport, accomodation and food service activities	Information and communication; financial and insurance activities	Real estate activities; professional, scientific and technical activities; administrative and support service activities; arts, entertainment and recreation; other service activities
EU 28	38	38	34	36	55	33
Czech Republic	61	65	61	57	70	53
Belgium	52	58	38	48	70	46
Luxembourg	51	56	31	41	70	55
Spain	48	48	57	46	66	42
Sweden	47	51	44	44	56	45
France	45	50	33	44	61	39
Slovakia	44	50	42	34	63	34
Slovenia	43	44	23	44	63	39
Portugal	40	39	34	45	59	28
Finland	40	44	30	39	53	38
Germany	39	43	29	37	52	33
Netherlands	39	40	40	34	51	38
Denmark	37	36	33	35	45	37
Cyprus	37	29	16	35	64	38
Italy	36	32	34	34	65	32
Malta	36	40	6	26	60	43
Austria	33	34	27	29	51	35
Estonia	31	27	27	28	58	36
Poland	31	33	20	26	59	22
United Kingdom	31	24	40	31	43	29
Latvia	24	23	18	22	46	25
Croatia	23	19	14	21	50	25
Bulgaria	22	20	17	17	56	23
Lithuania	19	16	18	16	41	23
Hungary	19	16	16	20	41	12
Romania	18	21	7	16	37	11
Greece	16	17	4	12	42	16

(Source: Continuing Vocational Training Survey (CVTS) (2010), Eurostat)

Variations in these participation patterns in adult learning make a strong case for policies such as those discussed in Chapter Two that support an increase in the participation in adult learning. The use of ICT-enhanced learning approaches that offer flexible routes to learning as discussed in Chapter One have the potential to play a role in this case.

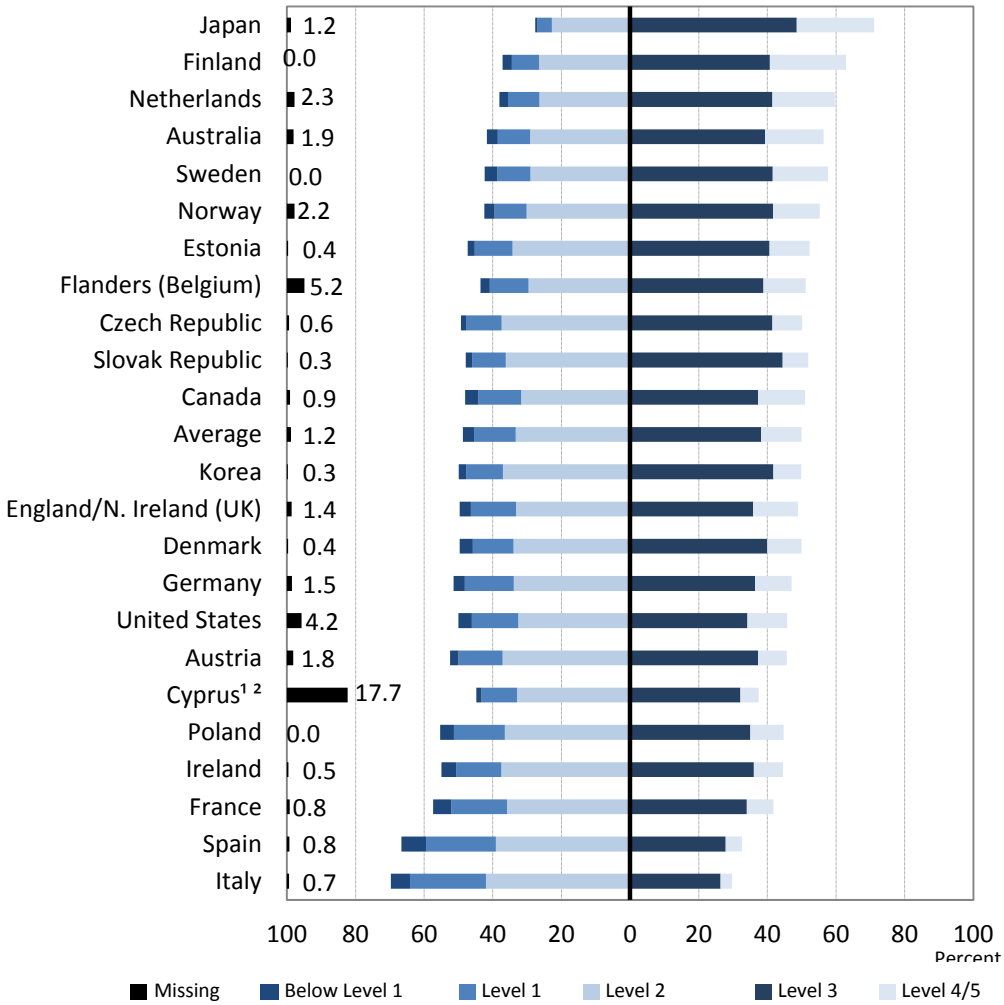
3.2 Skills levels in the adult learning population

Variations in participation in adult learning consequently lead to varying skill levels in the adult learning population. The OECD's Survey of Adult Skills (PIACC) which mainly focuses on "*key information-processing skills*" such as literacy, numeracy and ICT skills provides further insights into these skill levels (OECD 2013).

In terms of adult literacy skills,[21] in some MS, such as FI and NL, a significant proportion of the adult population have literacy skills at level 3 and above, on the other end of the scale, ES and IT have a low proportion of their adult population in this category, and a high proportion with low literacy skills, mainly at level 2 and below (Figure 3.1).

Figure 3.1 Literacy proficiency among 16-65 years-olds

Percentage of adults scoring at each proficiency level in literacy



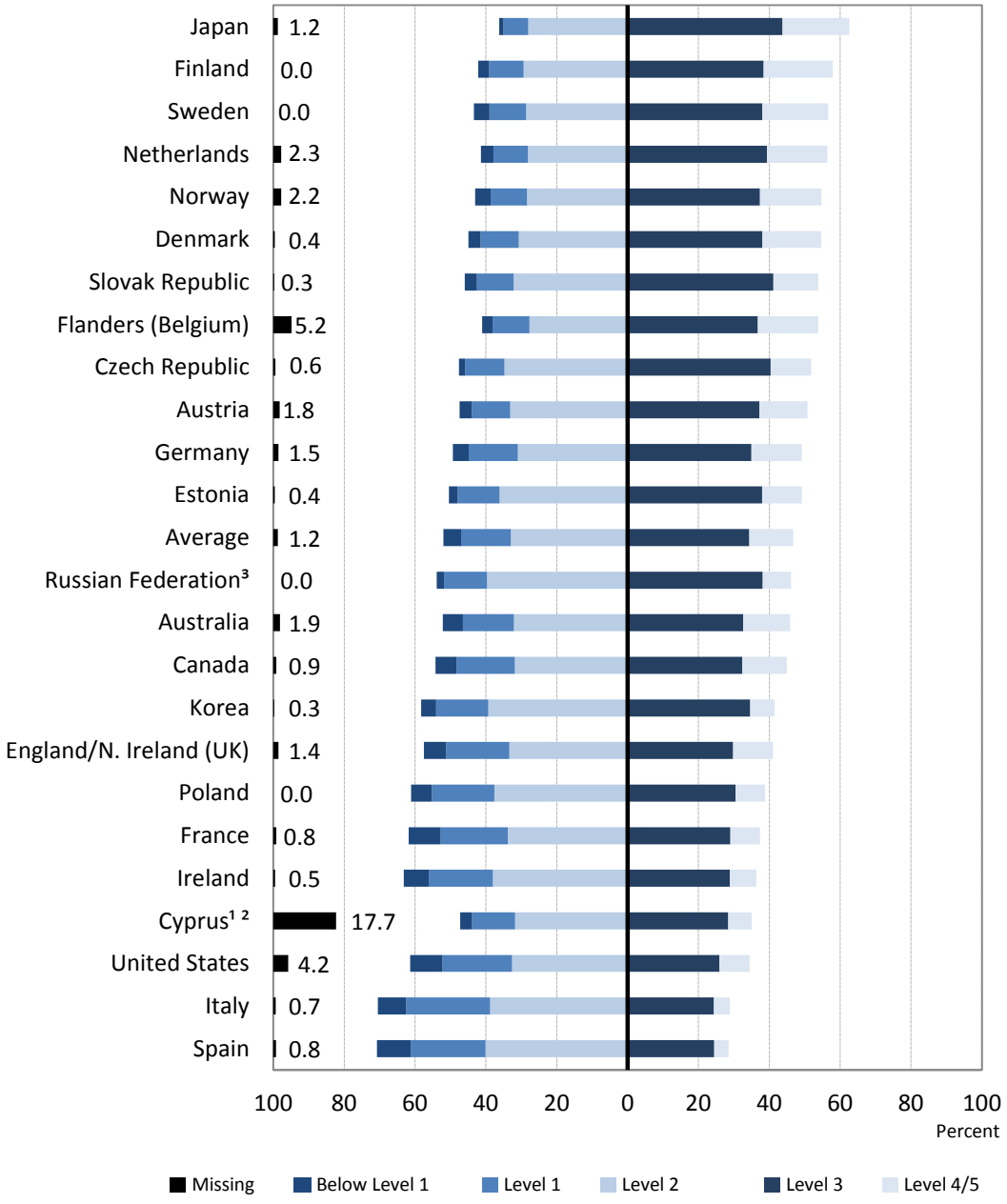
Source: Survey of Adult Skills (PIAAC) (2012), Tables A2.1 and A2.2a (accessed on 14/04/15 from PIACC online web packages (http://www.oecd.org/site/piaac/publicdataandanalysis.htm) Countries are ranked in descending order of the mean score in literacy

[21] Measured across a range of competences where "*Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society*" http://www.oecd.org/edu/innovation-education/adultliteracy.htm

A broadly similar picture emerges in relation to numeracy skills[22] (Figure 3.2). A high proportion of adults in FI have numeracy skill levels at level 3 and above, in contrast, FR, ES and IT have a low proportion of their adult population with numeracy skills at this level, and a high proportion with numeracy skills at level 2 and below.

Figure 3.2 Numeracy proficiency among adults

Percentage of 16-65 year-olds scoring at each proficiency level in numeracy



Source: Survey of Adult Skills (PIAAC) (2012), Table A2.5: accessed on 14/04/15 from PIACC online web packages (http://www.oecd.org/site/piaac/publicdataandanalysis.htm)

[22] Numeracy is defined as the ability to access, use, interpret and communicate mathematical information and ideas in order to engage in and manage the mathematical demands of a range of situations in adult life. To this end, numeracy involves managing a situation or solving a problem in a real context, by responding to mathematical content/ information/ideas represented in multiple ways. OECD. (2013). *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills.* OECD, October, [cited October 9 2013]. http://skills.oecd.org/skillsoutlook.html

The literacy and numeracy skill levels in the EU adult population also vary with respect to age, gender and socio-economic background. For example:

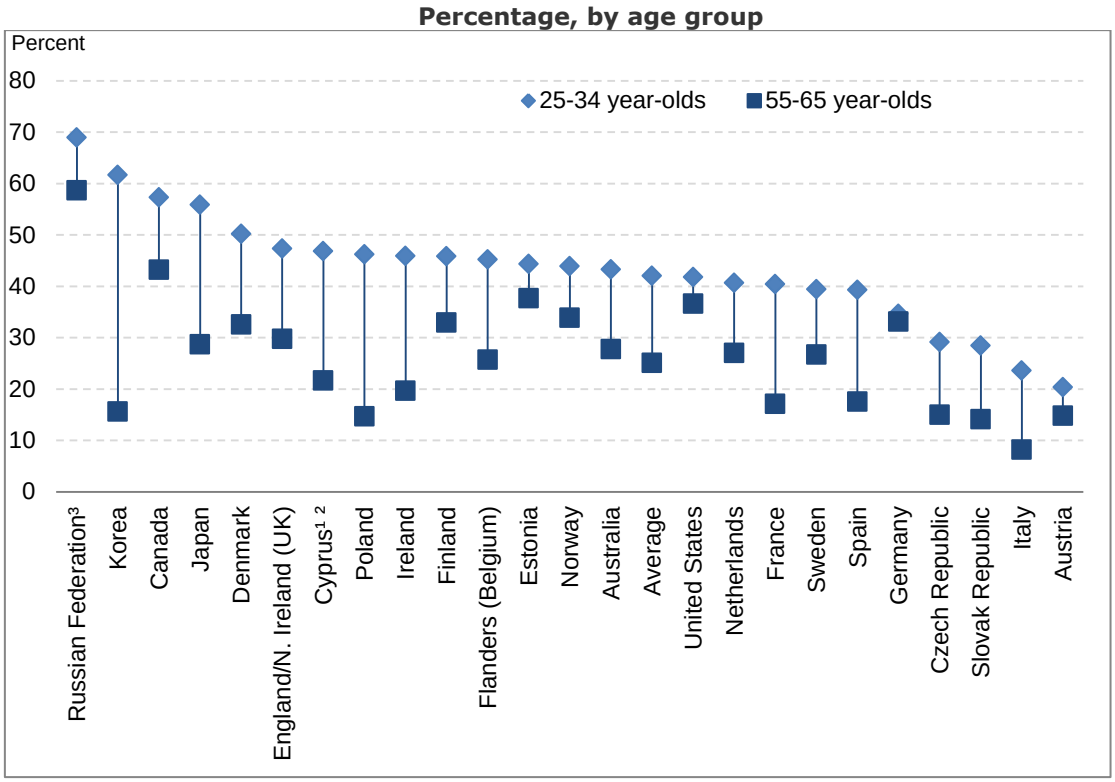
- Older adults scored lower on the literacy scale in the PIACC survey than any other age group across the countries involved, except in the UK where adults aged 55-65 scored about the same as 16-24 year-olds;
- The mean score on the numeracy scale was higher for men than for women;
- Adults who did not have an upper secondary education (described in the survey as "low-educated" adults) had lower literacy scores on average compared to those who did;
- Those who had an upper secondary education also had lower literacy scores compared to adults with tertiary education; and
- Adults from socio-economically disadvantaged backgrounds were likely to have lower literacy and numeracy scores compared to those from socio-economically advantaged backgrounds[23].

In addition to the above, PIACC also highlights differences in educational attainment (with respect to upper secondary and tertiary education) within specific adult age groups, and across different MS (Figures 3.3 and 3.4). DK for example has the highest proportion of adults with tertiary education, however only 33% in the 55-64 age category have a tertiary education compared with half of the adults aged 25-34. Similarly AT has the lowest overall proportion of adults with tertiary qualifications, however only 8% of those aged 55-64 have a tertiary education compared with 20% of those in the 25-34 age category.

PIACC data also shows that only a small proportion of the adult population in DE do not have a secondary education (approximately 10% for each adult age group), in contrast, 28% of the adults aged 25-34 in IT and 72% of those aged 55-64 do not have a secondary education.

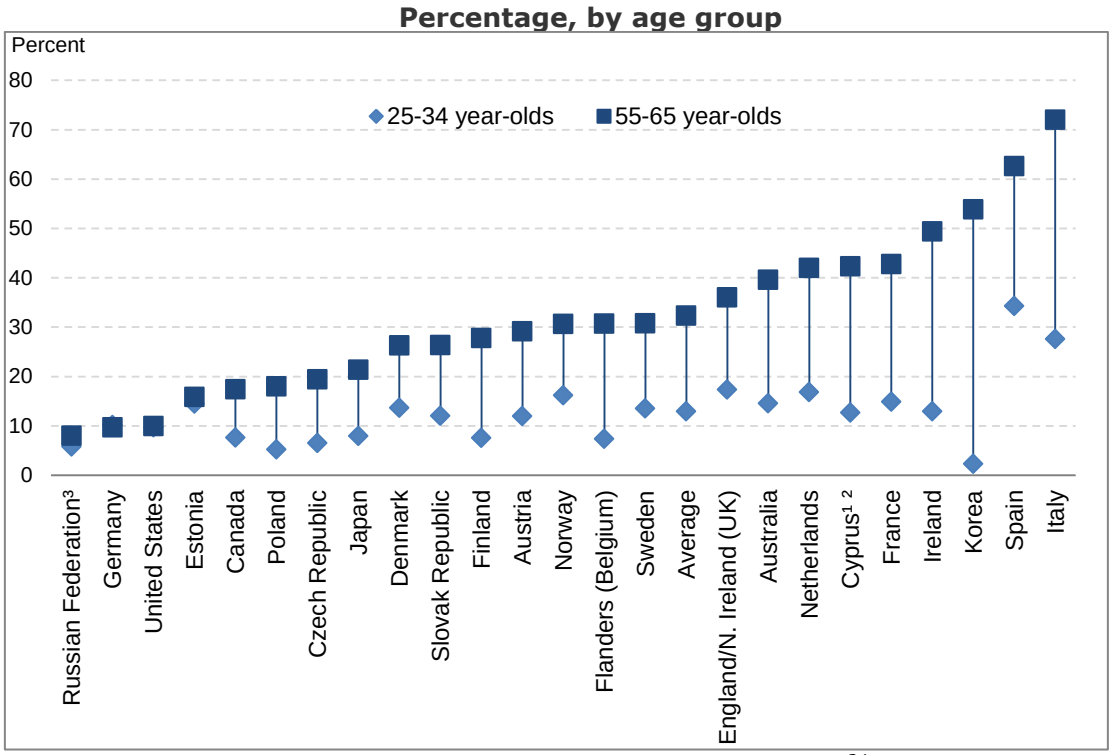
[23] Those from socio-economically advantaged backgrounds were defined as adults with at least one parent who had high levels of educational attainment. Adults with both parents who had low levels of educational attainment were defined as coming from socio-economically disadvantaged backgrounds.

Figure 3.3 Population with tertiary education



Source: Survey of Adult Skills (PIAAC) (2012), Table B2.2 in Annex B

Figure 3.4 Population without upper secondary education



Source: Survey of Adult Skills (PIAAC) (2012), Table B2.2 in Annex B[24]

[24] Countries are ranked in ascending order of the percentage of 55-65 year-olds without upper secondary education.

While ICT and OER have the potential to bring more people into adult learning, it depends on potential participants having sufficient ICT skills. Like adult learning participation rates and literacy and numeracy skill levels, these vary substantially between countries. PIAAC defines proficiency in problem solving in technology-rich environments as "*the ability to use digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks*".[25] In some EU MS a significant proportion of the adult population have high ICT skills (e.g. SE and FI) whereas a high proportion of the adult population in other MS have no ICT skills (i.e. they failed their ICT core test or had no computer experience) (e.g. IE and the SK) (Figure 3.5 – next page).

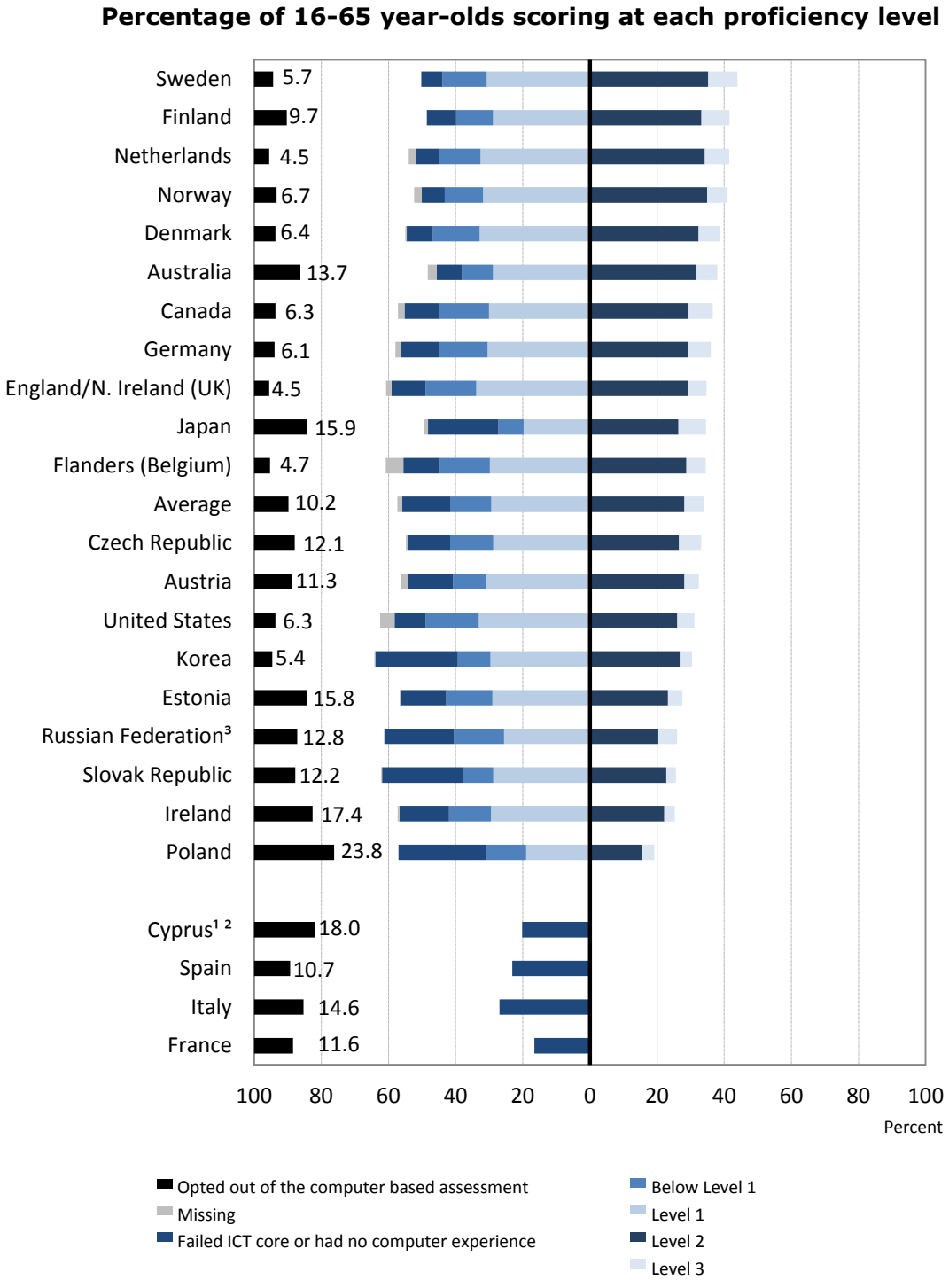
Similarly, OECD's Skills Outlook 2013 found that *"on average, 9.3% of adults reported having no prior computer experience. This ranged from around 2% in Sweden (1.6%), Norway (1.6%) and Denmark (2.4%) to over 20% in Italy (24.4%) and the Slovak Republic (22%). A further 4.9% of adults did not possess the basic ICT skills"* (OECD 2013).

Deficiencies in digital skills pose a significant barrier to engaging adults in learning using ICT and OER in some countries, and in all countries there is a proportion of the population for whom this will be an obstacle. As PIAAC shows, people who lack digital skills are also deficient in basic literacy and numeracy. For example, adults who had ICT skills at Level 3 also had Level 4 literacy and numeracy skills, those who had Level 2 ICT skills also had Level 3 and 4 numeracy skills. In contrast adults who had no computer experience, who had *"failed their ICT core test or 'opted out' of the computer-based assessment scored particularly poorly in numeracy".* In addition, the literacy and numeracy skills amongst those "*without computer experience is lower than that among individuals who failed the ICT core*". In addition, only a small proportion of adults from disadvantaged backgrounds had ICT skills at Level 2 and 3 compared to those from advantaged backgrounds (OECD 2013).

This suggests that for adults who lack literacy and numeracy skills and are from disadvantaged backgrounds, the use of ICT-enhanced technologies as a route to re-engaging them with learning is unlikely to have the desired effect, without first addressing the lack of ICT skills. These adults are in effect caught in what the Commission's report on PIAAC describe as a "*'low-skills trap', as they are less likely to participate in learning activities"* (Commission 2013g).

25 http://www.oecd.org/site/piaac/Summary%20of%20assessment%20domains%20in%20the%20Survey%20of%20Adult%20Skills.pdf

Figure 3.5 Proficiency in problem solving in technology-rich environments among adults



Source: Survey of Adult Skills (PIAAC) (2012), Table A2.10a - accessed on 14/04/15 from PIACC online web packages (http://www.oecd.org/site/piaac/publicdataandanalysis.htm)

3.3 Conclusions

In the context of wide variations in participation in adult learning, there are a range of barriers as discussed in Chapter One that affect whether or not an individual participates in adult learning in any particular place, at any particular time. This particular mix of factors will of course vary from individual to individual and from community to community. In their weaker position in the labour market, people from disadvantaged backgrounds are: less likely to benefit from learning in the workplace; more likely to have low motivation stemming from a number of dispositional barriers; and, may have had negative experiences in initial education that deter them from seeking educational opportunities in adulthood. In such a context, ICT and OER have considerable potential to make learning available in new ways and in new contexts that may draw such individuals into learning.

At the same time, not all the barriers discussed in Chapter One can be overcome simply by developing OER and delivering it though ICT channels and devices, even though these are the focus of this study. EU policy developments, as shown, have a strong emphasis on taking a holistic view of overcoming the barriers, especially where the targeted adult learners are in 'at risk' categories such as the socially excluded, refugees, and people with learning disabilities.

Simply developing OER and ICT does not guarantee that previous barriers to engagement will be overcome, and it may be that they will be most rapidly taken up by the most skilled adult learners in the higher socio-economic groups as discussed in this chapter. The Eurydice report notes that only "75 *% of adults (25-64) in Europe have completed at least upper secondary education"* (Eurydice 2015). The report provides important recent evidence, and notes the importance of providing learning to the 25% of adults (aged 25-64) across the EU who have only completed secondary level education, and the 6.5% of adults who have not progressed beyond primary education. The PIACC survey also provides insights into the geographical variations and low skill levels across the EU with respect to literacy, numeracy and ICT skills. This group of low-skilled adults is a major focus for policy action and, in terms of potential value-added, the benefits of raising their skills and competencies is significant.

4.0 ICT-enhanced learning and OER - Potential and Conditions for Success

4.1 Introduction

This chapter looks at the types of ICT and OER available and their potential to overcome barriers in adult learning. It then looks at how European tools and processes are being developed to ensure that the learning outcomes can be recognised. For example, both the recognition of prior learning - as adults undertake flexible learning journeys across many learning resources - and how the results of their learning can be recognised by employers. The chapter ends with a summary of the key conditions for the successful development and use of ICT and OER, and identifies the major challenges. That then informed the structuring of the country-level research for this study.

It should be noted that much of the literature related to the use of ICT in education relates to schools and higher education. These contexts differ from adult learning in several ways. Resourcing levels are typically higher, and in higher education, university autonomy and the high degree of education of learners provide a highly different set of circumstances to those found in adult learning.

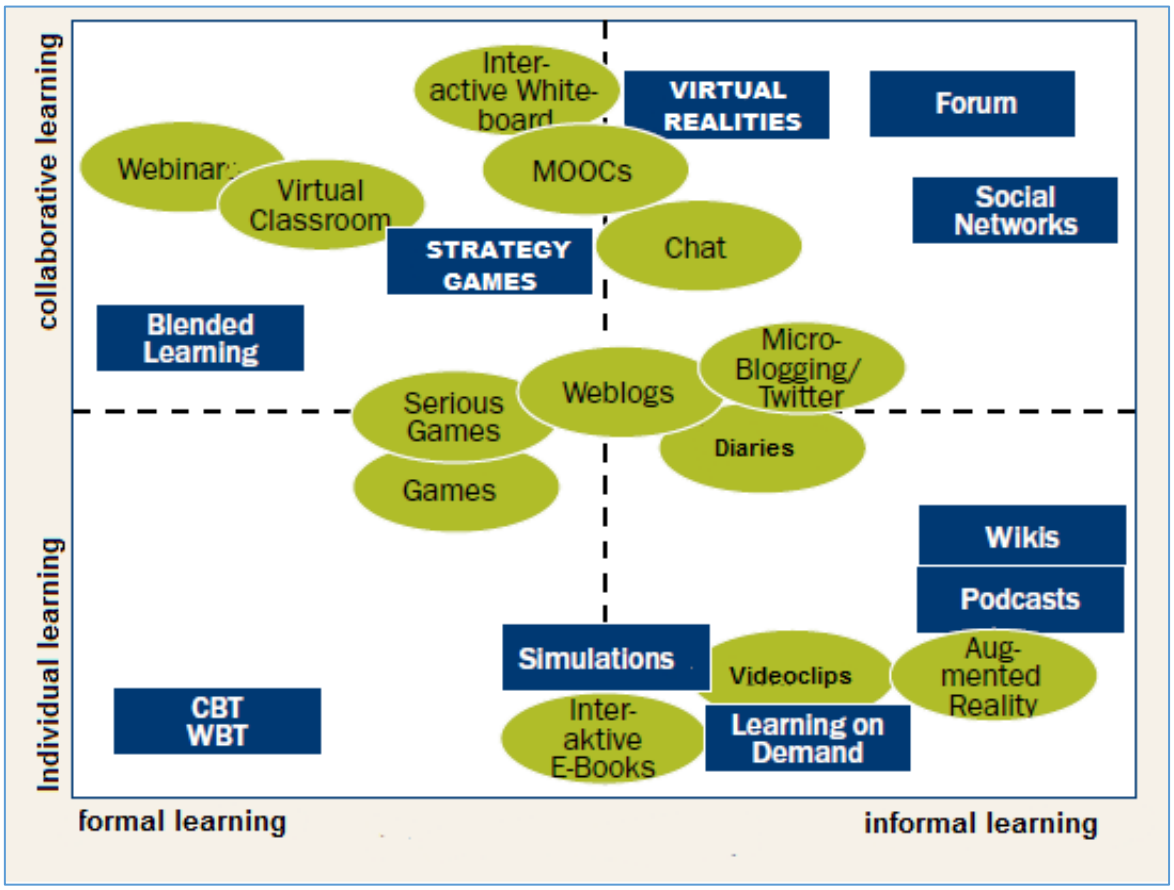
4.2 Types of ICT used in adult learning

New ICT and applications appear rapidly, so within any study such as this it is not appropriate to stipulate a definitive set of ICT since a list would be outdated before the study is published. Rather than focus on which basic applications are available (e.g. social networks, visualisations, communication platforms) the important issue is how they can be used to develop new and more appropriate learning environments for the highly diverse community of adult learners.

Work by Goertz (Goertz 2013; UFI 2012) (Figure 4.1)[26] indicates the extent to which new technologies have the potential to contribute in particular to collaborative learning and less formal ways of learning. Collaborative forms of learning are based on the sharing of experiences between educator and learner. Adults, with their more extensive life knowledge and experiences, arguably stand to benefit significantly from such types of learning.

[26] This work uses as a base two reviews of ICTs by UFI (2012) and Goertz (2013).

Figure 4.1 Different types of ICT-tools and their potential for learning



(Blue areas indicate types of ICT that were already available in 2008). Source (Goertz 2013, p.11)

Figure 4.1 shows that there are a large number of different types of ICT that can be used in learning which need to be examined. Categorising these forms of ICT is difficult. The old distinction between hardware and software has largely collapsed, and technologies have converged. The next sections look at the main types of devices and applications available using some of these categories.

4.2.1 Hardware

To date **laptops and desktop computers** have been the mainstay of ICT provision in adult learning organisations. In that context they have the advantage of uniformity, where all learners use the same technologies, which then reduces the ICT training needs for educators, and the support overheads for learning providers. They are also highly versatile since they can contribute to learning in a wide range of settings from individual work to whole class teaching, and can also be used for assessments (see Chapter 5). But they are typically fixed in their location, desktops are mobile only within the walls of institutions. This potentially reduces their attractiveness as part of a package to attract back into education learners with low educational attainment who may have had negative experiences in initial education.

Smartphones, tablets and other mobile devices constitute the 'next wave' in hardware and have significant computing power. They are mobile and very accessible channels through which learning applications (Apps) can be accessed, often free-of-charge. They have particular potential for informal and non-formal learning, for example covering language learning, literacy, numeracy.[27] Because of their flexibility, ease of use and familiarity, these devices are often seen as having great potential for learners from disadvantaged communities. Indeed, mobile devices can be used as 'bring your own devices' (BYOD) within learning environments, for example avoiding learning providers having to provide devices to learners.

However, there are additional ICT support overheads (providing advice across many types of devices), not all BYOD devices will have suitable security software installed by the learners (Thomas 2013), and there is a potential for a lack of inclusiveness where some learners are not able to BYOD. There are also issues for adults who cannot afford mobile phone contracts that have 'unlimited' 3G or 4G Internet access (speeds that are often required for effective interaction with Apps). Where adults have pay-as-you-go contracts the costs of Internet usage can be prohibitive (ITU 2014).

Interactive Digital Television (ITU 2011) enables on-demand access to programmes and learning resources. Content can be accessed when learners are available, and they can skip bits of programmes/content. Interactivity is possible through surveys/polls, responses to questions, and gaming. IDTV does not have the sophistication of tablets and computers, or the portability of smartphones.

Visual and audio devices, sensors, scanners and apps. In the past these tended to be separate devices such as digital cameras, printers, scanners, fax machines etc. Increasingly such devices are present within smartphones, either through embedded hardware (high definition camera, microphone, audio speakers etc.), smartphone functions (one-touch keys to send a photo as an email attachment) or Apps (such as instant image sharing apps, messaging, and text scanning). Learners can then capture and share information at any time, so building collaborative learning resources in real-time. The process can impose new demands on the educators in managing a continuous flow of information coming from learners (Webb 2013). Recent innovations like Smart-glasses, Smartwatches and other 'intelligent' and 'wearable' technologies have the ability to gather personal data in contexts such as health education (ECONOMIST 2015).

In line with the thinking that there should be "*equal opportunity for persons with disability in the different environments of the information society*" (Toboso 2011) **assistive technology (AT) devices** have been developed. These include picture communication boards, tactile symbols, different keyboards (e.g. large keys for visual impairments, or designed for those with one hand), pointing systems (e.g. sip-and-puff systems for paraplegics), touch screens. In such cases the adults may be fully able, and skilled, to engage with learning resources, but need to overcome physical impairments.

Other AT devices include braille printers, refreshable braille displays (representing screen text), speech to text, or text to speech (for those with visual impairments). However, while software currently is sophisticated at turning text into speech, it is yet to be developed so that it can interpret visual images such as maps and graphs (text still has to be pre-prepared for images). At other levels there can be pointing devices controlled by eye movements, or even signals from nerves and brain.

[27] See https://plus.google.com/+Educatorstechnology/posts

The research literature shows that there remains a strong need for educators and other learning support for persons with severe disabilities (Seale 2014), and for supporters to have specialist training (Ryan 2011). However, it is also clear that persons with disabilities are early adopters of new technologies "*seeing the potential benefits of these technologies within their lives*" (Ellis 2011), and are initiators of learning innovation (Kornowski 2012). The EU Digital Agenda has provided strong leadership in developing an inclusive technology landscape by supporting the development of high-tech assistive technologies[28] (Sigafoos 2011).

Finally, an essential hardware pre-requisite for realising the full potential of ICT is **fast broadband internet access (FBIA)** (but this is not specific to adult learning). FBIA overcomes the friction of distance by providing virtual connectivity with learning resources across the World Wide Web. The EU Digital Agenda is focused on the goal of "*Every home, every business should have fast, reliable broadband services*".[29] Overcoming distance enables significantly more learners to access resources, or can connect groups of learners who are geographically distributed and who could not realistically attend place-based learning as a group. This can reduce the cost per learner, especially where learning has scalability and can meet the needs of large groups of learners. But availability, especially in rural areas, is not yet universal.

4.2.2 Software and applications

In general, as digital technologies have been developing, users have been able to move from using offline software packages to online applications and resources. However, **offline channels (e.g. PC-based applications)** remain important where access to suitable broadband is either not yet provided by Internet Service Providers (e.g. remote rural areas), not available (e.g. too expensive to buy for home use), or forbidden or heavily regulated (e.g. in a prison).

A rapidly developing area has been **games and simulations** which have grown at a dramatic rate outside education. Not surprisingly their potential for learning has also begun to be exploited. For example, 'serious games' focus on real-world simulations of techniques (for example mechanics), processes (such as health[30]), or events (for example earthquakes and other disasters[31]). Scenario-based learning – which was already in use prior to digital technologies through board games - involves learners actively working through a problem that is complex or not fully structured. It requires them to use their knowledge of the subject involved, to apply critical thinking and to solve real-world problems. The learning can be phased over stages where at each milestone learners need to reflect and report on what has happened. The learning can be individual or group-based, for example, managing patients in hospitals[32], a medical crisis simulator[33], or customer relations training[34].

Augmented reality applications involve views of real-world environments which are enhanced (augmented) by computer-generated inputs such as location (using GPS to calculate location), sound, imagery, or sensory input (for example where learners wear headsets). The EU funded the Joyar[35] project through the Grundtvig LLL Programme, for example developing an application for citizens to be involved in urban planning[36].

[28] http://ec.europa.eu/digital-agenda/en/news/adaptive-assistive-technologies-people-disabilities
[29] http://ec.europa.eu/digital-agenda/en/access-and-connectivity
[30] http://www.nobelprize.org/educational/
[31] http://www.stopdisastersgame.org/en/home.html
[32] http://www.smartbuilder.com/examples/Patient_Management/player.html
[33] http://www.elearningsuperstars.com/project/lifesaver-by-the-resuscitation-council-uk-unit9-production/
[34] http://www.elearningsuperstars.com/project/get-up-to-speed-by-sky-brightwave/
[35] http://www.joyar.aidorg.ro/
[36] http://www.joyar.aidorg.ro/images/case_studies/case_study_gr.pdf

4.2.3 Networking and virtual collaboration

Collaboration software (some free of charge) enables educators and students to communicate, chat, manage email lists, share information and documents, share study notes, carry out online assignments, schedule learning sessions (online learning diaries).

Social networking and communication applications like Facebook communities, Google Groups, blogs, podcasts, webinars, wikis and Twitter, allow learners to contribute material and communicate at any time with other learners who have actively 'opted in' to receiving the contributions. Educators can create and participate in online communities of educators, enlarging their learning and teaching network (Bacigalupo and Cachia 2011). Learners can create self-organised learning communities (Lee and Sig 2013).

4.2.4 Teaching and learning management platforms

These platforms used to be large-scale and relatively expensive covering groups of providers, e.g. in the schools sector, or whole universities. But now open-source learning platforms such as Moodle[37] can enable educators to construct interactive learning environments in a much simpler manner and tailored more directly to their needs. Educators can engage with development partners[38], who may be in their own country and be able to help construct learning environments in the local language – thus reaching out to a wider community of adult learners. Learning platform tools such as online diaries can help coordinate the delivery of learning and the time availability of learners.

4.2.5 Storage and other learning support

The Cloud can provide opportunities for learners, and learning communities, to store and share data, information, and applications on the Cloud, rather than physically on their own devices. Previously expensive software packages such as Microsoft Office are increasingly being made free to use via the Cloud. The EU Digital Agenda is promoting standards, fair contract terms for cloud usage, and its potential to enable superfast broadband for resource-intensive applications such as videoconferencing[39]. The increasing availability of cloud services has the potential to dramatically reduce the cost of learning design, delivery and administration.

Free-of-charge bibliographic software[40] can provide learners with the tools to effectively store reading resources and cite and reference them properly within assignments.

Online translation software can help to overcome the predominance of English language resources on the Internet. While not professionally robust (for example, commercial software can be specifically targeted to particular professional sectors such as health), free-of-charge online translation can provide quick overviews of literature. For example, Google Translate[41] was translating between 50 languages in April 2015. Smartphone based Apps to translate speech in real time are also growing in effectiveness.

In addition to the above, there are other ICT-enhanced learning environments that support new types of teaching and learning, and allow teachers and learners to collaborate, network and share resources virtually.

[37] http://moodle.com/
[38] http://moodle.com/partners/
[39] http://ec.europa.eu/digital-agenda/en/telecoms-and-internet/cloud-computing
[40] For example Mendeley https://www.mendeley.com/
[41] https://translate.google.co.uk/?hl=en

In conventional teaching, class time is mostly used for educators to deliver material to learners, where the same material to all learners at the same pace, at the same time. Learners take the same assignments at the same time.

'Flipped' and virtual learning environments allow teachers and learners to collaborate virtually. These learning environments require online tools to monitor the progress of learners since learners will progress at different speeds, or where learners take parts of a module or course as part of a personal 'learning portfolio'. By separating out the tasks of learning and assessment learners can more easily learn at their own pace, or for many adult learners within their own time constraints). ECTS and the Bologna tools can be used to structure assessment and outcomes so that portfolio learning can lead to recognised qualifications.

'Flipped' learning environments provide core material in advance to learners who then supplement it through personal and group activities (reading, exploring resources, using learning platforms to exchange material, discuss and debate with other learners) (Kampylis, Bocconi, and Punie 2012). The 'classroom' time is then used to discuss work in groups, and for the educator to help the learners to structure and understand the material, meeting their individual needs (Heid, Fischer, and Kugemann 2009). 'Flipped' learning environments are particularly useful where the learning cannot be simply 'automated' and consumed at a distance without significant educator intervention or group work.

4.3 Types of Learning Resources and Open Educational Resources (OER)

This section provides a description of the different types of OER, discusses the general take-up and use of OER including Massive open line courses (MOOCS) in adult learning and outlines the challenges linked to the use of these learning resources.

4.3.1 OER – Content

The definition of OER most often used has been that of the OECD:

> *"Digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research. OER includes learning content, software tools to develop, use and distribute content, and implementation resources such as open licences. This report suggests that "open educational resources" refers to accumulated digital assets that can be adjusted and which provide benefits without restricting the possibilities for others to enjoy them." (OECD 2007)*

A typology of OER formats is offered by the OPAL/POERUP study (Commission 2013e). It distinguishes between open courseware, open publishing, open artefacts and open support. Across all four types considerable variation in formats occurs:

- **Open courseware** comprises core teaching materials which are organised in the form of courses that cover certain aspects of a topic;
- **Open publishing** refers to the publication of journal materials, textbooks and the like, which are made available without the need to pay fees for them;
- **Open artefacts, or, "open assets"** as POERUP refers to them, are resources of varying size and formats, which need not be part of a more comprehensive whole. Examples of them include video and audio clips, image libraries and datasets; and

- **Open support** is focused on materials and tools that provide a framework of support for learning, as well as guides on OER and open educational practices (OEP). (Commission 2013e)

That study also notes that there are at least two different forms of OER providers; those that are linked to already existing institutions, and those that result from open collaboration between non-institutional actors.

The OECD definition covers all relevant content that is needed for learning. For example, a free-of-cost, interactive and online curriculum is not fully free-of-cost for the learners if they have to access content through commercial paywalls – open curricula need to benefit from "*open-source research publication and democratic science*[42]" (Scott 2013). The 2007 study recognised that early trends in OER developments were less well developed in the adult learning sector, but by 2012 it was clear that "*OER activity seems to be spread across the educational spectrum*" (Hylén et al. 2012). That study also noted that key benefits in using OER (using the content in its original form) or re-using OER (also termed re-purposing, where the material is adapted for a learning environment) were enabling cost-efficiency and an increase in quality of learning. A later study notes that while resources and users were growing in number, growth was initially more focused on primary to tertiary education and not so much on adult learning. (Istance and Kools 2013)

However, in the 2012 study, particular challenges were identified in the provision and use of OER. First, there was a lack of clarity about what could be done with OER. For example, could it only be used in its original form, could it be adapted locally by educators and learners, or could it be re-packaged with other material as a 'new' resource? Developments in licencing have addressed that issue and are noted below. Second, how could OER be 'sustainable', and who would be responsible for updating and enhancing resources if there was no income stream? Third, who determines the quality of a resource? Something may be open and free, but is it of recognisable quality or relevance? (Hylén et al. 2012).

Learning resources are expensive to create, and conventionally have been protected with copyright and licensing conditions. Not all OER are therefore 'fully open' and 'free' without any attached conditions of usage. In the context of licensing models, four distinct levels of openness on OER have been identified by Tuomi. There can be a fully open and accessible resource (entirely non-discriminatory). The second level is about rights to use a resource, and "*whereas OER (i) enables students to read a book or watch a video, (ii) means that they can use the book or video to pass a course or obtain a certificate*". The third level allows users to modify or add value to OER. The fourth level allows modification and further dissemination of the resource; *"OER IV allows, for example, peer-based social learning that focuses on collective construction of knowledge and knowledge artifacts."* (Tuomi 2013)

[42] The EU Digital Agenda is addressing issued of content and access through actions such as; Action 1: Simplifying pan-European licensing for online works; Action 3: Open up public data resources for re-use; and, Action 5: Simplifying the distribution of creative content. http://ec.europa.eu/digital-agenda/en/our-goals/pillar-i-digital-single-market#Our%20Actions

How OER is licensed and documented, for example through robust metadata (UNESCO 2011), determines which types of OER can be used efficiently and effectively within learning environments:

- The entire spectrum of learning forms is supported by the Creative Commons[43] '**attribution'** licence (requesting primarily that those who use the material make full and open acknowledgement and cite the source);
- Learning models focused on the creation and distribution of resources (but without the permission to change and adapt the content) will use a '**no derivatives**' licence; and
- A licence that is best suited for collaborative models of learning is the Creative Commons '**share-alike**' licence, which supports the re-usability of resources.

OER take-up also requires significant attitude changes among content developers, and there are strong inertial influences at play. For example, it would be possible for researchers to simply decide to publish in open access journals. However, conventional 'closed' (in that they are accessible through subscriptions or individual payment for articles) academic journals define (through citation indices and impact metrics) the recognition of much research, and recognition strongly determines academic reputations and career pathways. So until conventional journals release their hold on academic impact metrics change may be gradual. Indeed "*the amount of money paid by UK universities to subscribe to some large publishers' journals has risen by almost 50 per cent since 2010*" (Jump 2014). However, there are clear indications of changes in attitudes towards liberating research content, with clear indications that the levels of open access publications have increased significantly "*with around 50% of scientific papers published in 2011 now available for free*" (Commission 2013b).

In a review of the development of open access content the adaptation and reuse of that content the Creative Commons licenses were identified as being important in "*clarifying the legal scenario for adaptation of digital content through computer networks*" (Chiappe and Arias 2015). They provide a basis for author-user relationships to be established in the sharing and reuse of content. If OER are to realise their potential for learning then the attributed licences to certain resources have to first be taken into account.

Research on the use of OER in learning advises that the terms open, educational, and resources can be interpreted differently (Littlejohn 2014; Littlejohn and Pegler 2014). It notes that an important focus should not be on whether they are open or educational, but on how they are being used. The primary change has been that the use has moved from the individual consuming learning provided by an organisation to the collaborative level as detailed earlier in the table covering ICT-enabled learning environments. For example, open licensing has facilitated more collaboration. The way that a resource is being used is more important than the issue of making it available. In research by Littlejohn, five principles were identified for the use of OER within learning environments:

- "*Open and networked (Key concerns include access to ICT and skills and competencies. Are you enabled as a person to be open and networked, and do you want to connect with other learners?);*
- *Based on new social organisation of learning;*
- *Learning through social interactions around online resources (requires self-regulation & digital literacies);*

[43] http://creativecommons.org/

- *Diverse in terms of who produces knowledge and how resources are produced and shared (e.g. relevant analytics); and*
- *Remove conventional controls and boundaries.*" (Littlejohn 2014; Littlejohn and Pegler 2014)

4.3.1.1 Examples of OER initiatives

Whatever the challenges around OER developments, OER initiatives are increasing in number, examples include:

- *"Over 2900*[44] *institutional and cross-institutional open access repositories registered in the Registry of Open Access Repositories (ROAR) (http://roar.eprints.org), hosted by the University of Southampton*." (Tuomi 2013, p.59); and
- *"Carnegie Mellon and the UK Open University set up the Evidence Hub for Open Education as part of their OLnet project in an attempt to bring researchers and educators together to share knowledge on OER (www.olnet.org)."* (Tuomi 2013, p.59-60)

At the European level the Open Education Europa portal was launched in 2013 "t*o offer access to all existing European Open Educational Resources in different languages in order to be able to present them to learners, teachers and researchers*"[45]. Another significant EU-level response to this has been the creation of the EPALE Platform which is designed to become *"a multilingual open membership community for teachers, trainers, researchers, academics, policy makers and anyone else with a professional role in adult learning across Europe*"[46]. EPALE will encourage the training of adult educators through mutual learning and exchange of experience, backed up by structured and documented resources on the platform.

Other examples of OER initiatives include Finland where a country-wide electronic education centre has been developed, listing available adult education and training programmes (EACEA 2013). In Denmark, there is a system of eGuidance[47] centres for career counselling where learners can receive advice via e-mail, phone, text message and online chat, thus showing how 'blended' learning (Maguire 2013) can involve both remote electronic resources, and remote access to expertise and personal support.

There are also a number of government initiatives relating to OER targeted at multiple educational sectors (Eurydice 2011; Hylén et al. 2012). Examples of such national initiatives are in Belgium (an open education portal for the Flemish community), and Spain (the national Centre for Innovation and Development of Distance Education - Centro para la Innovación y Desarrollo de la Educación a Distancia – CIDEAD). At a 'large' country level in the USA in 2012 the US Department for Education launched a project on "*Open Educational Resources to Increase Teaching and Learning of STEM Subjects in Adult Education*". The project period is June 2012 to June 2015, so there are not yet any final outputs (USDE 2012).

While much of early OER development was in developed countries from North America and Europe,[48] there are significant developments worldwide such as in Asia[49] and

[44] The same site showed 4,010 resources as of April 2015
[45] http://openeducationeuropa.eu/
[46] http://ec.europa.eu/epale/en
[47] http://www.ug.dk/evejledning.aspx and http://ufm.dk/en/publications/2013/eguidance-in-denmark-a-new-initiative-to-help-more-persons-into-education
[48] http://openeducationeuropa.eu/
[49] http://www.oerasia.org/

Africa,[50] as well as in respect of other information portals (for example, UNESCO[51], and the USA[52]) such as OER research.[53]

Other significant OER repositories include MERLOT[54] supported by California State University, JORUM[55] containing resources from the UK further and higher education sectors, and open education resources made available through funding by the Gates and Hewlett Foundations.[56]

As OER use develops further it will be important to assess how resource and organisational pressures may constrain the availability and take-up of OER (for example, in some eastern European countries with significant challenges in education system reform), and OER reuse and re-purposing. Information openness in itself is not enough to release the potential of ICT-enhanced learning,[57] and mechanisms are needed that allow providers to move from accessing OER content to providing adult learners with 'Open Educational Opportunities' (Camilleri and Ehlers 2011). At the outset this can involve initiatives to link expertise, integrate information about resources, and stimulate re-use.

OER are resources per se. They can be utilised by adults informally ('dipped into' in the same way that adults can read a book), non-formally (for example, shared among a community of learners), but OER when developed pedagogically can become a digital learning environment. A particularly influential digital learning environment is where complete courses and modules are made available free-of-charge over the Internet. These are MOOCs, and the following material considers the research into MOOCs.

4.3.2 Open Learning Environments - MOOCs

MOOCs (Massive open online courses) have in particular captured the imagination of policy-makers, with their potential expressed clearly for adults in terms of enabling "*All individuals to learn, Anywhere, Anytime, through Any device, with the support of Anyone*" (Commission 2013d). In their 'massive' state MOOCs are OER that are fully integrated into a curriculum[58], and are accessible often free-of-charge (although revenue generation has occurred through charges for such aspects as assessment, examination and certification (Cobo 2013)), they have widened the accessibility of learning content to adults who are not registered in a formal higher education institution. They have also become viewed by policymakers as mechanisms to offer new types of learning opportunities to a much wider audience (Regalado 2012), and to a large extent MOOCs have become increasingly sophisticated providers of structured OER (Camilleri and Ehlers 2011; UNESCO 2011).

Early entrants in the development of MOOCs were American universities such as Stanford where:

> *"Stanford's machine learning and artificial intelligence courses enrolled over 260,000 students from more than 190 countries in autumn 2011, spinning-off the two venture capital funded start-ups Coursera and Udacity."* (Tuomi 2013, p.58)

[50] http://www.oerafrica.org/
[51] http://www.oerplatform.org/
[52] http://whyopenedmatters.org/
[53] http://oerresearchhub.org/
[54] http://www.merlot.org/merlot/index.htm
[55] http://www.jorum.ac.uk/
[56] http://www.hewlett.org/programs/education/open-educational-resources
[57] In the same way that the increasing availability of geographic information through the Commission's Inspire initiative needed skills and ICT capacities to transform them into solutions such as in-car navigation systems. http://inspire-geoportal.ec.europa.eu/
[58] "A course of study made available over the Internet without charge to a very large number of people" http://www.oxforddictionaries.com/definition/english/MOOC

Research into the early take-up and usage of MOOCs identified a range of uses and motives. For example, there can be a focus on open access (making all resources available for the common good), on 'connectivism' (linking learners with experts and peers), through institutional cooperation (universities sharing curricula and resources), and through learner motivation (for example where MOOCs allow learners to sample and experience learning without having to formally apply to a course or pay course fees)[59]. When MOOCs were used in a professional (rather than the conventional HE) context there tended to be a "*switch in participants' focus from learning knowledge for specific work tasks to gaining a certificate*" (Siemens 2014). In addition, there was little evidence that usage of a MOOC was encouraging the learners in "*personalising course goals by linking theory to their professional practice.*" (Milligan and Littlejohn 2014)

While MOOCs initially caught the imagination of the higher education sector, the revenue streams to build and sustain OER and MOOCs was less apparent. MOOCs require significant investment of time and ICT resources, and while they may have liberated high-quality content to adult learners, they also bring overhead costs when tutorial advice is provided, work is assessed and examined (hence the move to selective charges noted above).

Patterns of adult engagement with early MOOCs have been low, and research has not ascertained whether MOOCs and OER are dramatically increasing adult participation and completion levels. For those engaging with MOOCs in the UK, one study describes: "*70% having one or more degrees already, at least for the London and Edinburgh MOOCs. For Coursera MOOCs the average figure is 85%*" (Laurillard 2014). As such MOOCS still need to attract the disadvantaged adult demographics that are priority policy targets. (Clarke 2014)

In addition, there is still limited understanding of what the relatively high drop-out rates are for MOOCs, what that actually means for learners, and what strategies can be put in place to increase completion rates (Halawa 2014). However, a focus only on formal completion rates takes attention away from the many motivations for adult learners to engage with a MOOC, such as self-regulated learning where an adult identifies that their learning goals can be achieved part-way through a curriculum. In effect they have 're-purposed' an online course to meet their personal objectives (Littlejohn and Margaryan 2014).

MOOCs have also generated unpredictable consequences. For example critics of MOOCs argue that "*the MOOC format itself suffers from weaknesses around access, content, quality of learning, accreditation, pedagogy, poor engagement of weaker learners, exclusion of learners without specific networking skills*" (BIS 2013). Equally, by opening up their education resources universities have both needed to increase the capacity of their IT infrastructures (to deliver the learning to a mass remote audience) and to improve their security strategies to deter cyber-attacks (Pérez-Peña 2013). MOOCs also threaten conventional institutional boundaries, taking control over pedagogy and delivery away from an institutional administration (ECONOMIST 2013). Further caution is also noted by Poyiadgi in terms of accreditation and recognition for MOOC graduates:

> "*Whether Massive Open Online Courses replace, reinforce or undermine the traditional university model, the real test of their success will be whether the sophisticated and high-tech learning content can be transformed into credible accreditations for employers.*" (Poyiadgi 2014)

[59] See also http://littlebylittlejohn.com/conflicting-perspectives-on-moocs/

While a key context for this study is to explore the sustainable development and use of OER (and OER delivered through MOOCs) for adult learners, in another context there are warnings of existential threats to parts of the education system. Moodys ratings agency warned in 2013 that MOOCs were potentially threatening to weaken the financial sustainability of the higher education sector (Carlson 2013). Unsustainable expectations can also develop around how that something that was previously expensive (such as an MBA) can now be gained 'for free' with the same career outcomes and benefits (Phillips 2013; Schmitt 2013).

Some education providers have been concerned about damage to their high-price education 'brands' (Palin 2014). Other criticism argues that MOOCs enable a further global domination of a particular western education model (Altbach 2013). Also, there is little gained in liberating pedagogy freely, if learners then have to access journal articles through a commercial paywall (Hall 2014).

Aside from the investment costs in creating a MOOC there are overhead costs in maintaining the infrastructure and sustaining the resources. Almost perversely, the more 'open' the ICT facilities are, to allow mass access to MOOCs, the more the ICT infrastructure is at risk from cyber-attack. For example, in the case of the University of Berkeley in the USA , their "*cybersecurity budget, already in the millions of dollars, has doubled since last year, responding to what Larry Conrad, the associate vice chancellor and chief information officer, said were "millions of attempted break-ins every single week*" (Pérez-Peña 2013).

However, early MOOCs were part of a process of 'massification' of education, leading to significantly higher class sizes which then demand a "*Large Class Pedagogy (LCP)*" that enables cost-savings by reducing unit costs through increasing participation in education programmes (Hornsby and Osman 2014; Maringe and Sing 2014). MOOCs have now moved beyond initial online course delivery, to using ICT in enhancing learning environments. For example, the Open University-led Futurelearn consortium is developing MOOCs where "*every course has been designed according to principles of effective learning, through storytelling, discussion, visible learning, and using community support to celebrate progress.*" (FUTURELEARN 2014)

Indeed, it may be advisable not to over-focus on a term such as MOOC, and instead focus on processes, combining ICT, OER and providing well-targeted adult learner resources. As one perspective on this notes, the approach could then be to "*use the organisations and support structures that already exist and combine all these elements to reach out to learners in ways that simply weren't possible a few years ago. Let's define a new type of MOOC for adult learners*" (Footring 2014). For example, ICT and OER have enabled new ways of delivering learning to prisons in Washington State (USA)[60]. In that context the learning delivery is supported by staff and students from a local college, but between visits from those supporters (intermediaries) the prisoners themselves (particularly those serving long sentences) have become educators to other prisoners. This situation resonates with work carried out for the UK Joint Information Systems Committee (JISC) which acknowledged that many adult learners do not want to access OER directly, but will benefit from supporters[61]: "*these intermediaries could be tutors in traditional learning providers, or people facilitating maths learning in the workplace or in prisons.*" (Footring 2014)

[60] See also http://www.doc.wa.gov/news/pressreleases/2013/112113walshhonoredatwhitehouse.asp

[61] Something that Barclays Bank in the UK is doing, by linking consumers with 'digital eagles' who can help them build confidence and skills in online and smartphone banking. BARCLAYS. (2014). *Want help with the internet?* Barclays Bank plc, July, [cited July 28 2014]. http://www.barclays.co.uk/P1242671738729?campaign=301RDdigitaleagles

However, that does not so much define a new 'type' of MOOC, but it shows how new types of 'design' can be applied to developing learning environments[62]. For example, even within a group of adults with the same characteristics (for example a group of immigrants) they will still come with different experiences, different competences, and different motivations. In the above example, of prisoners, they also show different backgrounds and characteristics, some being active in the creation and delivery of learning (active), some consuming the learning (passive) and other looking on to see if it may be useful to them (lurkers) (Littlejohn and Margaryan 2014).

There is however a risk of over-emphasising 'innovative' learning and under-emphasising 'appropriate learning' environments for adults. The earlier part of this report discusses how adults learn, not all adult learners are happy with autonomous self-directed learning (Kahu et al. 2013).

4.3.2.1 Validating and recognising learning outcomes

The material reviewed so far across OER and MOOCs shows considerable developments in new learning environments. What was previously a fixed offer (for example a university course in Engineering) can now (as a MOOC) become a learning resource to be used flexibly by adult learners. That resource can be taken as a 'whole' and a certified outcome gained. It can be dipped into selectively, or it can be a focus for collaborative learning by a group of adults in a workplace.

The outcomes of a much more diverse (but potentially focused and relevant) adult learning using ICT and OER are therefore more heterogeneous. This presents new challenges in the process of accrediting learning and learning outcomes. Adult learning needs to be validated to ensure that it is of acceptable quality, the outcomes need to be certified, and then recognised by employers in particular. Without recognition the learning outcomes stay with the individual (although that may be the intention when informal learning is undertaken). There are three processes through which learning outcomes can be accredited:

- Validation: "*Confirmation by a competent body that learning outcomes (knowledge, skills and/or competences) acquired by an individual in a formal, non-formal or informal setting have been assessed against predefined criteria and are compliant with the requirements of a validation standard. Validation typically leads to certification*";
- Certification: "*The process of issuing a certificate, diploma or title formally attesting that a set of learning outcomes (knowledge, knowhow, skills and/or competences) acquired by an individual have been assessed and validated by a competent body against a predefined standard*"; and
- Recognition: "*a) Formal recognition: the process of granting official status to skills and competences either through the: – award of qualifications (certificates, diploma or titles); or – grant of equivalence, credit units or waivers, validation of gained skills and/or competences; and/or (b) Social recognition: the acknowledgement of the value of skills and/or competences by economic and social stakeholders*" (Cedefop 2008).

[62] Hence the Open Education Europe and the EPALE portals are building knowledge about OER and MOOCs and are using networking and mobility actions to build capacity across the EU in adult learning.

Another, more bottom-up, approach to the documentation and recognition of learner achievements is through ICT is 'open badging[63]':

> "*A digital badge is an online representation of a skill you've earned. Open Badges take that concept one step further, and allows you to verify your skills, interests and achievements through credible organizations. And because the system is based on an open standard, you can combine multiple badges from different issuers to tell the complete story of your achievements - both online and off. Display your badges wherever you want them on the web, and share them for employment, education or lifelong learning.*"[64]

Badges have potential advantages for adult learners since they "*can be offered more often and for more granular purposes or topics than material badges or certificates*" (Finkelstein, Knight, and Manning 2013). Indeed, learners:

> "W*ill be able to customise learning goals within the larger curricular framework, integrate continuing peer and faculty feedback about their progress toward achieving those goals, and tailor the way badges and the metadata within them are displayed to the outside world. Students won't just earn badges—they'll build them, in an act of continuous learning.*" (Carey 2012)

As with any new development in the recognition of academic attainment (Friesen and Wihak 2013), there are questions such as whether some badges are 'worth' more than others, and how metadata is consistently structured to help employers to assess badges (Hickey 2012; Young 2012). Credibility with employers is essential if badges are to work. In the USA there have been developments in badging and recognition at State level, where institutions such as North Carolina State University award credits to those who complete a MOOC course, charging a fee for the examination, and where the qualification is recognised by the State. However, this scenario could result in a diverse landscape of state-based MOOC recognition in the USA, with potentially 50 difference state-wide recognition systems.

Some research argues that recognisable certification on completing a course may be less important than "*how the lives of learners with no access to traditional forms of higher education might be transformed*" (Marr 2013).

4.4 ICT and OER: Potential and Conditions for Success

The preceding sections provided a description of the different types of ICT and OER available and in development. This section looks at the potential of these technologies to address needs in adult learning.

ICT-enabled learning

There is no guarantee that the availability of ICT will overcome all barriers, even in the comparatively well-resourced schools sector (Luckin et al. 2012). A large-scale study of adult learners in the UK concluded that the availability of ICT had not resulted in a significant change in the levels of adult learning (White 2013). However, that did not imply causally that ICT do not have a positive impact on adult learning. Rather, it reflected that any policy that promotes ICT also needs to understand the "*personal biographies*" of the learners, particularly their prior experiences of learning and their "*social and economic circumstances*" that will have strongly influenced their attitude towards further learning now (White 2013).

[63] http://openbadges.org/
[64] http://openbadges.org/about/

Nevertheless, ICT provide significant opportunities to overcome some of the key barriers to adult learning, particularly 'practical barriers' such as physical distance, connectivity to learning materials, educators and to other learners (Littlejohn and Margaryan 2014). Where ICT are used to design specialist learning resources (for example specialist interfaces and learning paced effectively) it can be possible to cope better with "*cognitive and socioemotional changes associated with aging*" (Wolfson, Cavanagh, and Kraiger 2014).

At the global scale ICT and OER enable significant economies of scale where learning resources can reach massive audiences (TCHE 2013). The Khan Academy provides a MOOC-based collaborative learning environment, peer learning, and peer assessment. It is underpinned by subject experts, and it provides digital badges to document outcomes[65] (Glance, Forsey, and Riley 2013). The rapid development and uptake of the Khan Academy[66] show how something can be created that delivers learning, albeit targeted at specific learning sectors and subject areas – schools and an initial core focus on science – although that focus does meet the identified policy emphasis on developing STEM (Science, Technology, Engineering, Maths) skills (Commission 2012h) as measured by the OECD PIACC survey (OECD 2014c).

Developments such as the University of the People[67] are more focused on adults, wherein "*students expect to get as good a degree as one offered by a bricks-and-mortar US university and are prepared to work hard to achieve it*" (Wakefield 2014). This initiative is not fully open, as "*applicants must be above the age of 18, proficient in English, and able to prove that they have successfully completed High School.*"[68]

ICT usage has moved significantly away from only using ICT in supporting learning in conventional 'classroom' environments, to ICT as enablers of new learning (Reddi 2007). For example, in 'flipped' learning environments learners participate and interact online, where the interaction with the educators is focused less on teaching content (which the learners can now review in advance and online), and more about building on the content (Scheuermann and Pedró 2009).

ICT has been used effectively to provide learning opportunities for more marginalised adults. For example, literacy challenges have been addressed through the provision in Ghana of audio books on programmable tablets for illiterate users (Kelion 2014). In Australia, it has been found that home access can encourage "i*ntergenerational cooperation with, for example, children coaching their grandparents*" (Tatnall 2014), and that, where children are using ICTs for their own schoolwork their parents also increased their digital skills (Yelland and Neal 2012). Homeless adults in New York City were provided with an ICT-enhanced learning environment focusing on keyboard skills for employment purposes, but also providing wider lifestyle skills covering literacy and health (Sinatra and Eschenauer 2012). In India, financial literacy in illiterate and semi-illiterate rural women was built through ICT-enhanced learning, using specially designed teaching aids in formal, informal and collaborative learning (Sharmaa and Johrib 2014).

[65] https://www.khanacademy.org/about
[66] https://www.khanacademy.org/
[67] http://uopeople.edu/
[68] http://uopeople.edu/groups/tuition-free-online-learning?d=167551&s=167533&a=167551

ICT and OER are enabling new learning business models (Commission 2012h). For example, in June 2014 Starbucks Corporation announced that it "*will provide a free online college education to thousands of its workers, without requiring that they remain with the company, through an unusual arrangement with Arizona State University*" (Pérez-Peña 2014). Employers see direct benefit in up-skilling their employees, and in the case of Starbucks the cost-benefit is clear since the company "*hopes to retain talent, thereby saving on hiring and training costs*" (Jargon and Belkin 2014).

A precondition for the take-up and usage of ICT and OER in adult learning institutions however is **access to good quality facilities, and learners will also need to be familiar with computers and be able to use the Internet**. Through the Opening Up Education Communication the European Commission has promoted and supported the wider use of technology in educational settings, and is clear that simply delivering learning resources in ICT-enhanced contexts does not by itself ensure that learning can be undertaken by more of the adult population. Equally, it is clear that delivering such resources alone will not lead to the type of learning outcomes needed by adults and the labour market. Research for the Commission recognises the need to **develop the competences of adult learning professionals in the application of ICT learning techniques**, including new media and social networks relevant for the learning processes of adult learners (Buiskool et al. 2010).

Furthermore, learning providers, according to the OECD, need to be embedded in a wider network of businesses, communities and other providers in order to increase resources and know-how (Istance and Kools 2013.p.52). For the OECD, the widespread acquisition of digital literacy, particularly involving the ability to interpret the importance as well as the reliability of digital information, has been high on the agenda for more than a decade (OECD 2001). As they note, adult educators will need to acquire a range of new skills: digital skills of their own; skills to use ICT in teaching; skills to develop digital competencies in learners; skills in addressing disadvantaged and new emerging learner groups; legal knowledge about OER and licensing; and, new digital content production skills.

Adult educators also need to develop their new roles as instructors, moderators, coaches or collaborators and content developers. In addition they must develop their skills on how to operate safely and successfully within new types of hybrid educational settings such as blended learning, and cooperative forms of education, as well as further developing competencies in dealing with new emerging types of learners (Commission 2013e; UNESCO 2011). The European Association of Adult Education (EAEA) consequently called for European investment in the design, promotion, and proliferation of specific learning materials for adult educators to develop their digital pedagogy skills (EAEA 2014).

ICT and OER have enabled a major shift in the way in which learning is constructed and consumed, and the ways in which users and providers collaborate as they create and share knowledge. Social networks are powerful mechanisms for informal learning and networking with peer groups (Caminotti and Gray 2012), although other research has observed that the rate of ICT-led innovation in formal learning areas has been slower than the uptake in informal learning areas (Holmes 2013, p.97).

As discussed so far ICT offers significant potential to adult learning. They can be used to overcome distance, they can enable marginalised communities to come together and learn online, and they can be used to link disparate learners who have the same needs. They can be used to turn learning into a highly interactive and participatory activity. They can open up access to resources, and can provide applications to manage resources. Nevertheless, ICT and learning platforms are 'empty vessels' unless they are populated with curricula and content that meet the learning needs of the target adults, or which can be used by adults to self-organise their learning activities. The learning then needs to meet the learning objectives and to be quality assured and recognised – something that is challenging when learning resources are becoming so diverse.

With regard to the use of OER, a study of US HE educators highlights key barriers to OER take-up as: a lack of awareness about OER availability; a low level of understanding of how to assess the quality of OER and to utilise OER, but with a higher willingness to consider using OER when awareness was raised; a perception that adopting OER is very time intensive and difficult; and, a lack of management 'buy-in' to promote the development and utilisation of OER (Allen and Seaman 2014)[69].

Research undertaken for the Commission by the Joint Research Centre (JRC) Institute for Prospective Technological Studies (IPTS) has resulted in clear recommendations for policy action, which are corroborated by the wider research discussed above. Recommendations indicate first that a learning environment can be almost any 'place', physical or virtual. Anyone can be a learner and provider, and OER is not just content, it is also about forming the content into an appropriate learning resource while also being fully aware of the licensing issues attached to OER (Falconer et al. 2013). However, not every learner has the capacity to self-learn, and they may need guidance in constructing resources and focusing them on the learning outcomes that are relevant for them (Redecker 2014). Lastly, the recommendations note that the situation is rapidly changing, so policies and frameworks need to be flexible.

Another IPTS study recommended that educators needed support, and that research is needed in the development of new learning and assessment environments (Redecker 2012, p.6). That study built on other IPTS research which advised that online assessment of learning outcomes needs to be developed further in order to not only make adaptability possible but also the validation of the informally and non-formally acquired competencies – an important motivating factor for the participation in adult education (Redecker et al. 2011).

IPTS further produced policy recommendations relating to OER and Open Educational Practices (OEP[70]). These emphasise the need for research into the quality of OER and OEP, mechanisms to overcome the fragmentation of resources (Open Education Europe is addressing this), institutional support to develop OEP (Erasmus+ is providing resources), developing recognition (EU initiatives have been mentioned above), and "*create methods to track reuse and repurposing; and strengthen processes of peer-assistance and social ranking*" (Camilleri, Ehlers, and Pawlowski 2014).

[69] Institutional 'buy in' and aligning ICT developments to organisational strategy was also identified in a Canadian study. Cavaco, C, P Lafont, and M Pariat. (2014); Saylers, Vincent, Lorraine Carter, Alanna Carter, Sue Myers, and Penelope Barrett. (2014).

[70] http://colt.olemiss.edu/open-ed/oep/ Where OEP involve "*teaching techniques that introduce students to online peer production communities*"

This guidance importantly does not propose interventions that support the creation of OER, but aims more to establish the conditions for OER to develop, including actions that may enhance the use of OER, and to understand quality. The approach is to maximise the ways in which diverse OER resources can be constructed into OER that focus on relevant learners, and then help to build recognition; otherwise it will be left to end users such as employers to decide whether to recognise learning outcomes and certificates (Tickle 2014). The guidance also cites the importance of helping to create methods (distribution channels, IPR arrangements, licensing) to maximise the re-purposing of content and, finally, to build collaborative networks of providers and users (importantly across the European space) to build resources that have a multi-national relevance and impact.

However to do so, adult learning providers will need to find new institutional strategies. For example by providing a context that encourages and rewards staff to invest their time in developing high quality learning resources that will be openly available to anyone. OECD has called for leaders with a vision for the learning design of the future (OECD 2001).

Combining ICT with increasingly open educational resources does not simply overcome previous problems and challenges in adult learning. Like any new technology ICT can have a 'disruptive' element which challenges the status quo in the learning environments (although that can be used to just deliver existing learning models more cost-effectively). For example, educational institutions often have strong control over the assessment mechanisms (for example, university examinations and degree awards, or school examination boards) and recognition of learning outcomes (for example the NARIC[71] network). They lead to a move away from a control situation where institutions implied 'you can only have this recognised qualification by taking our courses', to individualisation where learners (or group of learners) construct personalised learning programme and needs to have the outcomes recognised (Moore 2013).

4.5 Conclusions

A number of conclusions can be drawn from the analysis presented in this chapter.

ICT and OER have great potential as enablers, enabling extensions and developments of existing learning techniques such as scenario-based learning. But, more than that, they have the potential to facilitate learner-centred education by virtue of their ability to enable greater tailoring to individual needs and also to support collaborative learning. Unique combinations of hardware, software and conductivity/networking are possible plus access to virtual communication and networking tools.

A key question that arises is: which adult learners may stand to benefit most from these technologies? It is comparatively easy for well-educated individuals to tap into the new possibilities offered by these technologies, because, almost by definition, they have the key competence of knowing how to learn. But this is one of the major deficiencies of disengaged learners. Realising the benefits of digital learning for adults from disadvantaged backgrounds will therefore crucially depend on support from educators. Without such support, there is a risk of an increasing gap between the digital 'haves' and 'have-nots' in learning as in the wider society.

[71] http://www.enic-naric.net/

Adult educators are increasingly familiar with the notion that their role should be that of the facilitator. However, interweaving this role with the use of technologies means adult educators will need to acquire a new range of skills and competences: digital skills of their own; skills to use ICT in teaching and to be able to guide learners through the burgeoning range of on-line learning possibilities; skills to develop digital competences in learners; new digital content production skills; and, basic legal knowledge about copyright and licensing.

For their part, adult learning providers will need to develop new institutional strategies incorporating flexible and ICT-enhanced learning developments, and where resources are provided for ICT such as smartphones and tablets which present opportunities to widen access to learning resources. Institutions also need to provide a context that encourages and rewards staff to invest their time in developing high quality learning resources that will be openly available to anyone. In the context of constrained resources, the opportunity for learning to be delivered through stakeholder cooperation and multi-stakeholder partnerships to create economies of scale (e.g. in ICT tools and teacher education) should be taken.

At policy level, education policies and teaching and learning systems need to be modernised to meet the challenges from ICT-enhanced learning, taking a system-wide perspective of lifelong learning. A focus on ICT needs to be accompanied by a focus on inclusion, making lifelong learning accessible for all. The necessary legal frameworks should be put in place to establish the conditions (copyright, licensing etc.) for the development of high quality digital learning resources that meet the needs of both educators and learners. Fast broadband access for all should be ensured. It will also be important to encourage the development of learning partnerships that can develop innovations in adult learning using ICT and OER. National and international systems for accreditation, assessment, quality assurance and the recognition of adult learning are also needed.

5.0 ICT and OER approaches in adult learning - State of development at Country and Institution Levels

This chapter discusses developments in the use of ICT and OER in adult learning across the EU.

It first presents the findings from a review of national level policy and strategic documents of the 16 countries selected for the study. It then discusses the similarities and differences of these countries in relation to the implementation of adult learning and ICT policies. The clustering approach used in the country selection process is then reviewed in line with the findings of the study. The section ends with a discussion on the use of ICT and OER at a practical level, and the conditions that facilitate their use in adult learning provision.

It is important to note that both the survey and country work were meant to provide a picture of how ICT and OER were used generally in adult learning across countries within the EU. Therefore, the findings should not be interpreted as a measure of the use of ICT-enhanced technologies across the whole of the EU.

5.1 Country context

In this section the 16 countries studied are described on the basis of several indicators linked to their adult education policies, as well as their approaches and the implementation of these policies. The results of this categorisation are summarised in a structured table which is appended in Annex Four. The similarities and differences between these countries are presented in the text that follows, and are based on the following indicators:

- The 'adult learning policy' section provides an overview of the focus of existing national policies on adult learning in general;
- The section 'ICT policies linked to adult learning' reviews policies on adult learning with respect to the use of ICT;
- The section on 'key actors of ICT policy' identifies stakeholders that drive the implementation of the use of ICT in adult learning; and
- The 'target groups of adult learning policies' discusses the key target groups of the adult learning policies of the countries studied. It denotes whether the use of ICT-enhanced learning plays a frequent, occasional or ancillary role in targeting these groups.

5.1.1 Adult learning policy focus

The documentary review highlights that there are three main areas on which policies of the 16 countries studied that incorporate adult learning focus:

- **Acquisition of basic skills for adults at level one or below** - these policies focus on literacy, numeracy, ICT and basic skills covering communication and interpersonal skills. These policies have been developed to support the integration of socially disadvantaged groups, such as people who lack basic skills or digital skills, immigrants and the elderly. Such polices can be found in Brazil, DE, EL, HU, NL, NO, PL, PT, ES, Turkey and the UK;

- **Employability and securing economic growth** – these policies cover the re-skilling or up-skilling of adults to help them enter the labour market. These strategies and policies aim to reduce barriers to labour market participation for the unemployed, lowly qualified or socially disadvantaged groups and cover the acquisition of vocational qualifications and the development of soft skills and key competences such as ICT skills (for example Brazil, EE, DE, HU, the NL, NO, PL, PT and the UK). In most cases these policies include the regulation of vocational education and training as well as the professional development of adults. An example is the French law of professional development, employment and social democracy[72]. They also can be strongly labour market driven; with a focus on vocational education and training as is the case in FR, DE, HU, UK and the USA;

- **Lifelong learning (LLL)** - these policies emphasise continuous and flexible learning throughout the course of a person's life (child to adult). Such policies are in place in Brazil, CZ, EE, EL, NO, PL, PT, ES, and TR. These include, for example, Brazil's policy on "Guidelines and Basis of Education"[73], the "Estonian Lifelong Learning Strategy"[74] and the Spanish "Organic Act on Education[75]"; and

- **Widening access to learning** – these policies emphasise the provision of equal opportunities for all adults as a means to better access to learning (for example in Brazil, CZ, EE, DE, NO, PL, ES, SE and the UK). Adults in Norway, for example, have a right to free adult learning provision at a primary and secondary education level. In SE all municipalities are required to offer basic level education to all adults who do not have a qualification. Participation is free and voluntary; those eligible include adults over 20 and those who have completed three years of upper secondary school, who either want to complement their education, validate their competence, or change their career. In Brazil the State's responsibility for guaranteeing public school education to young people and adults has a legal basis under the "Guidelines and Basis of Education" strategy.

[72] Loi n° 2014-288 du 5 mars 2014 relative à la formation professionnelle, à l'emploi et à la démocratie sociale http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000028683576
[73] http://www.planalto.gov.br/ccivil_03/leis/l9394.htm
[74] Estonian Ministry of Education and Research. 2014-2020. Estonian Life-Long Learning Strategy for the years. http://www.hm.ee/index.php?0513767
[75] BOE (Spanish Official Gazette). Ley Orgánica 8/2013, de 9 de diciembre, para la mejora de la calidad educativa. http://www.boe.es/boe/dias/2013/12/10/pdfs/BOE-A-2013-12886.pdf

5.1.2 ICT policies linked to adult learning

Most of the countries studied do not have an ICT policy specifically linked to the delivery of adult learning. Countries including FR and TR appear to have no policies on the use of ICT in adult learning. Other countries like CZ and EL are currently developing such strategies.

A few countries have policies which underline the role that ICT might play in providing **better access to learning** for adults (for example, Brazil, CZ, EE, PL and ES). Apart from this, policies in Brazil, DE and ES also focus on the role that distance learning plays in widening participation, especially in rural areas and for disadvantaged groups. These policies have been developed to support the integration of socially disadvantaged groups, such as people who lack basic skills, immigrants and the elderly.

A small number of countries had explicit policies on the use of ICT in adult learning. Estonia's Life-Long Learning Strategy for 2014-2020 for example, covers the incorporation of a digital culture into the learning process, and the creation of learning opportunities for adults to acquire digital competences (ESTONIA 2014b). This strategy is accompanied by the "*Development Plan of the Information Society 2020*" (ESTONIA 2014a) which directly builds on the European Commission's initiative "*Opening up Education*". Its objective is to send a clear and strong signal on the importance of ICT and their innovative use in education in order to increase participation, thus also impacting on adult education. As both strategies were recently adopted, implementation is still at an early stage.

The US National Education Technology Plan[76] (NETP) meanwhile represents a good – if not the best – practice example of a strategic outlook on the use of ICT in adult learning. The first National Education Technology Plan was released in 1996; since then it has been updated three times, approximately every five years. Traditionally the NETP "*reflects the status of educational technology and prevailing theories about student learning, educator professional development, and the role of institutional stakeholders"* (Russell, Lippincott, and Getman 2013, p.2). It also makes recommendations for action at the local, state, and federal levels. The current plan outlines several goals for 2015, all with a focus on using technology to close the achievement gap by 2020.

In Scotland (UK) the "*Adult Literacies in Scotland 2020 (ALIS 2020)"* (SCOTLAND 2011) policy explicitly mentions the need for providers of literacy education to use ICT to enhance their adult learning provision and reach more people:

> "*Adult literacies providers must ensure their services are adaptable as the use of literacies change and evolve. Online and blended learning should continue to be developed in order to reach more learners, offer alternative modes of learning and provide the learner with increased opportunities to access learning without face-to-face tuition*." (SCOTLAND 2013)

Some countries have **policies** in place **that specifically regulate the use of ICT in adult learning**. These mostly focus on the integration of ICT into distance learning (for example Brazil, DE, and ES).

There are also policies that focus on developing open access learning materials in countries like Brazil, EE, SE, and the USA. There are also others which focus on boosting innovation through the integration of ICT in education, a notion which is strong in Brazil and DE.

[76] http://tech.ed.gov/netp/

Both the UK and USA have strategies which are not policies per se, but have been designed to influence the use of ICT in adult education. For example, the recommendations outlined by the Further Education Learning Technology Action Group (FELTAG) in the UK. This group aimed to "*identify inhibitors to innovation in the use of technology for learning and to improve learning outcomes"* (BIS 2014). Its recommendations were designed to guide the (post-lower secondary) Further Education (FE) system towards a digital future which would meet the expectations of learners and employers. The Education and Training Foundation, a membership body, which is funded by the UK Government, has been using part of its funding to implement some of the FELTAG recommendations.

5.1.2.1 Key actors of ICT implementation strategies linked to adult learning

The key actors behind the implementation of ICT in adult learning provision in the countries studied are public, private and intra-corporate providers of adult education. Sometimes NGOs also play a key role, as is the case in NL and Brazil. In a minority of cases, such as NO described below, Ministries or other Governmental actors play a role, sometimes as central coordinators and sometimes by providing funding for specific initiatives. In PL and PT, European Social Funds (ESF) have been used to support the implementation of ICT policies in adult learning.

In Brazil all digital initiatives, including those focused on adult learning, are coordinated by the Brazilian Internet Steering Committee[77] (CGI.br). This joint committee is based on an inter-ministerial Ordinance dating back to 1995 and comprises members from government, industry, the third sector, and academia. Key objectives of the committee, among others, are to spark innovation and offer services to education providers. It acts as a quality control agency for providers.

The Norwegian Agency for Lifelong Learning[78] (VOX) role in the use of ICT in adult learning represents another useful model. It coordinates different initiatives and is responsible for several national programmes on ICT-enhanced adult education. Its key tasks include the development of innovative pedagogical approaches and digital tools for adult learning, the publication of reports and fact sheets on different topics concerning ICT in education, and the provision of professional development for educators through workshops on ICT and communities of practice. VOX maintains web-based portals aimed at adult learners including Utdanning.no (an internet portal for information about the entire education sector in NO), and Delogbruk.no, which is an initiative which stimulates educators at all levels to share learning resources and experiences.

Other examples of similar actors include the Estonian eLearning Development Centre,[79] the Spanish Centre for Innovation and Development of Distance Education (CIDEAD),[80] the Swedish National Agency for Education,[81] and the UK based National Institute of Adult Continuing Education (NIACE).[82]

In countries where no policies on the use of ICT in adult learning exist, and committees or agencies that could advance the matter are also absent, universities are often the most significant developers of ICT-enabled learning. EL, HU and TR provide good examples of how universities – as providers of Open Courseware and as designers of new forms of education – can play a major role as trailblazers for innovation in adult education. A good example is the Catholic University of Portugal[83]

[77] http://www.cgi.br/
[78] http://www.vox.no/English/
[79] http://www.virtualschoolsandcolleges.eu/index.php/Estonian_e-Learning_Development_Centre
[80] http://www.cidead.es/
[81] http://www.skolverket.se/
[82] www.niace.org.uk
[83] http://www.porto.ucp.pt/en

which has been a pioneer in distance higher education, namely through the creation of an *"Advanced Teacher Education in Informatics Course"*. This is designed to provide graduate level training on the use of ICT in education for teachers. The University also offers eLearning courses in a range of academic fields. In addition, the Institute for Distance Learning, associated with the university, has been redesigned as an eLearning Lab aiming to help teachers embed ICT into everyday classroom practice and overcome technical problems with their eLearning tools. The University also offers access to databases and other digital resources for its students, staff and a general public audience.

5.1.3 Comparative analysis of country clusters

Eurostat benchmark indicators linked to '*participation in lifelong learning*" and "*digitalization and the use of ICT in adult learning*" were some of the indicators used to select the 16 countries for this study (see Section 1.3). Based on this data, three clusters of countries were identified with respect to the status of adult learning and the adoption of ICT-enhanced learning among adults. These were: 1) *'traditionalist cluster'* with both low participation in adult learning and low levels of digitalization 2) '*tentative cluster'* with medium levels of participation and slightly above average levels of digitalization and 3) '*future-oriented cluster'* with high levels against both dimensions. The 16 countries chosen for further analysis were initially assigned to the three clusters as follows:

- ***Future-oriented cluster:*** SE, NO, NL, UK, Brazil and USA;
- ***Tentative cluster***: EE, ES, DE, FR and TR; and
- ***Traditionalist cluster:*** CZ, HU, PT, EL, PL.

The country reviews largely confirmed the results of the initial clustering approach. They also provided further insights into the mechanisms that drive the implementation of ICT in adult learning. Looking at the initial assignment of the 16 countries selected to the three clusters, only three changes were made as a result of the country reviews:

- **EE** was moved to the future-oriented cluster - it exhibited almost all the cluster's characteristics, although most ICT initiatives have only recently been implemented;
- **PT** was moved from the traditional to the tentative cluster for similar reasons; and
- **TR** was moved from the tentative cluster to the traditionalist cluster- whereas promising approaches of ICT-enhanced learning for adults exist, these were mostly singular projects located at universities.

After finalising the country research the final clusters were:

- ***Future-oriented cluster:*** Brazil, EE, NL, NO, SE, UK, and the USA;
- ***Tentative cluster***: FR, DE, PT and ES; and
- ***Traditionalist cluster:*** CZ, EL, HU, PL, and TR.

The rest of the section discusses these three clusters of countries on the basis of the information gathered during the country research. For each cluster a selection of good practice approaches that foster the development of ICT-enhanced adult learning is included where relevant.

5.1.3.1 Key characteristics of the future-oriented cluster

Countries in the future-oriented cluster are characterised by a combination of four elements that drive the successful implementation of ICT in adult learning:

- They have an integrated strategy on lifelong learning and ICT whose key objectives focus on the exploitation of opportunities afforded by ICT towards securing economic growth and employability, as well as equal access to lifelong learning. Sometimes even a legal right for adults to receive basic education is part of these strategies (BR, NO, SE);
- A number of public and private actors exist that collaborate with municipalities and local providers of adult education to develop ICT relevant initiatives;
- They display innovative ICT approaches such as projects focusing on the production of open educational materials (EE, NL, USA), projects that focus on the use of innovative technologies in education and training provision (UK) and projects that support the use of digital badges for skill development (USA); and
- They all actively address barriers that prevent the use of ICT-enhanced adult education.

Brazil, NO, SE and the USA all have examples of integrated strategies for adult learning and ICT. All of these strategies explicitly aim at exploiting the potential of digital technologies to secure national competitiveness and social equality. Some countries (Brazil EE, SE, and the USA) also aim to improve cost efficiency and the quality of learning provision through the use of ICT. The Norwegian approach, meanwhile, tackles the issue of digitalisation on the broadest possible level, calling for an active digital citizenship in all areas, including adult learning. The US National Education Technology Plan[84] (NETP) is a good example of a strategy with an outlook on the potential of digitalisation for learning. Another is Estonia's "*Life-Long Learning Strategy*" which covers several areas relevant for adult education (ESTONIA 2014b). Together with the "*Development Plan of the Information Society 2020*" (ESTONIA 2014a) it emphasises the importance of ICT and its innovative use for education.

In addition Brazil, NO and SE grant adults a legal right for basic education while providing a large number of ICT-enhanced learning opportunities for the respective target groups. In the UK, national recommendations fulfil a similar function as is the case with the recommendations set up by the Further Education Learning Technology Action Group (FELTAG) (BIS 2014).

Regarding the coordination of ICT-enhanced adult learning, all countries from the future-oriented cluster have a national committee or – more often – an agency concerned with the implementation of digital technologies in adult learning. These key actors are usually backed by national ministries, but still operate relatively independently. They bring together different public as well as private stakeholders on all governmental levels in order to launch large scale programs for target groups such as illiterate adults, migrants or adults with low qualifications. Good practice examples as discussed in the previous section on the co-ordination of adult learning include the Brazilian Internet Steering Committee[85] (CGI.br), the Norwegian Agency for Lifelong Learning[86] (VOX), the Swedish National Agency for Education,[87] and the UK National Institute of Adult Continuing Education[88] (NIACE).

[84] http://tech.ed.gov/netp/
[85] http://www.cgi.br/
[86] http://www.vox.no/English/
[87] http://www.skolverket.se/
[88] www.niace.org.uk

Most future-oriented countries also have innovative approaches to lifelong learning. EE, NL and the USA emphasise the production of open educational material, in the case of the USA by running large scale funding programmes. The UK and the USA have also introduced monitoring of the effectiveness of the adult learning system, using big data collected by ICT-enhanced learning systems. Equally, the use of digital badges for skill development has been examined in both countries. Almost no country from the tentative or traditional cluster exhibited similar innovative approaches, with the partial exception of PL and PT that want to include the recognition of prior learning in their lifelong learning strategies.

Regarding barriers to ICT-enhanced adult education, the countries from the future-oriented cluster show the same features as most other countries, albeit to a much lesser extent. Some disadvantaged groups lack access to digital networks and devices, many educators could improve their ICT-literacy skills, public providers complain about the high costs for the acquisition and maintenance of tools and devices for digital learning, and stakeholders agree that digital infrastructures, as well as the legal framework for ICT-enhanced learning, should be improved.

Actively addressing the barriers for take-up of ICT-enhanced learning through different projects is another characteristic of countries from the future-oriented cluster. Often the responsibility for such projects: for example, the development of educators' media-literacy skills.

5.1.3.2 Key characteristics of the tentative cluster

Countries in the tentative cluster are characterised by a combination of four elements:

- Strategies for lifelong learning do not integrate the use of digital technologies (FR, DE, PT, ES);
- Strong markets for private and intra-corporate adult education, combined with the absence of an assertive national agency or institute that could initiate or coordinate large scale ICT-enhanced adult learning projects (FR, DE);
- A strong role for universities in the provision of ICT-enhanced learning, targeting students as well as adults (FR, DE, PT, ES); and
- A combination of barriers that prevent ICT-enhanced adult education as a result of insufficient access to digital networks and low ICT skills of the population in general.

The tentative cluster differs from the future-oriented cluster mostly through the **absence of a strategy on lifelong learning that also includes the use of ICT for education**, as well as the **absence of a national agency that coordinates different stakeholders and projects in the area of adult education**.

Compared to the future-oriented cluster, barriers outlined in the reports of countries in this cluster, such as the lack of access to digital networks, appear to be more evident.

5.1.3.3 Key characteristics of the traditional cluster

Countries in the traditional cluster are characterised by a combination of four elements:

- The absence of lifelong learning strategies that integrate the use of digital technologies (CZ, EL, HU, PL, TR);
- Sometimes displaying uncoordinated actions by Ministries concerned with adult education and the absence of a national agency or institute that could coordinate ICT-enhanced adult learning projects (CZ, EL, HU, PL, TR);
- A strong role for universities in the provision of ICT-enhanced learning, targeting students as well as adults (EL, HU and TR); and
- A significant combination of barriers that prevent the use of ICT in adult learning.

Similar to the tentative cluster, countries in the traditional cluster have **no overarching strategy for the use of ICT in lifelong learning**. Reports from the CZ and EL indicate that they are in the process of developing such strategies. HU, meanwhile, is in the process of restructuring its adult education system in order to better deal with pressing issues such as illiteracy and unemployment. Low levels of digital literacy in these countries might explain why ICT-enhanced adult education is not used to tackle these problems.

Within the traditional cluster, in the absence of public actors that govern the field of adult education, universities sometimes take a leading role when it comes to the implementation of ICT-enhanced learning. The open courseware portals of Kapodistrian University of Athens and Aristotle University of Thessaloniki are good examples. The universities launched their portals in 2012 and 2013 respectively, and their published digital material includes a large number of courses that are openly accessible to students as well as adult learners. A similar project is the open courseware portals project managed by the Turkish Academy of Science, which offers courses on engineering sciences, social sciences and basic sciences.

The traditionalist cluster is also characterised by a **large number of barriers that prevent the use of ICT in adult learning**. A **lack of access to digital networks and devices for large groups of citizens**, as well as **low digital literacy skills** within major parts of the population, appear to be the most severe barriers that prevent the implementation of ICT-enhanced adult education. CZ is an exception to this rule, with ICT-skills amongst the adult population which are slightly above other countries in the cluster.

5.1.4 Conclusions

The cluster analysis above shows that countries most advanced with respect to the application of ICT to adult learning share a number of characteristics. First, they have lifelong learning strategies and plans into which digital learning is embedded as an intrinsic component. Second, they benefit from a national agency or similar type of organisation that can bring together stakeholders from a wide range of backgrounds with wide-ranging expertise in different fields to agree priorities and track progress. Finally, they have programmes designed to tackle barriers to adult learning such as the lack of digital skills among certain sections of the adult population.

Given the early stage of development it is not yet possible to predict how successful these countries will be in deploying ICT to realise the benefits for adult learning. But certainly these characteristics, and their combination together, have led to important progress to date and should be more widely replicated.

5.2 Overview of ICT and OER approaches used in adult learning-country examples

This section discusses the practical use of ICT and OER in the teaching of adult learners: it explores reasons why some adult learning institutions use ICT and OER in their adult learning provision; looks at barriers to using them; and, considers how some of these barriers have been addressed by the countries. The findings are based on the 16 countries studied and the survey that was carried out. Whereas the survey[89] discussed under this section does not cover all the EU28 countries, it does provide a picture of the types of ICT and OER used by some adult learning institutions, and together with the countries studied, provide insights into the use of ICT-enhanced technologies in adult education provision.

To understand how adult learning institutions use ICT in their adult learning provision in relation to its **intensity, purpose** and the **context**, five indicators (*Not yet started, Early stages, Developing, Established and Embedded*) were developed for the online survey to ascertain their progress across these three areas. Where relevant, the analysis below has been structured in line with these indicators.

5.2.1 Types of ICT and OER used by adult learning institutions

The survey findings highlight clear differences regarding what ICT tools are used and for whom. Laptops/desktops were more commonly used than mobile/wireless tools, while interactive tools were not widely used.

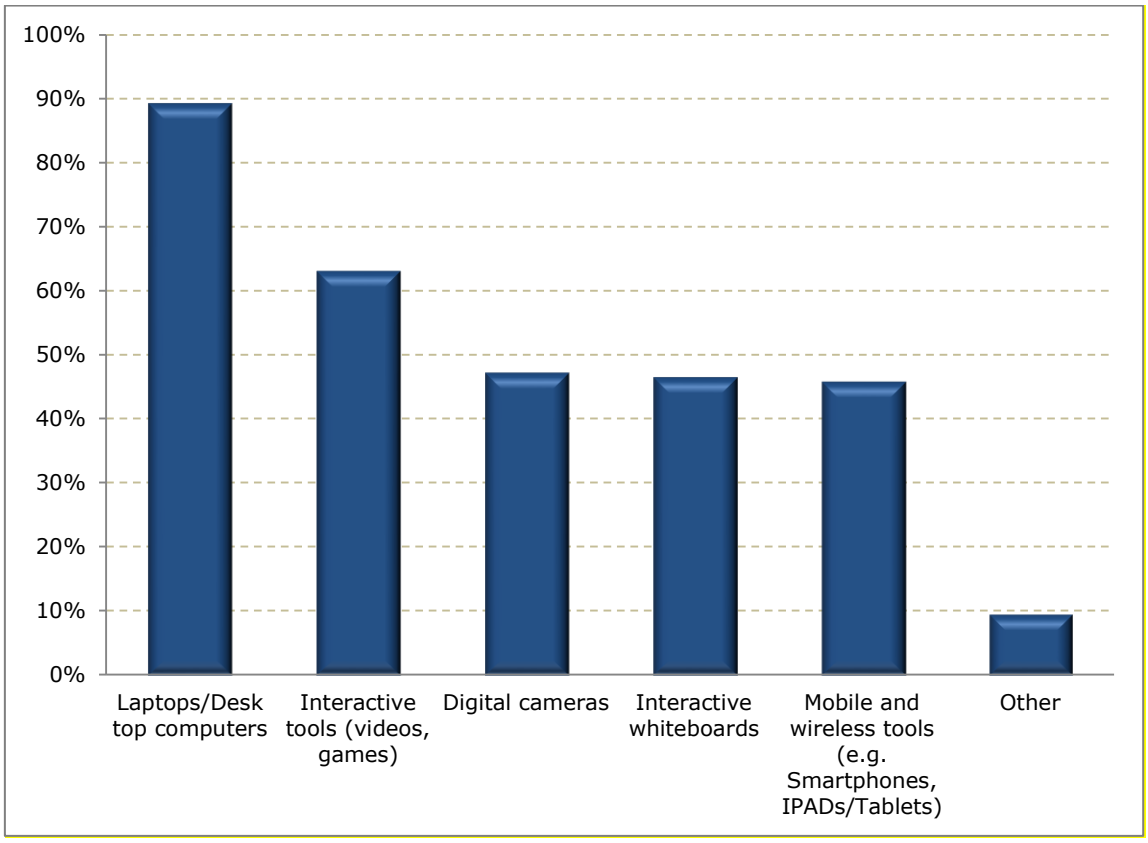
With regards to OER, a significant proportion of the institutions involved in the survey had used some form of OER, most commonly open artefacts such as video and audio clips, and image libraries.

5.2.1.1 What ICT-enhanced technologies were being used by adult learning institutions?

The majority of institutions surveyed who used ICT equipment to enhance their adult learning provision, laptops/desktop computers were the most common form of ICT equipment used) (Figure 5.1). Interactive tools such as videos and games were also common, followed by digital cameras and interactive white boards. Other ICT-enabled technologies used included virtual learning environments (VLEs), videoconferencing equipment, eLearning platforms, learning management systems (ILIAS and Vitero Virtual Classroom) and Moodle platforms.

[89] Unless otherwise indicated, the base sample size used for the survey is 305

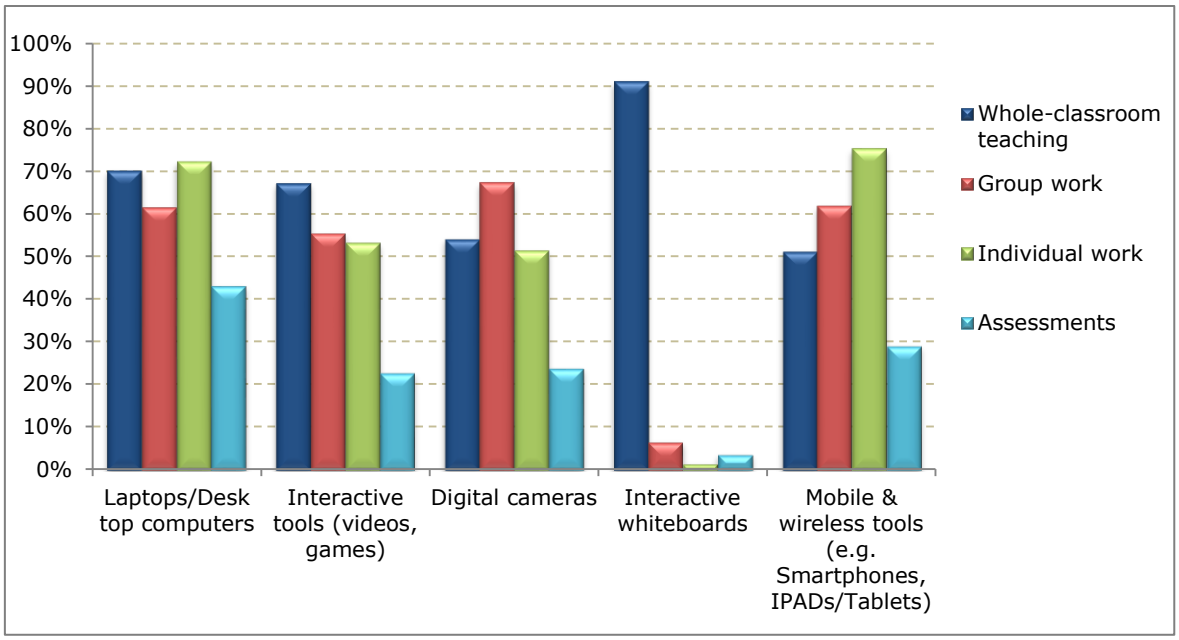
Figure 5.1 Use of ICT tools across institutions surveyed



Source: Adult Learners in Digital Learning Environments survey (n=291)

Laptops/desktop computers continue to be the most popular ICT tool despite the advent of mobile and wireless tools (Figure 5.2) since they are highly versatile in being used for individual, group and whole class teaching, and also have a prominent function in assessments, and the latter use distinguishes them from other types of tool. Mobile and wireless tools tend to be favoured more for individual and group work. Interactive whiteboards are overwhelmingly used for whole class teaching. Mobile devices are often seen as having great potential to engage with learners with low educational attainment who have had negative experiences in traditional forms of education. There would appear to be scope for their more widespread use to help this particular group of adult learners.

Figure 5.2 Learning contexts and the use of ICT resources across surveyed institutions



Source: Adult Learners in Digital Learning Environments survey (sample size varies for each ICT tool)

Specific examples drawn from the country research of how institutions use ICT-enabled technologies in their adult learning provision are set out below:

Institutional level use of ICT-enabled technologies

Spain

Providers use tools, platforms and different kinds of support that are made available by other bigger institutions. This usually takes the form of collaborations or agreements. For example:

- Collaboration with Google (Google Education);
- Use of blogs and digital learning materials and classes provided by the bank "La Caixa" through one of its social projects;
- Agreements with Vodafone to deliver distance learning through mobiles; and
- Collaboration with the "Instituto Cervantes" where the institute gives learning providers access to its platform. There, teachers can use chat rooms and forums, wikis and blogs on this platform for educational purposes, especially in the area of languages and social sciences.

Norway

- **Regnehjelpen (Maths Aid**) is a digital learning tool which presents interactive tasks with topics from a variety of adult relevant arenas including recipes, online shopping, working life and personal economy. The objective is to give people an opportunity to refresh their own maths skills and also to improve their ability to help their children with their homework. In addition, the learning tool offers an explanation of fundamental rules in maths through animations[90].

[90] http://www.regnehjelpen.no/ . Short English version at http://www3.vox.no/Mathsaid/

Institutional level use of ICT-enabled technologies

- A project initiated by VOX (the Norwegian Agency for Lifelong Learning) enables adults to "*learn to read through writing*" by making use of a digital application containing synthetic speech features.[91]

- There is a cohesive approach to the use of digital learning platforms in the county of Hordaland (these also exist in most counties in Norway). This engages all schools in within adult education and formal learning, connecting them to the same platform for teaching/learning purposes, to help with administrative issues and to facilitate contact among peers and between school and family. The platform in use is called "*It's Learning*". For a study of how the platform is used in Norwegian education in general, including formal adult learning.[92]

- **Internet for Inmates55 (IFI)** project was a follow-up to Partnership in Prison Education Learning in Networked Environments (PIPELINE), a Grundtvig project which developed a secure system to allow the use of ICT in prison education. IFI aimed to link up all prisons in Norway to a national network which enabled access to the internet in line with the security requirements of the prison environment (Hawley, Murphy, and Souto Otero 2013).

Portugal

Espaço t (Association to Support Social and Community Integration) is an NGO that develops adult education and training courses (VET courses) and activities which are not strictly bound by the rules of the Portuguese education and training system. Espaço t include ICT in their teaching and learning strategies, even in informal learning contexts, and are primarily committed to reaching disadvantaged groups. Their training is delivered through enhanced technologies and other platforms such as television (advertising and documentaries), videos, radio and online communication such as newsletters and regular press releases.

Most videos of Espaço t have been produced within the context of their own educative activities; however, they are also freely available on YouTube and can be used by other adult education providers working in the field of health, wellbeing and equality. Some examples include "Eu Gosto Muito de Ti" and "Teatro e Dança Espaço". Currently Espaço t is preparing a TV channel that will broadcast new documentaries, and other programmes targeted at disadvantaged people.

UK

Examples of ICT-enabled technologies used by some institutions include interactive resources such as Edmodo[93], Nearpod[94], and Pinterest[95]. Resources from this site are downloaded on IPADs for students to use in classrooms to make learning more interactive, engaging and fun.

Other providers use interactive whiteboards and YouTube videos to support the learning process. In some cases learners are also encouraged to upload content on their Google Drive and share these with other learners.

Most institutions in the UK use Virtual Learning Environments (VLEs), particularly Moodle, to support the teaching and learning process.

[91] http://www.vox.no/Norsk-og-samfunnskunnskap/Metodisk-veiledning/Skrive-seg-til-lesing-STL/
[92] http://www.idunn.no/ts/dk/2014/01/making_use_of_ict_glimpsesfromnorwegian_teacher_practices
[93] https://www.edmodo.com/
[94] http://www.nearpod.com/
[95] https://about.pinterest.com/en-gb

Institutional level use of ICT-enabled technologies

These are mainly used as a collaborative tool; for example, teachers use them to upload content to share with learners.

US

- **Interactive whiteboards**: Interactive whiteboards are used to project images from a computer to a large screen, move objects around, write text, and save work. Students can use the whiteboard and interact with the content by using their fingers to tap the board, write text, and move objects. One example cited was the Mimio whiteboard. A video demonstrating the Mimio's capabilities is online[96];
- **iPads**: Using iPads in the classrooms. Because they are WiFi-enabled, students are able to pre-installed learning programs or search online for English items;
- **Personal equipment of learners:** such as the use of smartphones, iPad, laptops, and electronic dictionaries/translators in class;
- **Games**: Using a variety of online and offline educational games to increase participation and make the practice of learning English engaging and fun; and
- **Online class wiki**: posting additional resources and instructions to an online web site, where students can log in, ask questions, and download additional learning resources.

One institution in the US that teaches offenders who have limited or no access to online resources uses OER and other online resources that can be accessed offline. The resources include:

- **Canvas**[97], an open-source learning management system;
- **Physics Education in Technology**[98], a series of physics, chemistry, and biology digital simulations that can be downloaded. Available in 40+ languages;
- **WiderNet eGranary**[99]: an offline server that contains thousands of resources;
- **Khan Academy Lite**[100]: "*open-source software that mimics the online experience of Khan Academy for offline situations*";
- **GCFLearnFree.org**[101]: a repository of courses that include technology basics, digital literacy, Microsoft Office, basic life/math/reading skills, and work and career skills;
- **Donated software from Autodesk**[102], used for game design and development, through Autodesk's Academic Resource Center;
- **TED talks**[103]: video lectures from world experts on a variety of topics; and
- **Saylor.org**[104]: web site that allows students to enrol in particular pathways and create individual e-portfolios.

[96] https://www.youtube.com/watch?v=3ZFdSeDXR0U
[97] http://www.instructure.com/
[98] http://phet.colorado.edu/
[99] http://www.widernet.org/egranary/
[100] https://learningequality.org/ka-lite/
[101] http://www.gcflearnfree.org/topics
[102] http://www.autodesk.com/education/free-software/academic-resource-center
[103] http://www.ted.com/talks/browse
[104] http://www.saylor.org/

Institutional level use of ICT-enabled technologies

Estonia

Moodle is one of the most widely used learning management systems in Estonia. It supports community-based learning and is used both for the creation of online courses and for supporting classroom teaching. The Information Technology Foundation for Education (HITSA) which is a non-profit association established by the Republic of Estonia, the University of Tartu, Tallinn University of Technology, Eesti Telekom and the Estonian Association of Information Technology and Telecommunications, and, for example has a Moodle[105].

Tartu University in Estonia has also developed a number of e-mini-courses (16 in total at present) that are available for all interested. These courses have been developed on topics of general interest and are designed for independent work for adult learners. The length of the courses is approximately 4-6 hours and, on successful completion, an electronic certificate is issued. These courses can also be used by teachers in formal learning in the framework of different subjects for adult learners.

The main aim of such courses is to promote the use of eLearning for different target groups, including mainly adult learners.[106]

Despite the examples discussed above, the country research and the survey both suggest that the development of ICT policies or strategies is rare in adult learning institutions.

Over a quarter of institutions who responded to the survey (27%) reported that they had an ICT policy or strategy. These institutions were either at the embedded stage, where ICT and new technologies had always been part of their strategy, or in the established stage, in that they had a policy or strategy on the use of ICT and new technologies. Under half (47%) however were either discussing developing one or were in the process of doing so (Table 5.1).

Further analysis highlights that only 6 out of the 38 institutions who provided informal learning had an ICT policy or strategy compared to just over a third (36%) of institutions that provided formal education and training.

Table 5.1 Progress towards the development of an ICT policy or strategy

What stage is your institution at in relation to using ICT equipment to enhance its adult learning provision?	N	%
Not yet started - our institution does not have a policy or strategy to develop the use of ICT or new technologies in its adult learning provision	64	21%
Early stages - our institution has discussed the development of ICT-enhanced adult learning but has not reached a clear view as to the benefits of using ICT	67	22%
Developing - our institution is currently developing a policy or strategy on the use of ICT or new technologies in its adult learning provision	76	25%
Established - our institution has a policy or strategy on the use of ICT and new technologies in its adult learning provision	37	12%

[105] http://moodle.e-ope.ee/
[106] http://www.ut.ee/et/oppimine/e-ope/oppijale/minikursused

What stage is your institution at in relation to using ICT equipment to enhance its adult learning provision?	N	%
Embedded - the use of ICT and new technologies in adult learning is part of the institution's vision and has always been part of our policy and strategy	47	15%
No response	14	5%
Total (N)	**305**	**100%**

Source: Adult Learners in Digital Learning Environments survey

5.2.1.2 What about OER and other electronic resources?

Approaching three quarters (73%) of the institutions responding to the survey, indicated that they used some form of OER in their adult learning provision. Of those, the most common types of OER used were open artefacts (60%), open courseware (59%) and open publishing (55%). Open support (43%) was also used, but not as frequently as other types of OER.

There were a number of interesting examples shared by providers involved in the country research on the use of OER and Open Content. For example, the Estonian "*School Life*" (Koolielu) is an educational portal which contains electronic learning assets based on the Estonian general education curricula. The quality of the learning assets is guaranteed by teachers who review all materials before they are released.[107] Other examples include the Norwegian National Digital Learning Arena[108], OER repositories developed by the Norwegian state broadcasting company[109], and a Norwegian Web 2.0 initiative, Delogbruk[110]. Each of these is used to motivate teachers to share learning resources and experiences.

Another example is the use of repositories, such as "*Folksonomy*"[111] which is gaining ground in Brazil. Folksonomy is a system of classification derived from the practice and method of collaboratively creating and translating tags to annotate and categorise content; a practice also known as collaborative tagging.

More examples from the country research of the types of OER used in adult learning are below.

[107] http://koolielu.ee/waramu mainly contains electronic learning assets sorted in line with the general education curricula.
[108] https://ndla.no/
[109] www.nrk.no
[110] http://delogbruk.no
[111] http://en.wikipedia.org/wiki/Folksonomy).

Examples of OER used across the countries studied

Portugal

- The database **Banco de Items**[112] aims to provide students and teachers with a tool to support teaching and learning. Students have the opportunity to test their knowledge by answering the items online and teachers can create homework or assessment sheets, among other features;
- The **Scientific Open Access Repository (RCAAP)**[113] aims to collect, aggregate and index Open Access scientific contents from Portuguese institutional repositories. RCAAP constitutes a single entry point for searching, discovery and recall of thousands of scientific and scholarly publications, namely journal articles, conference papers, theses and dissertations, distributed by several Portuguese repositories;
- The **Scientific Electronic Library Online (SciELO)**[114] provides broad access to journal collections as well as to the full text of articles. Access to serial titles and articles is available via indexes and search forms;
- The **Online Knowledge Library (B-on)**[115] provides research and higher education institutions with unlimited and permanent access to thousands of full-text journals and e-books online from some of the most important content providers through subscriptions negotiated nationally; and
- The **Open Library of Higher Education**[116] holds approximately 3000 titles which are currently available online. The collection is presented in full text, and a large part of it is available in Braille format for printing and/or audio.

Spain

- The Portal of Educational Resources[117] put up by the INTEF (Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado) offers over 1,000 educational resources oriented towards teachers, children, young adults and parents. A specific section[118] is dedicated to resources for adult learning. All the resources are licensed under Creative Commons BY – NC – SA 3.0. They are organised around different targets and projects. For instance, WikiDidacTICa[119] is a repository of best educational practices developed by teachers through collaborative processes. Its main goal is to build a useful space facilitating the gradual incorporation of all educational levels of digital tools as teaching resources[120]; and
- The Agrega project[121] is a federation of learning digital repositories used by 19 educational authorities in Spain. Each one has its own repository loaded with curricular learning objects with a clear focus on integration and interoperability between Agrega learning repositories and other repositories located worldwide, thanks to the use of generic GPL licensing. Curricular content is also developed under Creative Commons licensing schemes, and can be used directly from a web

[112] http://bi.gave.min-edu.pt/bi/
[113] www.rcaap.pt
[114] www.scielo.oces.mctes.pt
[115] www.b-on.pt
[116] http://baes.up.pt
[117] INTEF. Recursos educativos. http://www.ite.educacion.es/es/recursos
[118] http://ntic.educacion.es/v5/web/adultos/
[119] http://recursostic.educacion.es/apls/informacion_didactica/1441
[120] http://poerup.referata.com/wiki/Spain#OER_Initiatives_in_Spain
[121] Agrega project. www.proyectoagrega.es and www.agrega2.es/web/

Examples of OER used across the countries studied

site, offline or through a Learning Management System. Contents and applications are available in Spanish, Euskera, Catalan, Valencian, Gallego and English[122]. The educational content on the platform is related to school levels prior to Higher Education and is ready for direct download and use by teachers and students.

Estonia

- An eLearning repository[123] at mainly holds learning materials for vocational and higher education in different formats. All learning materials have been released under a Creative Commons licence. The HITSA's Innovation Centre is the official representative of Creative Commons in Estonia. Most of the materials in the repository have been created in the framework of ESF funded programmes Best and Vanker in years 2008-2013; and
- A repository of the School Life (Koolielu[124]) educational portal at mainly contains electronic learning assets sorted in line with the Estonian general education curricula. The quality of the learning assets is checked by subject experts who review all materials before their release.

USA

In the USA, several community college systems have adopted open textbooks or are supporting OER programs to reduce cost barriers and make college more affordable:

- Northern Virginia Community College (NOVA) offers an OER General Education Certificate designed to allow any student at NOVA to take one or more courses that utilise OER and do not require the purchase of additional materials. If taken as a series, students can satisfy the first year requirements for the Associates degree in General Studies. Plans for development of OER courses that satisfy the second year requirements for the Associates degrees in General Studies and Social Sciences are under way;
- With funding from the William and Flora Hewlett Foundation, the Learning Games Network developed Xenos as an OER for language learning for English as a Second Language Learners (ESL) in the United States. As an alternative to ESL programs offered by community colleges and language centers in the U.S., Xenos was designed as an interactive virtual world that uses online single and multi-player games to teach English to Spanish-speaking learners. An evaluation of the pilot project found that approximately half of the participants who completed the program improved their English proficiency, and that while proficiency gains were comparable to those of learners participating in federally funded English language learning (ELL) programs, the Xenos program "may be more efficient, with students making gains in 10 to 12 week sessions" and "data suggest that Xenos is effective in helping students who are sometimes difficult to reach: males, those under 30, those who dropped out from previous ELL programs, and the unemployed" (RTI International 2013, p. 9);
- The California Community College system voted to acquire a Creative Commons Attribution license for any works created under grants or contracts funded by the California Community Colleges Chancellor's Office. Composed of 72 districts and 112 colleges serving approximately 2.3 million students per year, California's community college system is the largest system of higher education in the USA;

[122] POERUP (Policies for OER Uptake) project, OER Initiatives in Spain. http://poerup.referata.com/wiki/Spain#OER_Initiatives_in_Spain
[123] http://www.e-ope.ee/repositoorium
[124] http://koolielu.ee/waramu

Examples of OER used across the countries studied

- The Chancellor's OER Adoption Grant is a $45,000 program launched in 2013 aimed at enlisting faculty members from the Virginia Community College System to reduce costs for their students by the adoption of OER. Fifteen awards of $3,000 each were awarded to faculty members to customize existing OER and use them as the only materials required during the Autumn 2013 semester; and

- **Open Educational Resources (OER) to Support Adult STEM Teaching and Learning -** The U.S. Department of Education's Office of Vocational and Adult Education funded a contract with the American Institute of Research to develop new and innovative ways to teach STEM content to adult education students through OER. The OER STEM Project runs from 2012 to 2015. It will identify, evaluate, and share STEM OER appropriate for adult education classes and develop online professional development courses designed to help teachers use OER.

Brazil

Brazil has a number of electronic resources designed to support teaching professionals, learners and institutions including:

- **Education Virtual Interactive Network (RIVED)** - RIVED is a cross-country collaborative project involving Brazil, Peru and Venezuela for the production of digital educational content that stimulates students' reasoning skills and critical thinking by associating computer science to new educational approaches.[125] The primary objective is the improvement of learning process in basic education and students' citizenship through "objects of learning". These are interactive multimedia activities, animations and simulations which gives the students the opportunity to link concepts and solve problems[126];

  RIVED provides free access to materials published on their website. They also offer qualification courses in order to stimulate the production of new materials and the use of "*objects of learning"* in higher education institutions and public schools;

- **International Database of Educational Objects – BIOE** This Educational Repository was created in 2008 by the Ministry of Education (MEC), in partnership with the Ministry of Science and Technology, the Latin American Network of Educational Portals (RELPE) and the Organization of Iberoamerican States (OEI).[127] It is an online service for collecting, preserving and providing access to data of research publications and digital content produced worldwide. In 2014 it had 19,830 objects from primary school to higher education levels such as videos, educational games and software animations, simulations, images and interactive maps for free access.[128] The database offers over 300 resources including videos, practical experiments, animations, maps, audio and images.[129] Educators and communities from all over the world can access and translate the objects into their native language, creating a collaborative space; and

- **Brazilian Project for Open Educational Resources – REA.br** This is one of the first projects aimed at developing Brazil's presence and perspectives in international discussions on OER.[130] One goal is to expand the Brazilian REA community to students, educators, authors, schools, universities, editors, politicians, governments, foundations etc. Also, they have been developing public

[125] http://rived.mec.gov.br/site_objeto_lis.php
[126] http://rived.mec.gov.br/site_objeto_lis.php
[127] http://objetoseducacionais2.mec.gov.br/?locale=en
[128] http://objetoseducacionais2.mec.gov.br/?locale=en
[129] http://objetoseducacionais2.mec.gov.br/?locale=en
[130] http://www.rea.net.br/site/

Examples of OER used across the countries studied

policies that guarantee access to educational resources as a result of direct or indirect public investment.[131] The project gathers OER initiatives throughout Brazil in one place; facilitates searches within this area; and provides access to a wider variety of content. Through the website users are also able to access other OER initiatives in other countries around the world.

5.2.2 Types of ICT-enabled technologies specifically targeted at particular groups of adult learners

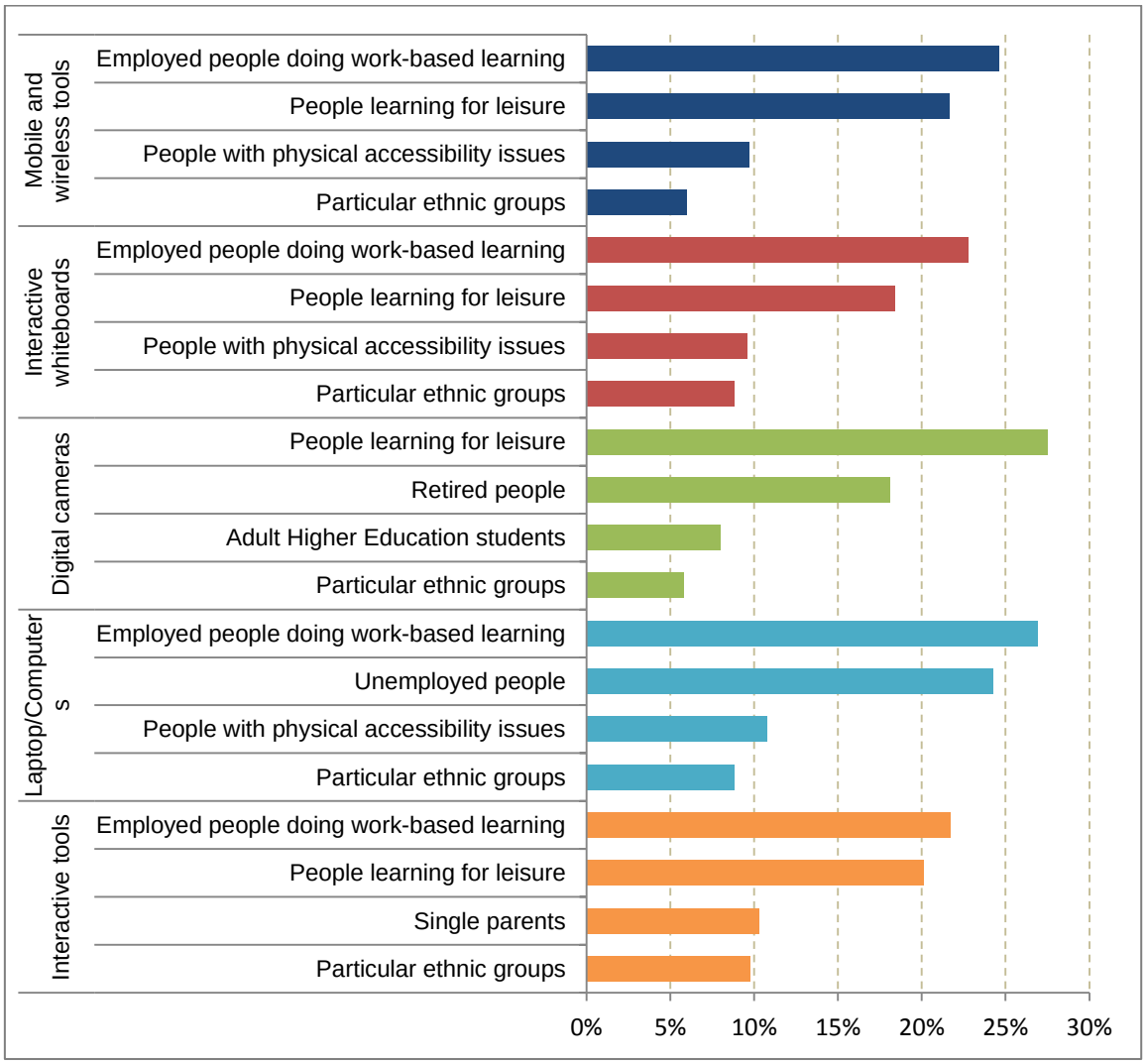
The country research suggests that ICT tools have the potential to engage people in learning in ways that have not been possible previously, or have not been possible on the same scale; this corroborates the literature review findings on the potential of ICT in enhancing the learning process of different groups of learners. The providers involved in the country research felt that ICT tools were useful in supporting learners who have become disengaged from 'traditional learning'. For example, in NO, an app called "*everyday apps*" helps people from immigrant communities tackle everyday tasks with their language and numeracy skills. Another project offers 'e-mini-courses' which provide bite-size learning units (in EE).

The survey results support these findings, illustrating that some institutions are likely to use different ICT tools for different groups of adult learners. Whereas over 40% of institutions indicated that they used all of the ICT tools discussed for their learners, further analysis shows that tools were selected according to audience. For example interactive tools such as videos and games were more likely to be used with employed people doing work-based learning (22%) or people learning for leisure (20%), compared to single parents (10%) and particular ethnic groups (10%) (Figure 5.3).

Similarly, laptops/desktop computers were more likely to be used for employed people doing work-based learning (27%), unemployed people (24%) and people learning for leisure (21%) and less likely for particular ethnic groups (9%). Digital cameras were more likely to be used for people learning for leisure (28%) and less likely for Adult Higher Education students (8%). Mobile and wireless tools were also more likely to be used for employed people on work-based learning (25%) and less likely for particular ethnic groups (6%).

[131] http://www.rea.net.br/site/

Figure 5.3 Types of ICT tools and target groups



Source: Adult Learners in Digital Learning Environments survey (sample size varies for each ICT tool)

The table below outlines examples drawn from the country research of how specific ICT-enabled technologies are targeted at particular groups of adult learners.

Learner level - The use of ICT targeted at specific groups of adult learners

Germany

Kompetenzwerkstatt is designed for **youths and young adults** actively pursuing an apprenticeship. It is an award winning (Digita 2013) open source software-framework modelled on PowerPoint which allows providers as well as learners to embed all sorts of learning content in it (text, sound, graphics, animations, videos). In its initial version, Kompetenzwerkstatt focuses on structured content delivery. It provides users with a multi-level access to content, and offers guidance in form of process orientated learning paths and visual representations of learning content in the form of videos, animations, graphics and texts. The tool also uses digital technologies to facilitate and individualize access to knowledge, and to make content navigable in different ways[132]; and

"Winterfest" is an example of a standard single-player game and aims to help **adults with no skills develop basic literacy and numerical skills**. Good practice features include an engaging storyline which links to the subsequent game challenges and learning tasks. It uses attractive graphics and interesting tasks – consisting mostly of mini-games and riddles. The game interface is adapted to the needs of adults with low literacy skills. Both the game and the educational materials are offered free of charge.[133]

Norway

- VOX uses iPads in initial literacy training for **immigrants**, with collaborative teacher training for this development taking place on Facebook[134]; and
- In Bergen, ICT tools are used for **learners with special needs** both for education and for everyday life enhancement. ICT tools in this case are used both as a tool and as a learning outcome.[135]

UK

Digital Photography
Cameras are being used to record both 'stills' and videos of activities that can then be used as a learning material. For example, a voluntary sector organisation who supports **adults with learning disabilities** asked the learners to record their daily activities with their cameras; these recordings were used as a 'learning diary'.

Another project used video cameras to develop materials and language exercises for **ESOL learners.** The learners were encouraged to record walks around the city with their cameras. The recordings were then reviewed and used to create learning materials on providing directions around the city.[136]

A modern approach to teaching basic skills to adults, in particular in digital skills, is present in the form of websites such as the BBC's WebWise[137], which has online courses including resources on internet basics, and which also hosts its own webpage dedicated to Adult Learners.[138]

[132] www.kompetenzwerkstatt.de
[133] http://www.lernspiel-winterfest.de/
[134] http://www.vox.no/nyheter/alfagruppe-pa-facebook/
[135] https://www.bergen.kommune.no/tjenestetilbud/skole-og-utdanning/grunnskoleopplaring/grunnskole/grunnskole-for-voksne-tilrettelagt-tilbud
[136] http://www.niace.org.uk/sites/default/files/62-Ideas-for-using-ICT-in-ACL.pdf
[137] http://www.bbc.co.uk/webwise/0/
[138] http://www.bbc.co.uk/learning/adults/

5.2.3 The advantages of using ICT and OER in adult learning

This section discusses the reasons adult learning institutions use ICT and OER as part of the teaching process, and the views of stakeholders involved in the country research on the benefits of using ICT in the delivery of adult learning provision.

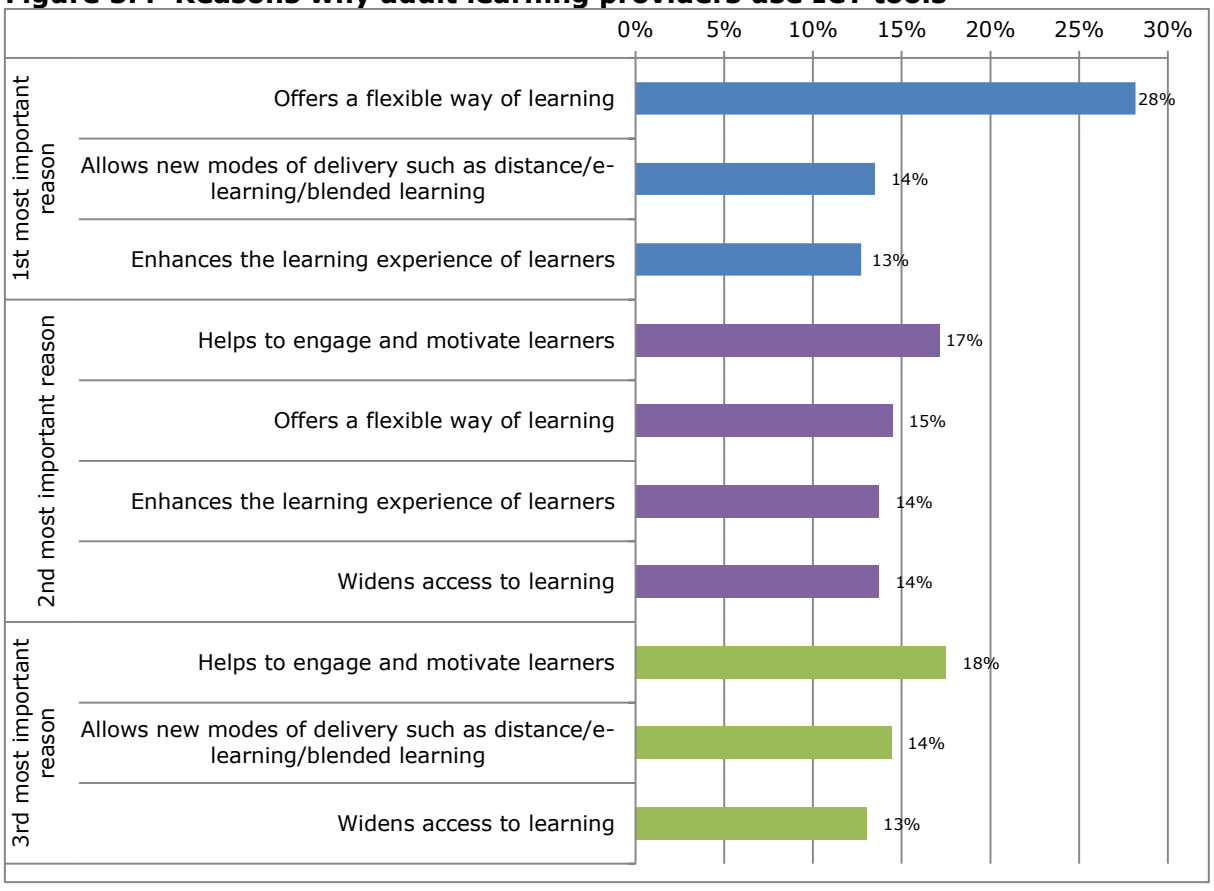
5.2.3.1 The benefits of using ICT-enhanced learning systems

One of the benefits of using ICT and OER to support adult learners, cited by stakeholders in all countries involved in the study, is the **flexibility** it offers in allowing learners to choose their own learning path, along with the place and pace at which they learn. The ability for adult learners who live in remote areas and cannot easily access learning from local providers, to participate in distance and blended learning approaches enable them to without spending significant amounts of time and money travelling to access learning opportunities is widely recognised. ICT-enhanced learning systems increase the potential to further **widen access** to such learning opportunities.

Some stakeholders also noted that the use of ICT and OER in adult learning allows teaching professionals to **tailor their provision to the needs of specific target groups**, such as migrants, older learners and adults with low basic skills, for example, in cases where game-based activities are used to make learning **attractive** to adult learners, particularly those who have had negative prior learning experiences.

These views were supported by the findings from the survey. The flexibility offered by ICT tools as a way of learning for adult learners was the most commonly mentioned reason for using them (Figure 5.4).

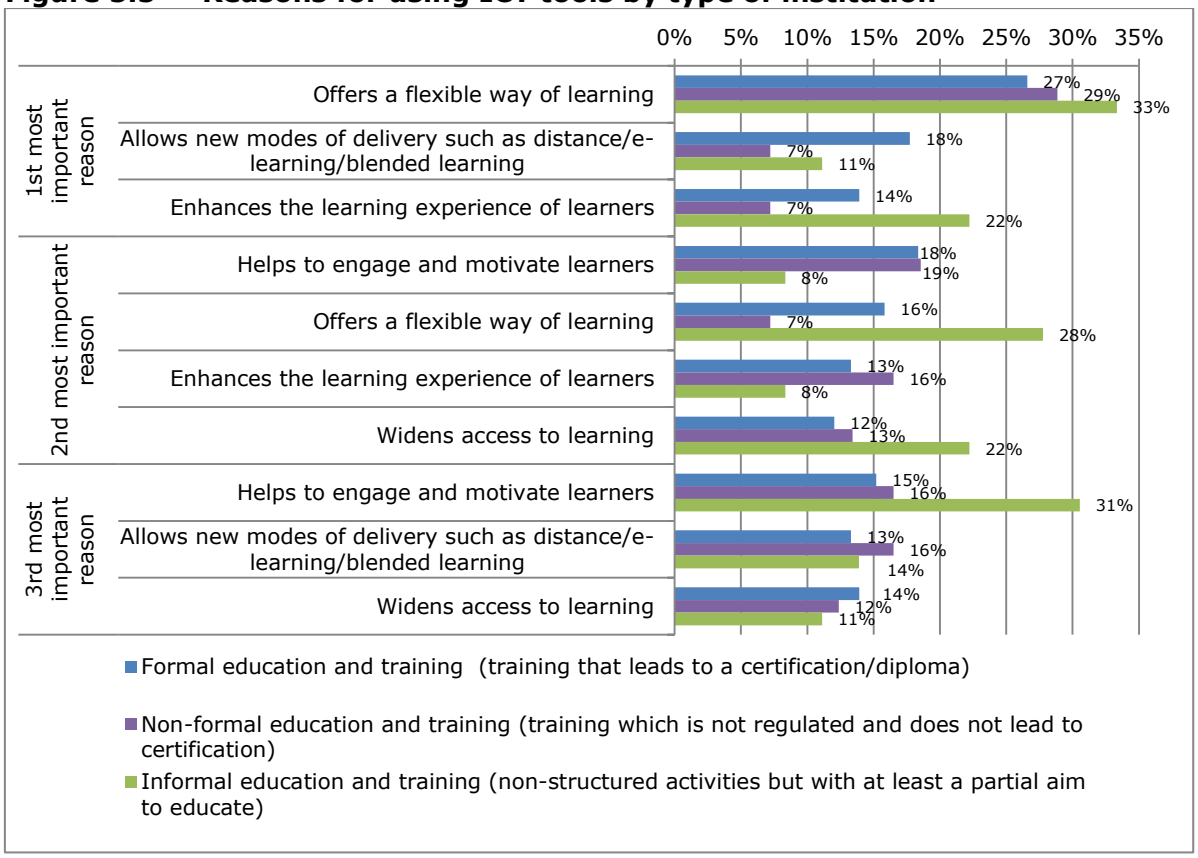
Figure 5.4 Reasons why adult learning providers use ICT tools



Source: Adult Learners in Digital Learning Environments survey (sample size varies for different reasons)

Institutions who deliver informal education and training were more likely to use ICT tools because they offered a flexible way of learning, enhanced the learning experience and helped to engage and motivate learners (Figure 5.5). Due to the un-structured aspects of their learning activities such institutions are more likely to attract adult learners who have time constraints, and who have had negative prior learning experiences.

Figure 5.5 Reasons for using ICT tools by type of institution



Source: Adult Learners in Digital Learning Environments survey (sample size varies for different reasons)

5.2.4 Barriers to using ICT and OER in adult learning

The country research and survey work also provided evidence on barriers that prevent the use of using ICT and OER in adult learning. These are within four levels: the learner level, the teacher education level, institutional level and national/local level.

Learner level

At a learner level, the three main barriers cited by stakeholders involved in the country research were linked to:

- Adult learners' **limited access to the internet** and to relevant devices to support the use of ICT-enhanced approaches in their institutions;
- The **lack or low level digital skills** of some learners, which prevent them benefiting from ICT-enhanced approaches; and
- The **lack of motivation** amongst some adult learners to organise their own learning via online or distance learning approaches.

The use of ICT-enabled technologies in blended and distance learning according to the stakeholders involved in the survey requires adults to be able 'manage' their own learning. In their view, not all adult learners, particularly those with basic reading and writing skills have the motivation and the ICT skills to choose, organise and execute their own learning activities.

Teacher education level

Both the country research and the survey show that innovation in learning using ICT and OER is heavily reliant on individual teachers. In most cases, the norm was for individual teachers to understand the needs of adult learners and develop the most appropriate technologies that provide a supportive framework to address those needs. However, across the board, the research suggests that the main barrier that prevented teachers from fully using ICT-enabled technologies in the delivery of their adult learning provision was the **lack of the right pedagogy skills, or the 'know-how'** of how to embed ICT-enabled technologies in the delivery of their adult learning provision.

A lack of the right pedagogical skills perhaps reflects the fact that training staff on how to use information technology or ICT tools is not well-catered for in a substantial minority of institutions. The survey shows that only 28% of institutions had a staff training programme to develop staff skills both in ICT generally and in the use of ICT to teach adults (Table 5.2).

Table 5.2 Staff Training

Does your institution provide any training for staff who teach adults on how to use information technology/ICT equipment as part of the teaching process?	N	%
Not yet started - our institution does not provide any training for staff on how to use information technology/ICT equipment as part of the teaching process	60	20%
Early stages - training and support on the use of information technology/ICT equipment are provided on a need to know basis	73	24%
Developing our institution has a number of training options available to develop staff skills in both ICT generally and the use of information technology/ICT equipment to teach adults	86	28%
Established - our institution has a staff training programme to develop staff skills both in ICT generally and how to use information technology/ICT equipment to teach adults	49	16%
Embedded - our institution has a comprehensive staff training programme to develop staff skills both in ICT generally and how to use information technology/ICT equipment and the training is regularly updated	37	12%
Total	**305**	**100%**

Source: Adult Learners in Digital Learning Environments survey

For those that were not providing any training, the reasons were mainly cited as being **costs**, a **lack of funding** and **limited resources**.

Institutional level

Whilst a significant proportion of the adult learning institutions who responded to the survey used a range of ICT tools to enhance their adult learning provision, the adult learning provision offered was mainly classroom based. On average, over half of the adult learning provision offered by these institutions involved classroom teaching (Table 5.3).

Table 5.3 The proportion of learning delivered by the mode of delivery

Delivery mode of adult learning provision	Percentage of institutions delivering learning in a particular mode (mean average)proportion of learning)
eLearning	15%
Online courses	7%
Blended learning	17%
Classroom teaching	58%
Other	5%

The reasons for the predominance of classroom teaching as the main delivery method could be due to a number of barriers linked to the use of ICT that emerged through the country research. At the institutional level**,** the key barrier was that **institutions lacked the funding to purchase and maintain ICT equipment such as laptops and computers**. However, stakeholders also indicated that even in cases where institutions had the resources to purchase ICT equipment, there were other barriers - such as those discussed above around learners and teachers - that prevented them from using ICT in their adult learning provision.

National/local level

At a national/local level the key barriers cited by stakeholders involved in the research included a lack of:

- General access to the internet (particularly in remote areas); and
- Suitable digital learning materials targeted at adult learners, and materials are unavailable in other languages.

In addition, they felt that a **lack of the right legal frameworks** focused on the use of ICT for adult learning hampered its use in their countries - especially in relation to outdated or unclear copyright laws that restrict the use of digital content, and a lack of clarity in relation to data security when using innovative technologies.

The survey findings corroborate findings from the country research, particularly on the use of ICT in adult learning provision. Over half (54%) of the institutions involved in the survey were at the 'established' or 'embedded' stage in relation to using ICT equipment to enhance their adult learning provision. For those at the 'established' stage, this meant their staff and learners were able to gain access to computer resources or information technology/ICT equipment in their institutions. Institutions at the 'embedded' stage were more advanced; their staff and learners had access to computer resources or information technology/ICT equipment at all their learning centres. On the other hand, 17% either had no access to computer resources or

information technology/ICT equipment ('not yet started' stage) or were in the 'early' stages with limited access to both (Table 5.4).

Table 5.4 Access to ICT equipment

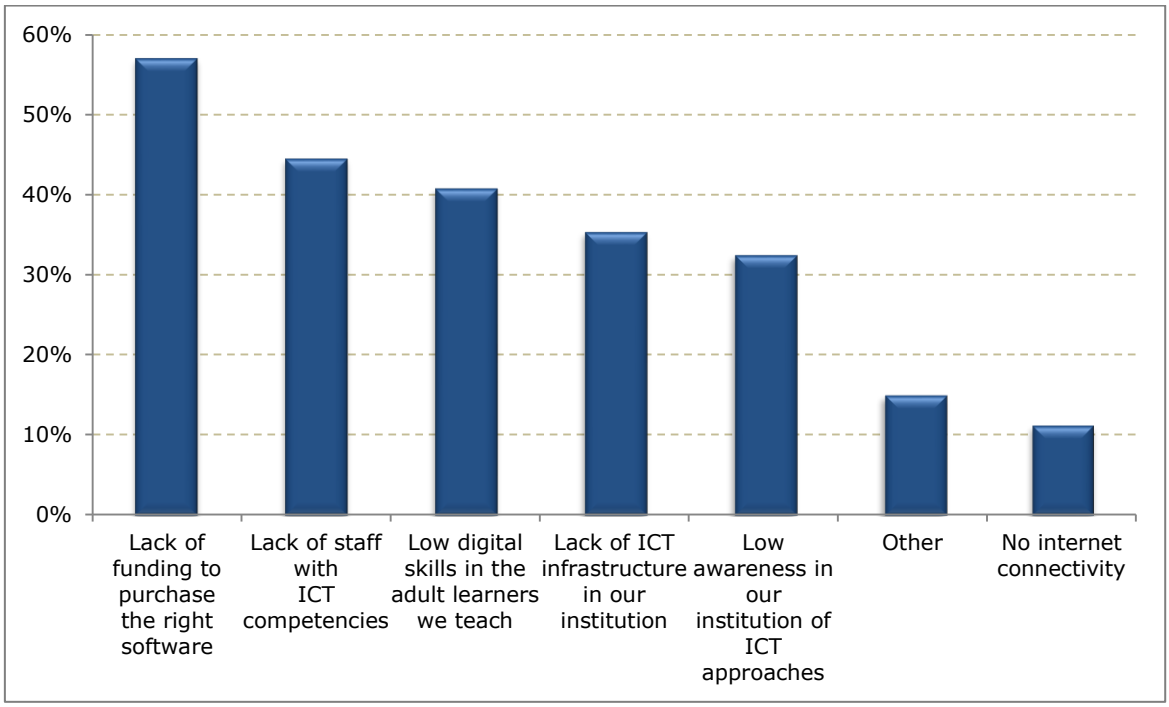
What stage is your institution at in relation to using ICT equipment to enhance its adult learning provision?	N	%
Not yet started - there is no access to computer resources or information technology/ICT equipment in our institution for staff and learners	14	5%
Early stages - there is limited access to computer resources or information technology/ICT equipment in our institution for staff and learners	37	12%
Developing - Some of our main learning centres and courses have good access to computer resources or information technology	88	29%
Established - staff and learners are able to gain access to computer resources or information technology/ICT equipment and other equipment at all our learning centres	77	25%
Embedded - staff and learners have access to computer resources or information technology/ICT equipment and other equipment	89	29%
Total	**305**	**100%**

Source: Adult Learners in Digital Learning Environments survey

Further analysis highlights that most institutions (10 out of 14) who were in the 'not yet started' stage of development delivered non-formal education and training; that is, training which is not regulated and does not lead to a certification. Six of the fourteen were 'not for profit' private sector adult education organisations.

Similar to the findings from the country research, and in line with the literature review, three quarters of the institutions involved in the survey (78%) cited barriers that prevented them from using ICT in the delivery of their adult learning provision. A **lack of funding to purchase the right software, lack of staff with ICT competencies and low digital skills in adult learners** were the main barriers faced (Figure 5.6).

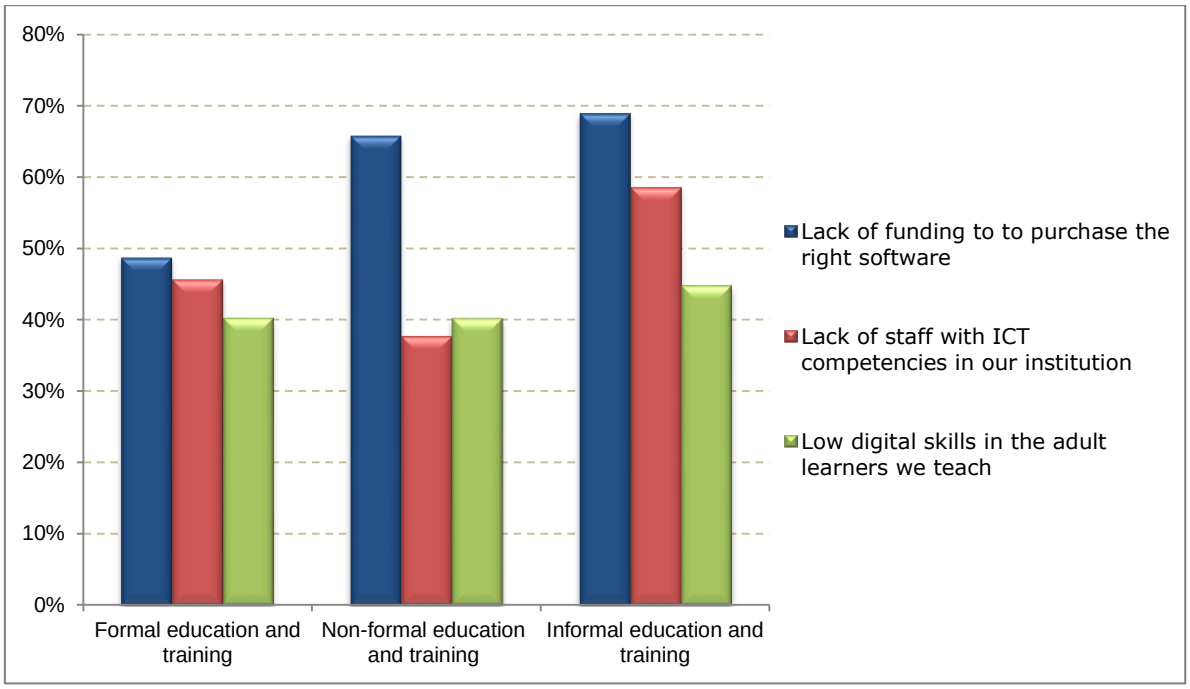
Figure 5.6 Barriers to using ICT tools in adult learning provision



Source: Adult Learners in Digital Learning Environments survey N=240 (number of those who cited barriers)

There were variations by 'institutional type' in relation to the barriers cited (Figure 5.7). Institutions that provided informal and non-formal education and training were more likely to cite a lack of funding as the main barrier - 68% of informal and 65% of non-formal providers selected this as the key barrier compared to 49% of institutions that provided formal education and training.

Figure 5.7 Top three barriers to adoption of ICT tools in adult learning, by type of institution

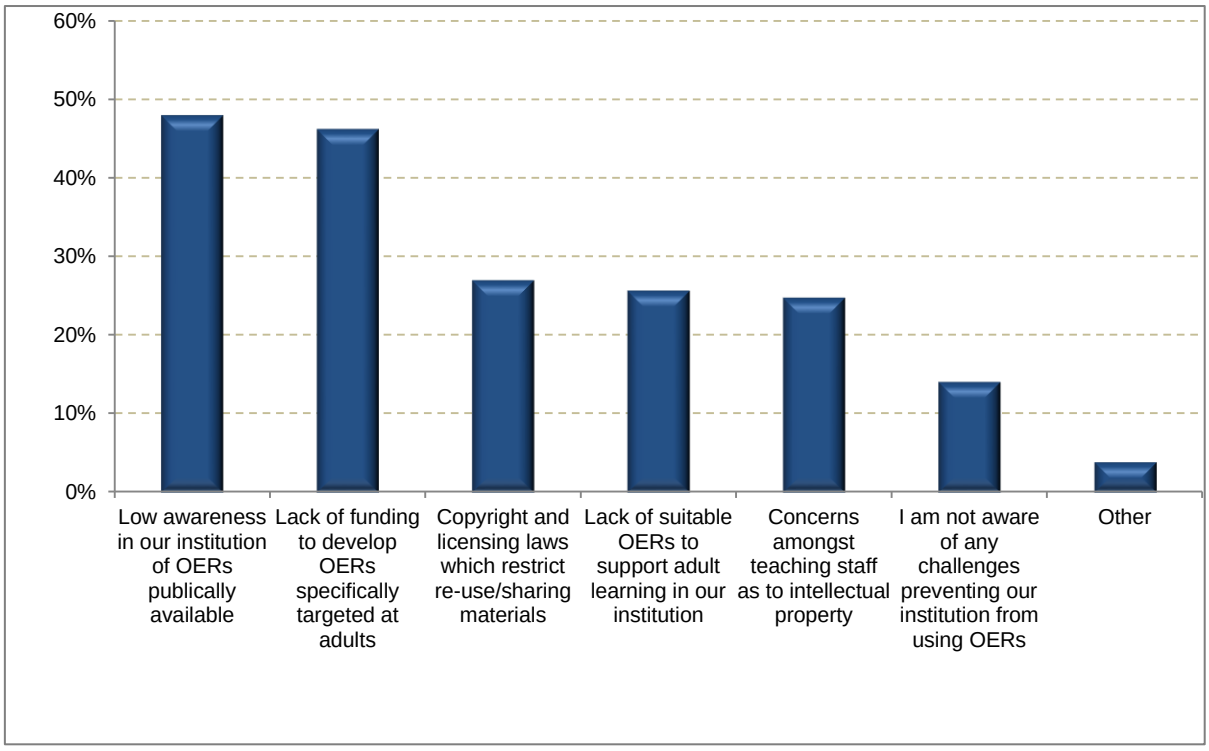


Source: Adult Learners in Digital Learning Environments survey N=240 (different sub-samples for the different types of institutions)

5.2.4.1 Barriers to the use of OER

In addition to the barriers related to ICT and ICT-enhanced learning systems, there are barriers that prevent the use of OER in adult learning institutions. Three quarters (73%) of the institutions involved in the survey that used OER reported that the main challenges that prevented some from using it widely were a **low awareness of OER (48%) and a lack of funding to support the development of OER (46%)** (Figure 5.8).

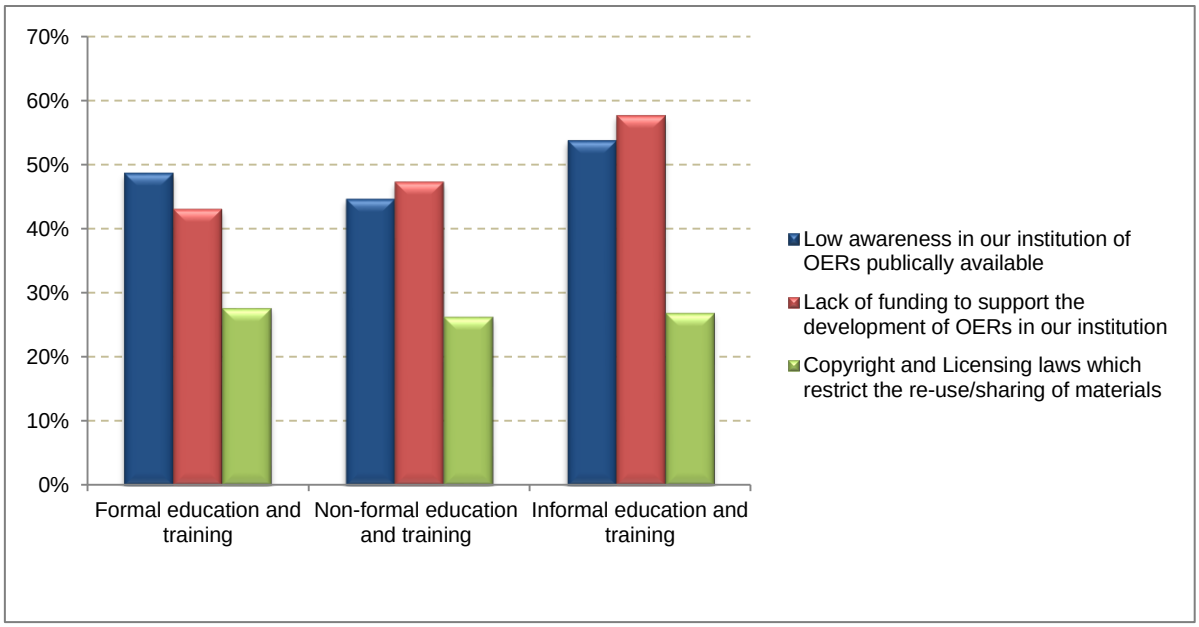
Figure 5.8 Challenges faced by institutions that use OER



Source: Adult Learners in Digital Learning Environments survey N=225

However, these challenges varied with respect to the type of institution (Figure 5.9). Institutions that provided informal and non-formal education and training cited a lack of funding as the main challenge, whereas those who provided formal education cited low awareness.

Figure 5.9 Top three challenges to the adoption of OER in adult teaching, by type of institution



Source: Adult Learners in Digital Learning Environments survey N=225 (different sub-samples for the different types of institutions)

These barriers were in line with those cited by stakeholders involved in country research; those who were familiar with OER felt that those available in the public domain were not fit-for-purpose. In their view, they had been either designed for primary school children and therefore were not entirely suitable for adult learners, or were targeted at learners in Higher Education.

5.2.5 Conditions that facilitate the use of ICT and OER in adult learning

The country research was used to explore stakeholders' views on the conditions that would enhance the use of ICT and OER in adult education. This section discusses the findings from the consultations. As above, the findings are presented under four levels: learner, institutional, teacher education and national/local level.

Learner level
In a number of countries studied, the stakeholders highlighted that for ICT and OER to be widely used in adult learning institutions there was a need to provide **ICT-skills training** for adult learners in general, to help those who either lacked these skills or needed to update their skills in this area. This could be in the form of providing basic ICT skills provision or one-to-one ICT support to adult learners who need it.

Examples are given below of the strategies some countries have developed to either support the development of ICT skills of adult learners or enhance the use of ICT in institutions.

Examples of strategies used to develop the ICT skills of adult learners

Sweden

A campaign[139] for digital inclusion ran from January 2011-December 2013 with the aim of improving the digital inclusion of approximately 500,000 Swedes. The campaign was an important driver for the work in informal learning during these years. It focused on elderly people, immigrants and other groups without basic digital competencies.

UK

Some institutions in the UK have learner support measures which include one-to-one advice or sessions on how to use a particular ICT tool and/or offered specific IT modules to help develop the skills of learners. For example, one institution established a learning centre with dedicated staff to support learners who lacked digital skills. This centre also had 'accessibility pods' with equipment and software for disabled students who had additional learning needs.

In the UK, **'Go ON its Liverpool'** was a citywide digital inclusion campaign set up in 2011, when Liverpool had the lowest employment rate in the UK and 29% of its adults had never accessed the internet.[140] Liverpool City Council developed a strategy and framework to tackle the digital divide. The 'Digital Champions' campaign was designed to encourage as many of the local population as possible to become 'Digital Champions' and share their online experiences and knowledge with others.

Digitalskills is another initiative which aims to support the one in five adults who lack the basic online skills to fully benefit from internet use. Their website[141], which is part of go ON UK, the UK's Digital Skills Alliance, includes a wide variety of subjects, online courses and teaching methods including video guides and online courses to develop digital literacy.`

Sunderland Community IT – The community at the heart of the solution' was developed by Sunderland City Council who wanted their residents to be able to use the internet to meet their individual needs and increase opportunities for themselves. This was a community based – and led – `approach to support residents in gaining the skills and the desire to use ICT. Similar to Liverpool City Council, Sunderland City Council worked with partners and businesses to establish and promote the projects. One project, the 'ICT @ Home' project made ICT equipment such as laptops and printers available on loan to residents, in a bid to help them overcome barriers such as access to equipment (CARNEGIE 2014, pp.18-20).

Teacher education level

Three areas of support to help teachers use ICT-enhanced technologies in their adult learning provision were identified. Firstly, a need to incentivise teachers to encourage them to use ICT to enhance their adult learning provision. Secondly, teachers needed to be trained on how to use ICT so that they could make the most of the technology available to them. And lastly, teachers needed to be supported to develop their own resources in a way that enables them to be used and re-purposed according to their learners' needs. As part of this, the country research found that this support could be in the form of funding or time to be carry out these activities.

[139] http://www.digidel.se/
[140] http://www.carnegieuktrust.org.uk/publications/2014/making-digital-real
[141] www.digitalskills.com

The stakeholders also felt that initial teacher training (ITT) needed to incorporate elements of how to effectively use ICT and OER in the classroom. They felt that this should be a core competence, and should be included in the teacher training curriculum. The training should also raise their awareness about the potential benefits of digitally-enhanced pedagogy, especially in widening access to learning. For teachers who were already teaching and suggestions around how to develop their skills in using ICT-enhanced learning systems included:

- The use of peer support structures, such as allocating time resources to 'super users' who support their colleagues on a day-to-day basis;
- Continuous professional development in the form of frequent attendance at workshops and seminars; and
- Facilitating the exchange of experience through various adult learning networks.

The creation of **communities of practice**, for example via online portals, was also suggested by stakeholders in a large majority of the countries studied. Such portals, they felt, would help teachers to exchange good practice on the use of OER and ICT-based teaching approaches, and for example, could hold examples of video-tutorials and online repositories of how ICT and OER are used in the classrooms to teach adult learners.

Stakeholders in around half of the countries called for **networks** to be developed, not only between educators, but also involving developers of innovative technologies, providers of adult education and entrepreneurs, to help disseminate good practice, on the use of ICT and OER in adult education.

There were a number of interesting examples of how some countries were supporting teachers to use ICT and OER in adult learning. For example, in Brazil, online portals such as *Portal do professor* (Teacher Portal)[142] provide teachers with examples of lesson plans, media downloads and opportunities for them to share their own lesson plans, participate in discussion and elaborate courses.

Midias na Educação (Media in Education)[143] is a distance learning program used in Brazil with a modular structure that educates teachers on the pedagogic use of ICT, such as TV and video, computer science, radio and printed materials.

In NO, peer to peer support through 'super users' was used to develop the skills of teachers. These 'super users' were usually teachers who had a high level of experience in the use of ICT and could therefore support their colleagues.

In the UK, one institution had an eLearning staff development manager whose role was to support teachers to use ICT technologies such as Virtual Learning Environments (VLEs). Others had inductions with new teachers or provided one to one support as and when the teacher needed it, held best practice days where teachers could demonstrate how they used ICT-enhanced technologies as part of the teaching process, or developed staff training programmes to develop the skills of their tutors on how to use interactive whiteboards and other technologies in their classrooms.

Other examples from the country research on how teachers are supported to use ICT in their classrooms are shown below.

[142] http://portaldoprofessor.mec.gov.br/index.html"
[143] http://webeduc.mec.gov.br/midiaseducacao/index6.html"

Teacher education level - supporting teaching competences

Norway

VOX organises courses on digital competence and on the use of ICT for teachers in the formal education system every semester. This includes the development of guidelines for the design of basic skills courses, including Digital Competence.[144]

UK

One institution has developed an ICT strategy to facilitate the use of ICT in the delivery of their adult learning provision. The strategy covers the following areas:

- **Staff development** - under this area the institution has set out minimum standards on the use and adoption of VLEs by teachers. They also have targets for teachers which indicate the level that teachers have to reach in relation to the use of VLEs in teaching at the end of their first year. The institution also has a support programme for teachers which covers how to use VLEs, mobile technology, social networking, streaming, Google Apps and E-portfolios to teach learners at the institution;
- **Access to technology** - this area of the strategy focuses on the type of technology that should be used in classrooms, the minimum standards required to use open access resources, and the use of social networks in classrooms. It also covers ICT-enhanced technologies that the institution feels should be promoted to students to use as part of the learning process; and
- **Curriculum design** - this theme covers two areas, teaching and learning support in how to develop e-assessments, delivery through technology, e-portfolios, online exams and e-communication.

The institution also has an eLearning team which reviews interactive and screening content and the use of tablets in the classroom. The team also supports students in how to use tablets

Another institution has an eLearning staff development manager whose role was to support teachers to use ICT technologies such as VLEs. Others had inductions with new teachers or provided one to one support as and when the teacher needed it. In addition other institutions held best practice days where teachers could demonstrate how they used ICT-enhanced technologies as part of the teaching process, or had carried out extensive training to develop the skills of their tutors on how to use interactive whiteboards and other technologies in their classrooms.

Institutional level
Stakeholders felt that adult learning institutions need to be supported through funding to develop ICT-enhanced learning systems. They advocated for public **investments in ICT facilities and tools**, including computer labs, interactive whiteboards or iPads for adult learning institutions Overall, stakeholders felt that conditions that facilitated the use of ICT and OER at this level, was very much dependent on the national/local level strategies set out below.

National/local level
At a national/local level some stakeholders suggested that countries needed to focus more strongly on providing **internet coverage**, especially in rural areas, if distance learning opportunities were to be to be realised.

[144] http://www.vox.no/English/Basic-skills/Local-training-services/Designing-basic-skills-training/ http://www.vox.no/contentassets/6c78ef4022c948348f473f322e00a07d/guidelines_competence_goals.pdf

They also felt that policy makers should promote the creation of OER or more importantly ensure that all **publicly funded OER were easily accessible** – for example, by giving such content a creative commons licence, or being made available in offline formats for use in rural areas or prisons. This, they felt, would enable potential users to adapt, reuse, revise and tailor these OER to the needs of their learners.

German and Portuguese stakeholders additionally called for the **expansion of existing adult education funding programmes** that incentivised adult learning institutions to develop online and blended learning courses, they felt this would set additional incentives for traditional adult education providers to reform their traditional teaching methods.

Stakeholders in a few countries (SE, Brazil, and EL) also recommended **setting a digital agenda** that articulates policies and strategies, sets national targets and regulates the coordination of central, regional and local authorities in promoting ICT and OER-enhanced learning. German stakeholders called for the implementation of strategies and policies that promote data security, as well as the establishment of clear regulations governing the use of learners' private data by providers or third parties.

Stakeholders from EL, ES and TR, also mentioned the **development of validation and recognition tools** for ICT and OER-enhanced learning. Providers in EL, in particular, stressed that these tools (or at least guidelines for developing such tools) should be developed centrally by the national agencies responsible for implementing the European qualification framework. It was noted that the accreditation of ICT-enhanced learning, along with the validation of learning outcomes, would increase acceptance of these new learning methods by employers.

In a majority of the countries researched, stakeholders suggested that, in order to realise the potential of ICT and OER in the delivery of adult learning, it was important to develop **quality standards** and implement **quality assurance frameworks** that supported the use of such approaches**.** These requirements were seen as relevant both for the development of content as well as in the integration of ICT and OER in adult education.

In a number of countries, stakeholders also suggested that there was a need for some more **research and evaluations on the impact** of different ICT-enhanced learning methods and OER to inform curriculum development, help develop guidelines, produce useful statistics for monitoring processes, and help to further set out the benefits of using such approaches.

Additional examples on how countries have developed initiatives that facilitate the use of ICT in their adult learning provision are shown below.

National level initiatives that facilitate the use of ICT in adult learning

Spain

- The Region of Andalusia's MOGEA (Database of Andalusian OER materials) - Andalusia has created a network of interconnected centres. The objective is to provide adult education centres (including ones located in rural and remote areas) with access to the same resources. All these centres can use the educational resources that are made available by the regional administration to structure their courses and are free to choose the ones that they prefer, as well as to complement them with other resources created by themselves. Specifically, through MOGEA, teachers can get immediate access to "virtual classes" (reserved for teachers) where resources are structured by subject programme, select the resources that they want to use, and upload other resources that they intend to use.

  The MOGEA platform is hosted on the servers of the Regional Ministry of Education. Teachers choose the available materials and prepare their classes. The project is implemented in about 80% (around 150 over 170) of Andalusian schools providing secondary education for adults as well as language learning (IEDA) in a blended format. The resources are also accessible to centres providing primary education and/or non formal education and located in smaller towns and villages. Despite having being created mainly for adult education centres, the MOGEA repository is also accessible to the entire Andalusian educational community and the general public[145];

- The Centre for Innovation and Development of Distance Education (Centro para la Innovación y Desarrollo de la Educación a Distancia – CIDEAD[146]) coordinates and organises distance learning, facilitating access to education for adults and school-age students who (because of their personal, social, or geographical situation) are unable to continue learning in the education system through the regular classroom regime;

- At the regional level, the Region of Extremadura is promoting distance adult education through the @vanza project.[147] This initiative is based on distance adult learning through the use of ICT, and is the starting point for a comprehensive model of distance learning for the Region. It is co-founded by the ESF and has the following main objectives:

  - To ensure the right to lifelong learning to adult population in the Region of Extremadura;
  - To create a model of distance learning based on ICT that is adapted to the personal and professional needs of adults, as well as to the specificities of the territory;
  - To enhance the use of ICT as a learning tool; and
  - To support people with problems related to formal education[148].

[145] http://www.juntadeandalucia.es/educacion/permanente/materiales/
[146] www.cidead.es
[147] https://avanza.educarex.es/portal/principal/index.jsp
https://avanza.educarex.es/portal/ofertaformativa/index.jsp
[148]
https://avanza.educarex.es/portal/principal/index.jsphttps://avanza.educarex.es/portal/ofertaformativa/index.jsp

National level initiatives that facilitate the use of ICT in adult learning

A specially built webpage gathers and provides resources for adult education[149] developed by different Autonomous Communities through exeLearning[150], a free programme for the creation of educational online resources that requires only a minimum knowledge of web development and HTML. The modules and resources contain different instructional and practical exercises aiming at fostering the acquisition of competences[151]; and

- The region of Andalusia[152] provides resources for adult lifelong learning through a specific portal ("Portal del Instituto de Enseñanzas a Distancia de Andalucía").[153] Use of the portal is intended to enable adults to participate in formal and non formal Lifelong Learning.

Estonia

The Innovation Centre for Digital Education is one of the main actors in Estonia responsible for coordinating and developing ICT based learning, along with developing OER. The centre operates as a department under the umbrella of the Information Technology Foundation for Education. The Centre initiates, coordinates and facilitates activities and developments in the field of ICT-supported learning in Estonian higher and vocational education. It focuses on various aspects of eLearning, especially areas concerned with building and sustaining networks, training teaching staff and providing technical solutions for eLearning providers. The centre offers a wide range of training courses in collaboration with several universities and vocational schools aimed at improving the ICT competences of teaching staff, concentrating mainly on eLearning methodologies, technologies and design.

In addition, the centre also sustains a network of educational technologists, ensuring that there is direct support for teachers and helping to improve the quality of courses. In the field of eLearning content development, the centre coordinates the process and partially finances the development of new e-courses and learning objects in Estonian higher and vocational education. It has also developed a framework for quality assurance in eLearning, including guidelines for course and learning object designers and a recognition process for acknowledging good practice. The centre provides multiple centralised services for institutions of higher and vocational education, from virtual learning environments Moodle and IVA to multipoint video conferencing and a repository for storing and sharing learning resources.[154]

[149] http://enmarchaconlastic.educarex.es/listado-de-categorias-2/228-nuevo-emt/ensenanza-de-adultos/862-recursos-para-la-educacion-de-adultos-y-otras-ensenanzas

[150] http://cedec.ite.educacion.es/index.php?option=com_lyftenbloggie&view=entry&year=2011&month=09&day=08&id=41%3Anueva-version-de-exe-learning&Itemid=69&lang=es

[151] http://enmarchaconlastic.educarex.es/listado-de-categorias-2/228-nuevo-emt/ensenanza-de-adultos/862-recursos-para-la-educacion-de-adultos-y-otras-ensenanzas

[152] Ali, I. 2012. Los Recursos Educativos Abiertos (REA) en eLearning. Boletín SCOPEO Nº.65. 1 de Julio de 2012. http://scopeo.usal.es/enfoque-bol-65-los-recursos-educativos-abiertos-rea-en-elearning/

[153] Portal del Instituto de Enseñanzas a Distancia de Andalucía. http://www.juntadeandalucia.es/educacion/permanente/materiales

[154] Innovation Centre for Digital Education. http://e-ope.ee/en/edc

National level initiatives that facilitate the use of ICT in adult learning

Sweden

Sweden has a Digital Agenda, '*ICT for Everyone - A Digital Agenda for Sweden*' which was published by the Ministry of Enterprise, Energy and Communications in November 2011. The *'purpose of the Digital Agenda is to collate all on-going activities in a horizontal, cohesive strategy in order to make use of all the opportunities offered by digitisation to individuals and businesses. The aim is for Sweden to be the best in the world at exploiting the opportunities afforded by digitisation'*.[155] The agenda focuses on digital inclusion for all and covers all policy areas. Likewise it also includes a *'broadband policy'* which has a target to provide 90% of all households and permanent places of business access to 100 Mbps by 2020.

It also aims to provide 40% of households and permanent places of business access to 100 Mbps by 2015.

In education, the agenda emphasises the need for *'school children and teachers to have 'access to modern learning tools that are required for up-to-date education. Every pupil, on completing primary and lower secondary school, must be able to use modern technology as a tool for knowledge-seeking, communication, creation and learning*'. It also asks school teachers to *'utilise ICT as a platform'* where possible in '*skills development'* and highlights the role that adult education and universities have in ensuring that teachers have the necessary digital skills, in order to strengthen the use of technology in their institutions.

US

- At the Federal level, the Workforce Innovation and Opportunity Act (WIOA) authorises key employment and training programmes in the US. Passed in July 2014, WIOA replaces the Workforce Investment Act of 1998 (WIA) and is expected to have a dramatic impact on adult education programmes when implementation begins in July 2016.[156]

- In 2011, the US Department of Labor and Department of Education announced a four year $2 billion grant programme to support partnerships between community colleges and employers to develop programmes that would train workers who have been made redundant for new careers. To ensure the approach "has as broad an impact as possible" grant recipients are required to license products developed under the grant with a Creative Commons Attribution 3.0 License. Specific intellectual property language is in the grant agreement letter.[157]

- Many States have adult education plans that include adult education and literacy standards and several host web sites that outline adult education and literacy programmes. For example, Missouri's Connections site.[158] States are however encouraged to review how local providers are integrating technology into teaching, learning, and management of their activities, examining *"The performance of providers of training services with respect to… (B) The need to ensure access to training services through the State, including in rural areas, and through the use of technology."* (See H.R. 803-69, under State Criteria[159]).

[155] The Swedish Government - Ministry of Enterprise. Energy and Communications, ICT for Everyone. 2011. A Digital Agenda for Sweden.
[156] http://www.doleta.gov/wioa/pdf/WIOA-Overview.pdf
http://www.doleta.gov/wioa/pdf/WIOA_FAQs_Acc.pdf
[157] http://www.doleta.gov/taaccct/pdf/TAACCCT_CCBY.pdf
[158] http://www.missouriconnections.org/materials/adultstext.htm
[159] https://www.congress.gov/113/bills/hr803/BILLS-113hr803enr.pdf

National level initiatives that facilitate the use of ICT in adult learning

- **Digital Badges for Adult Learners** The US Department of Education's Office of Vocational and Adult Education commissioned a report to explore *"the feasibility of developing a system of digital badges for adult learners and the implications for policy, practice, and the adult education system"* (Finkelstein, Knight, and Manning 2013). The report provides an overview of digital badges; it highlights three case studies where badges are in the early stages of implementation, and outlines steps for the development and implementation of an adult badging system. One case study concerns the Badges for Veterans Challenge[160], collaboration between the U.S. Departments of Veterans Affairs, Education, Labour, and Energy to build a badging system that can help translate military training and experience into skills and credentials that civilian employers can understand and value. Another example is the National Manufacturing Badge system[161], intended to indicate on-the-job-training, experience, and social skills relevant in the manufacturing sector.

- **Textbook Replacement Initiatives** There are several proposed bills that would establish open digital libraries in the US if passed; pending bills in several states would require an open license for materials developed with state funding, which would increase access for all (Patrick and Bliss 2013).[162] Within the adult education system, the California Community College system recently voted to require a Creative Commons Attribution license for any works created under grants or contracts funded by the California Community Colleges Chancellor's Office. Composed of 72 districts and 112 colleges serving approximately 2.3 million students per year, California's community college system is the largest system of higher education in the United States. As such, the move to require Creative Commons licenses was an important milestone for the OER movement and for adult learners.

5.3 Conclusions

This chapter has mapped the extent to which the digital revolution in education has penetrated into adult learning, and also to identify potential areas for further exploitation.

The benefits of ICT and OER in adult learning are widely acknowledged amongst policymakers and practitioners: they help extend and diversify the ways in which learning can be provided; they enable provision to be tailored in terms of content (by making learning available in smaller units), time and place (by disconnecting learning from traditional learning settings); and, they help to widen access, building on the experiences of traditional distance learning techniques and providing new forms of non-traditional learning, for example using gaming - where the participants may not even be aware that they are participating in learning.

However, important questions can be raised on the basis of the evidence in this chapter about the diffusion to date of both hardware and software/content. Two aspects of diffusion are relevant here: both the spread across the adult learning community and the depth of usage in terms of the effect on teaching and learning practice.

[160] https://badgesforvets.org/
[161] http://www.themanufacturinginstitute.org/Initiatives/Badges/Badges.aspx
[162] In the K-12 arena, this recent iNACOL study outlined current state policies and recommendations for policies supportive of K12 OER efforts. While these policies do not link directly to adult education efforts, they could serve as possible exemplars for integration of OER at earlier education levels.

First-generation ICT tools still dominant

Regarding hardware, there are clearly large disparities in the level of ICT equipment available in adult learning institutions. In nearly half of the institutions in our survey the level ranged from 0 to "some". Laptop/desktops – which can be regarded as "first-generation" tools – dominate the types of ICT tool in use. These tools have the advantage of versatility but it is striking that their use outnumbers mobile devices by 2 to 1, whilst in wider society the use of smart phones and tablets has surged ahead. Take-up in adult learning might be expected to experience a lag effect, and so policy and practice will need to ensure that the benefits these devices can bring are fully realised. This is a particularly relevant issue with regard to learners from disadvantaged backgrounds where these devices have great potential for engagement.

Widespread and major effects on teaching and learning are still awaited

In the area of software/content, there is no guarantee that simply having ICT tools will lead to deep-rooted changes in teaching and learning. The survey suggests that the situation is similar to that with regard to hardware, and that in most cases 'first generation' digital learning effects are still evident. This is evidenced by the fact that video and audio clips and image banks are the most common forms of OER being used. Moreover, classroom teaching still dominates with only small minorities of institutions using eLearning and online courses, and only one in six even using blended learning.

Particularly strong challenges for OER development and take-up

OER faces particular challenges. Approximately half of survey respondents cited low awareness of OER as a challenge to their use (compared to only a third for ICT tools) and a quarter cited a lack of suitable OER. A quarter of respondents also recorded concerns about copyright and licensing laws and intellectual property.

Full potential for enhancement, engagement and widened access still to be realised

It would seem from this evidence that there is enormous untapped potential for ICT and OER to be used to achieve the major changes in teaching and learning practice. This is reinforced by the survey results which pull out the flexibility that ICT tools offer as the key reason for their use, while factors related to learner engagement, motivation and experience, along with widening access, appear to be less common. This indicates that ICT tools have not yet been deployed with these goals in mind to the extent that is often assumed.

A 'digital divide' amongst adult learning institutions?

Within this general picture there are, as noted, enormous disparities. The so-called 'digital divide' that exists in society is largely replicated amongst adult learning institutions. At one end of the spectrum there are institutions that have extensive ICT resources, policies concerning the use of ICT in adult learning, and regular teacher training programmes. Some are also able to use regional/local learning management platforms. Around one quarter to one third of institutions in the survey had such characteristics. At the other end of the spectrum there is a substantial minority of institutions that has little or no ICT infrastructure, in some cases no internet connectivity, at most ad hoc training of staff and where even low awareness of digital learning is an issue. In this context, an important priority must be to seek to bring all providers to the same level of usage of ICT and OER.

Informal learning provision: a particular cause for concern

Under-development appears to be a particular issue for institutions involved with informal learning. This has particular ramifications for the question of engaging disadvantaged adult learners because of the success of this form of provision in getting adults into learning. Informal providers are markedly more likely than others to cite such reasons for using ICT tools as enhancing learner experience, learner engagement and motivation and widening access. And yet these same providers are also more likely to be concerned about the constraints imposed by lack of financial resources and staff with ICT competences. In short, amongst those providers who perhaps see the greatest potential for ICT in adult learning there are also the greatest perceived constraints. In the context of national/regional adult learning policies that tend to focus on disadvantaged communities, this type of provision should be an explicit focus and resourcing priority.

Realising the potential

Actions can be taken to address these issues.

At institutional level, action is needed to put basic ICT infrastructure in place for all institutions, and to move institutions and staff along the path to realising the full potential of the technology to support new teaching and learning. Most institutions still have no strategic plans in place about how to use ICT. Effective use of ICT and OER requires both institutional commitment and vision, and teachers who are competent in developing and delivering innovative learning. This suggests that organisational change is strongly needed.

At national/regional levels investment is required to develop suitable ICT infrastructures on which to build innovative learning environments and high quality digital learning resources, and more widely, to ensure that every locality benefits from connectivity to fast broadband. The development of relevant professional competences for educators also needs to be ensured through initial teacher education and continuing professional development. National action is also needed to update or introduce legal frameworks with respect to copyright, intellectual property and data security. The more thoroughgoing use of ICT and OER also increases the need for effective systems for the validation of non-formal and informal learning.

The cluster analysis showed that, to be successful, these developments need to be set within a context at national/regional levels in which there is: an enabling lifelong learning strategy that provides a clear framework for action and of which digital technologies form an intrinsic part; a national/regional agency to bring stakeholders together; and, programmes to tackle the barriers to adult digital learning, particularly to develop digital skills.

6.0 Conclusions and Recommendations

6.1 Introduction

The study has:

- Provided a detailed description and analysis of the current state-of-play of the use of ICT-enhanced learning, involving OER (Chapter 4, reviewing the academic literature and research findings), in adult education in Europe, sampling (Chapter 5 4) across EU28 Member States, EFTA States and Candidate States; and
- Developed conclusions and recommendations which are presented in this section, including an approach for a (self) assessment toolkit (with details in Annex Three) for adult learning institutions and policy makers for analysing their practice related to ICT/OER usage (e-maturity) in adult learning.

In drawing together the outcomes of the study a core task is to provide policy-relevant analysis and advice as required by the study objectives in terms of:

- Developing policy relevant conclusions and recommendations for actions to be taken by policy makers, and adult learning providers in Member States and at the EU-level to make ICT-enhanced learning, including OER, a part of mainstream adult learning.

At the interim stage of the project a meeting was held with the ET 2020 Working Group on Adult Learning to present the findings and to discuss a range of potential policy recommendations. The outcomes of that process led to a high-level workshop (summarised in Annex Five) which took place in Brussels in November 2014 to discuss the emerging conclusions of the study, and to help form the policy recommendations.

This final section presents the overall conclusions based on the combined conclusions of the Chapters in the report. It then presents the proposal for a self-assessment toolkit. Then, the conclusions are linked to the final recommendations.

6.2 Conclusions

In conclusion, the study shows considerable activity at the European and national levels. ICT has been used in the development of innovative learning, in individualising learning, and in connecting learners to a wide range of resources. The EU response to the global economic crisis, through the Europe 2020 Strategy, highlights the need to ensure inclusive lifelong learning that contributes to the growth and jobs objectives. The ET 2020 Strategy further provides an important framework through the Open Method of Coordination for pan-European policy dialogue, peer learning and peer review.

The ongoing development of transparency and recognition tools provide an essential basis for the recognition and acceptance of learning outcomes. The establishment of the EPALE platform is providing a single, multilingual point of contact across the EU for adult learning. However, it also is clear that many adults first need to be motivated to learn, and the wider promotion of the value of adult learning is desirable.

Much is going on, but there remain considerable differences across Member States in adult skill levels, access to ICTs, the availability of relevant content, and in the developments of innovative learning skills and competencies in educators. Learning providers need to adapt their institutional strategies to facilitate the wider use of ICTs and OER.

Across the countries studied in depth, there was considerable diversity in the adult 'landscape' (e.g. levels of participation in learning, basic skills, motivation to learn) and provision (e.g. levels of workplace learning, OER development, ICT infrastructure). However, there were also some similarities. First, almost all the barriers to the take-up of ICTs and OER in adult learning identified are present in all countries, but to differing degrees of intensity.

Second, the approaches being taken to overcome them are very heterogeneous, ranging from very limited action, to uncoordinated project-based action, and in some countries to coordinated action encompassing policy, strategy and institutional structures. Additionally, the country review revealed a strong heterogeneity across adult learning providers, and this has informed the proposed development of the self-assessment toolkit which is now introduced (with full details in Annex Three).

These findings have informed the final conclusions for the study which have been structured under three areas: **learners, providers and educators and policy areas.**

With regards to **learners**, three conclusions emerge, relating to the need for 'entry level' skills to enable marginalised adults to engage effectively with learning, to ensure that learners have access to appropriate content through electronic channels and devices, and to ensure that learning is fully-targeted to their individual needs. These are:

A. **Basic skills**. Literacy, numeracy and ICT skills are fundamental enablers for adult learners. PIAAC 2012 statistics report that about 20% of adults in the EU have low literacy and numeracy skills, and 25% have low ICT skills.[163]

B. Adult learning can benefit significantly from **access to adult learning resources** made available using ICT tools (Internet, software, content and devices), and with well-focused learning content**.**

C. **Individualisation** of learning is beneficial. Digitally delivered learning has the potential to individualise learning.

For **providers and educators**, five conclusions are presented. These focus on the need to equip educators with appropriate technical and pedagogic skills; to ensure that learning opportunities are better communicated to learners; to ensure educators have improved organisational support to develop an organisational environment able to nurture adult learning using ICTs and OER; the need for providers to develop effective and sustainable organisational strategies; and, building on this, to offer targeted and high-quality learning content for their adult learners. In summary:

D. **Educators need digital and pedagogic skills**. Adult educators need to be provided with training in the effective use of ICT and OER, and to be fully involved in the design of programmes.

E. **Benefits of adult learning are not effectively communicated and understood**. Communicating the particular benefits of ICT-enabled learning can better motivate adults to learn, and to help adults and businesses understand the rewards and benefits of adult learning.

F. Learning providers and organisations need appropriate **organisational and support structures** to enable educators to use ICT and OER effectively in the development of adult learning.

[163] 2012 data from the OECD PIAAC Survey – see Commission (2013h)

G. Learning providers and organisations need better **sustainable institutional strategies** for the use of ICT and OER in the development of adult learning.

H. Learning providers need more extensive **networking, the sharing of good practice and partnerships** to create targeted and high-quality ICT-enabled learning content for their adult learners.

At the **policy** level eight conclusions address policy initiatives. They relate to the need for policies and regulation to ensure fully inclusive access to ICT and infrastructures, particularly focusing on the large numbers of vulnerable and low skilled adults in the EU. Adult learners will benefit from initiatives and actions to raise awareness of the benefits of adult learning and for these benefits to be communicated clearly, and to all stakeholders (adults, providers, employers, etc.).

In this context the continuing development of pan-European transparency and recognition tools is needed to help build knowledge and trust in the outcomes of diverse learning approaches using ICT (including formal, non-formal and informal learning, learning from multiple sources etc.).

It is evident that policy also can build capacity across the EU, encouraging the modernisation of learning systems and the development of innovative learning environments. Importantly, policy and regulation can help establish an environment for the wider development and use of OER, in particular through supporting the sharing of intellectual property (metadata, copyright etc.), through developing coherent and comprehensive national and pan-European knowledge about the availability of OER, and through sharing good practice. The policy conclusions are:

I. ICT, especially mobile ICT, can be used to **access learning at any time.**

J. **Access to ICT infrastructure** is not adequately ensured for all learners.

K. **Vulnerable adults** need particular support. For example those who have low basic skills, including ICT-skills, low levels of formal qualifications or are otherwise marginalised

L. **Awareness needs raising further about the availability of ICT-enable adult learning resources**. Coherent and pan-European information and resources about Adult Learning can help.

M. **Benefits of flexible and personalised ICT-enabled learning can be enhanced through transparency and recognition tools**. Adult learners can be motivated to learn through providing the conditions to validate and recognise learning obtained from multiple online learning resources.

N. Licensing and copyright conditions can be further developed to **open up access to digital education resources** (OER) and enable their effective use in adult learning.

O. Policy can be well-informed by continuing to develop a **pan-European evidence base** to monitor and analyse developments in ICT-enhanced adult learning.

P. There are **variations across Member States** in the levels of participation in adult learning, and the extent of ICT and OER developments for adult learning. Broad clusters of MS were identified (traditionalist, tentative, and future-oriented) showing a wide range of adult learning developments using ICT and OER.

6.3 A Self-Assessment Toolkit

The ToR required "*a proposal for a toolkit for (self) assessment on the level and quality of ICT-enhanced learning in adult learning to be used by either providers or policy makers*". The toolkit should be designed so that it could be implemented on the EPALE platform. Its structure would be informed by the outcomes of this study. The following goes beyond a proposal for a toolkit, to present a working test version of the Website showing how the self-assessment process can operate.

There are existing resources on the Web for adult educators and learners (in general) to assess their activities. For example, at an individual level "*charting is the process whereby an individual monitors and optimises their interaction with the people and resources who contribute to their learning and development*", and an open source toolkit is available.[164] In the US the Council for Adult and Experiential Learning (CAEL) markets a commercial toolkit for institutional providers.[165] The University of Washington and the University of California, San Francisco have a toolkit to assess adult learners in a project focused on healthcare.[166]

In the UK, in Wales, the *Recognise and Record their Progress and Achievement* (RARPA) toolkit is focused on adult education practitioners.[167]

In considering the **design of the structure** of a proposed toolkit at the EU level, this study has identified a heterogeneous landscape of adult education, with a wide range of learner ages and levels of literacy, numeracy, and digital literacy, engaging in formal, non-formal and informal learning activities. Furthermore, there is a difference between, on the one hand, the operational focus on providers and adult educators who will benefit from understanding how ICT and OER are being used successfully, and on the other hand the policy maker focus on establishing the optimal conditions that enable ICT and OER to be used.

It is expected that practitioners will focus on assessing their practice against that of others (**self-assessment**), and both practitioners and policy makers[168] will benefit from learning opportunities through access to a structured body of **good practice**. The toolkit therefore focuses on providing a set of indictors for self-assessment and, through a Handbook, structuring good practice under each of the indicators.

Since there is not a single generic form of 'adult education', and a considerable variety of providers and users, there cannot be a single definition of 'adult educator', of 'adult learner', or a single generic and normative 'standard' against which providers can benchmark their practice. Therefore, it is proposed that a toolkit avoids becoming a single set of normative indicators (where providers see whether they are 'better or worse' than others), and is designed as a self-assessment facility where providers can assess where they are along a range of practice (selecting the indicators of relevance to them), and then explore good practice(s) in areas where they identify a need to improve. As such, the proposed self-assessment facility is **a bench-learning tool**, rather than a normative bench-marking instrument. In this context a provider could assess their own practice, identify potential areas for improvement, learn from the structured examples, and at a later date self-assess again to check that their practice had improved.

[164] http://www.caledonianacademy.net/spaces/charting11/ and http://charting.gcu.ac.uk/
[165] http://www.cael.org/alfi#Order%20the%20ALFI%20Toolkit
[166] http://www.go2itech.org/HTML/TT06/toolkit/assessment/adults.html
[167] http://www.niacecymru.org.uk/rarpa-toolkit
[168] Policy makers already have structured opportunities to share and learn best practice through the ET 2020 Working Group on Adult Learning, with its peer learning and peer review activities.

The content of the toolkit needs to reflect the heterogeneity noted above, but also to be usable by the widest community of adult education providers and policy-makers. Different types of providers may find that a particular subset of indicators is relevant to them. The toolkit will enable providers to select their own set of indicators, and can also provide a number of pre-structured entry points.

Motivation for providers to use the toolkit is most likely to be high where the benefits are clearly linked to funding. This was the experience with the Erasmus Mundus Quality Assurance (EMQA) site[169] (which was the proposed model for this toolkit), where potential applicants for funding could learn from wider practice and significantly improve the quality of their applications. This in turn drove up quality across existing courses because they needed to innovate faster to maintain their competitive edge. However, the EMQA site quickly became used by higher education institutions around the world as a mechanism where users could learn from good practice, and assess their own practice. Beyond a motivation to secure funding, the use of the toolkit could be encouraged through a motivation to improve practice such as:

- **Policymakers:** To review how Member States and European and international organisations have developed strategies and policies that harness the potential of ICT-enhanced learning for the benefit of their target adult learners. And also, to help them understand how providers have overcome barriers around issues such as ICT infrastructure, ICT devices, accessibility issues, and legal, copyright and financial issues relating to OER; and

- **Providers:** To learn from (and also to provide) good practice examples of how ICT and Open Education Resources (OER) are used by adult learning providers to enhance their adult education provision. Providers will be able to upload examples of their own good practice (to be checked and validated by EPALE before being made available) that they wish to share with other users. It will also include issues that adult learning providers will need to consider when deciding on how to develop innovative learning environments for their learners.

The proposed toolkit is focused on a range of good practice that is structured in the same way as the Erasmus Mundus QA (EMQA) resource, following a similar format to the 2012 Master Handbook.[170] Its primary design involves two main functions:

- First, to **self-assess practice against a structured set of indicators, each of which communicate a graded range (Likert statements) of potential practice**. Since the objective is to self-assess and to lead to improvements in practice there is less of a need for the Likert statements to be quantitatively balanced (which would be needed if a normative score was being created to benchmark practice); and

- Second, to **explore documented and structured good practice** related to the indicators. The good practice can be made available online, and as a prepared handbook (PDF format). The Handbook can be populated initially with examples gathered from this study, but can then be dynamically expanded online with links to case studies from the EPALE content section,[171] and the PDF version updated on a regular basis.

[169] www.emqa.eu

[170] http://eacea.ec.europa.eu/erasmus_mundus/tools/documents/repository/handbook_of_excellence_2012_master_en.pdf

[171] http://ec.europa.eu/epale/content

During the study a proposed initial set of Likert statements was developed, based on the key characteristics of adult education using ICT and OER derived from the literature review, and the analysis of the country research. The initial set of statements was shared with the ET 2020 Working Group on Adult Learning, and has been revised after their comments were received.

An overview of the Toolkit is presented in Annex Three, with a structured overview of its main functions and content, technical details about its design, information about how it can be transferred to EPALE, and a list of the proposed self-assessment Likert statements.

6.4 Recommendations

The conclusions of this study (Table 6.1) are developed out of research that shows a significant level of activity around building adult learning resources using ICT and OER.

At the European level a wide range of policies and programmes have addressed the range of adult learning challenges from policy development at MS levels (e.g. ET 2020 and its peer learning and peer review activities), content (e.g. OER) to inclusion and labour market relevance (e.g. ESF, VET), to building innovative capacity across the European teaching and learning landscape (e.g. the Modernising and Reinventing Communications, Erasmus+), developing pan-European tools for quality and recognition (e.g. EQF), and building coherent and comprehensive pan-European resources for adult learning (EPALE).

Action at the MS level shows significant variation in policies and adult learning activities, and even more so across providers. Governments and adult learning providers across the EU can contribute to the development of innovative adult learning using ICT and OER through effective organisational strategies, ensuring that their educators are fully skilled and knowledgeable in the innovative use of ICT and OER, and that the institutional ICT infrastructure focuses on a sustainable development of ICT and OER oriented around the specific needs of their adult learners. Lastly, an enriched evidence base for adult learning across Europe will inform policy development.

Overall the recommendations below highlight the value of stronger coordination and policy exchange, to drive faster developments at MS level. They promote the more integrated use of ICT and OER in developing targeted and innovative learning for all adults, with more synergies across the learning spectrum.

Table 6.1 Recommendations

Recommendation	Links to Conclusions
European Union Policy Level	
I. Support the sharing of good practice on the use of ICT and OER in adult learning	H, I, N, O, P
33. Support European **network-building and communities of practice** of adult learning providers and educators in sharing good practice on the use of ICTs and OERs in adult learning (ET 2020, Erasmus+, and the European Social Fund - ESF).	All
34. Support national/international **policy-makers in peer learning and peer review** to better assist national adult learning policy development (ET 2020 Working Group on Adult Learning). Focus on clusters of Member States: for example, Member States with particular ICT and OER needs for adult learning, and clusters that can develop further excellence in developments in adult learning with ICTs and OER.	O
35. Build **evidence, and commission research,** on adult learning using ICTs and OER, and **evaluate (ICT-enhanced) adult learning impacts** - collaborating with OECD, UNESCO and the Council of Europe.	L, M, N
36. Support the **dissemination of good practice on the use of ICTs and OERs in adult learning**. Continue to develop integrated access to resources (especially OER), information and knowledge relating to (ICT-enhanced) adult learning (EPALE, and self-assessment toolkit). Facilitate wider understanding and acceptance of pan-European frameworks and tools for accreditation, quality assurance, assessment and recognition of adult learning.	
II. Create the environment for the effective pan-European use of ICT and OER in adult learning	J, N
37. Continue to establish **a European regulatory environment** for open access to content, ubiquitous access to high-speed broadband, and 'ICTs designed for all' (Digital Agenda).	N
38. Continue to mandate that **learning and learning-related content** developed through Commission funding is openly licensed and available as OER.	
Member State Policy Level	
III. Build national information and resources to promote the value of adult learning using ICT and OER	(O), P
39. Establish national governance frameworks (sharing good practice – see Recommendation 2) which enable an integrated approach to be developed for adult learning using ICTs and OER.	C, D, F
40. Develop **national guidance** to adult learning providers on the effective pedagogic use of ICTs and OER in adult learning.	(E), L,
41. Establish **awareness-building campaigns**, promoting the benefits of different (ICT-enhanced) types of adult learning, addressed at providers, educators, learners, and employers.	(B), (G), I, J
42. Develop **integrated access to resources** (especially OER in national languages), along with information and knowledge relating to adult learning, and ensure that these complement and link to the EPALE platform.	

Recommendation	Links to Conclusions
IV. Develop policies and strategies to enable the development and take-up of innovative adult learning using ICT and OER	N
43. Establish national regulatory conditions for **open access to content**, availability of high-speed **broadband infrastructure,** and 'ICTs designed for all'.	A, J, K
44. Develop a **digital literacy strategy** which helps adults to acquire basic competences and skills (literacy, numeracy, digital literacy) to effectively use, and benefit from, ICT-based adult learning resources.	K, L, N
45. Provide **funding opportunities for sustainable innovation in adult learning,** using ICTs and OER, for the adult education sector (particularly for disadvantaged learners).	
Adult Learning Providers	C, E, G, H
46. **Develop new institutional strategies**. At the organisational level, develop adult learning strategies for using ICTs and OER that maximise the individualisation of learning for adults. Build, and use, networks of practice to share good practice.	D, F, H
47. **Educator education**. Provide systematic and continuous training for educators in the development and implementation of innovative learning environments which use ICTs and OER.	(B), G
48. **Establish an institutional IT infrastructure** that enables effective innovative adult learning using ICTs. Secure funding to enhance organisational capacity in the use of ICTs and OER for adult learning.	

Much is going on, but there remain considerable differences across Member States in adult skill levels, access to ICTs, the availability of relevant content, and in the developments of innovative learning skills and competencies in educators. Learning providers need to adapt their institutional strategies to facilitate the wider use of ICTs and OER. Overall the above recommendations highlight the value of stronger coordination and policy exchange, to drive faster developments at MS level. They promote the more integrated use of ICTs and OER in developing targeted and innovative learning for all adults, with more synergies across the learning spectrum.

Annex One: Research Questions

Research Questions

Core objective/research question	Sub research questions	Outputs from the study
a) Provide in-depth insights into the largely unexplored area of ICT-enhanced and OER-based adult education, thus complementing the basic research-work IPTS has already done: • *What impact do ICT and OER have on adult education provision and uptake?* **(b) An analysis of the potential of ICT-enhanced and OER-based adult learning to raise the currently static participation rates towards the ET 2020 target of 15%, thus contributing to smart, sustainable and inclusive growth:** • *What potential have ICT-enhanced and OER-based adult learning to improve provision and increase uptake of adult education?* • *For which types of adult learners is ICT-enhanced and OER-based adult education provided?* • *Which types of adult learners are not provided with these forms of education?* • *What forms of education would those types*	What types of providers of adult learning are engaged in ICT-enhanced learning including OER? (Public? Private Institutions? Voluntary sector institutions?) What types of learning do these providers offer? (Formal? Non formal? Vocational? Non vocational?) How many providers are using ICT to enhance their adult learning? How are these providers using ICT to engage adults into learning? How are providers using ICT to develop progression pathways for adult learners? How is ICT being used to validate informal, non-formal and formal learning? What impact are these ICT approaches having on the learning of adults? How effective are the ICT approaches used by providers? How widespread is the use of ICT-enhanced learning in adult learning institutions in Member States? Are there any areas where ICT can be used but is not being currently used? Where are the gaps? What types of OER are being used by adult learners? How are the OER approaches tailored to adult learners? What support measures are used by adult learning providers to help learners take up OER?	**Providers** • A detailed description of the types of providers of adult learning that are engaged in ICT-enhanced learning, including OER **ICT** • A detailed description and analysis of the factors that contribute to improving the efficacy of ICT-enhanced learning tools, including OER within the adult learning provision. **OER** • A description of the types of OER (e.g. OER on higher education, basic skills, language learning) that different groups of adult learners are engaged in. • An inventory of existing learner support measures required by non-users to take-up OER including best practice examples and success factors • A summary of the current use and take-up up OER, in different types of adult learning and where the potential is still unexploited.

Core objective/research question	Sub research questions	Outputs from the study
need? • *How can the provision be improved so that take-up increases, especially among disadvantaged groups of adult learners?*	What best practice examples of OER are available? What makes these best practices? Which groups of adult learners use OER and which groups do not and why? (i.e. socioeconomic background) How do these adult learners use OER?	**Learners** • A detailed description and analysis of the take-up of OER by adult learners, including a description of the socioeconomic background of adult learners that have taken up OER
(c) Recommendations on how to support the development of ICT-enhanced and OER-based adult education: • *What can be learned from the outcomes of projects on ICT-enhanced and OER-based adult education and how can the sustainability of future projects be assured?* • *What impact has the use of ICT and OER in informal learning had in engaging adults back into education?* • *How can informal learning help to widen participation in non-formal and formal learning by increasing e-skills of learners?* • *How can providers integrate the use of ICT/OER into informal, non-formal and formal learning in order to increase participation?*	How can Member States and providers be supported to use ICT and OER to engage adult learners into learning? How can ICT and OER be mainstreamed into adult learning?	**Conclusions and Recommendations** • Policy relevant conclusions and recommendations for policy makers, other stakeholders in Member States and at the EU-level • Provider self assessment toolkit

Core objective/research question	Sub research questions	Outputs from the study
• *Is ICT-enhanced and OER-based adult education always a good way to improve participation or might it also have the effect to decrease participation?* • *Which conditions must be met for a positive impact?* • *Where are the gaps between provision of ICT-enhanced and OER-based adult education and uptake?* • *How can these gaps be bridged by policy makers?* • *How can the quality of teachers and teaching in ICT-enhanced and OER-based adult education be improved? What resources are needed by adult education staff?* • *Do adult educators have the skills to use resources created to support adult learners?* • *Do adult educators have the competencies to teach seniors how to use ICT?* • *Do they have the skills to develop resources to support the teaching of adults?*	What do providers expect to see in a toolkit which will assess the level and quality of ICT-enhanced learning? How should the toolkit be developed to ensure that providers and policy makers benefit from these?	

Annex Two: Survey Toolkit / Research Findings

Table A.2.1: Country respondents

Country	N	%
Germany	71	23%
UK	56	18%
Lithuania	30	10%
Estonia	23	8%
Netherlands	20	7%
France	17	6%
Spain	17	6%
Greece	10	3%
USA	10	3%
Italy	9	3%
Latvia	6	2%
Luxembourg	6	2%
Norway	6	2%
Brazil	4	1%
Ireland	4	1%
Romania	4	1%
Austria	3	1%
Sweden	3	1%
Denmark	2	1%
Hungary	2	1%
Czech Republic	1	.3%
Portugal	1	.3%
Total	**305**	**100%**

Source: Adult Learners in Digital Learning Environments survey

Table A.2.2: Adult education institutions involved in the survey

Type of institution involved in the survey	N	%
Adult education centre	60	20%
Public sector adult education organisation	55	18%
Private sector adult education organisation (not-for-profit)	46	15%
Higher Education Institution	29	10%
College/Vocational Education Training provider	29	10%
Private sector adult education organisation (for-profit)	28	9%
Non-governmental organisation	27	9%
Other (please specify)	22	7%
Sector-specific education organisation	6	2%
Corporate adult education institution	2	1%
Training department responsible for work-based learning in company/organisation	1	%
Employer	0	%
Total	**305**	**100%**

Source: Adult Learners in Digital Learning Environments survey

Table A.2.3: Financing mechanisms of adult education institutions

How institutions involved in the survey are financed	N	%
Mainly by the public sector (municipality, region, state, nation, EU)	185	61%
Mainly by learners	82	27%
other (please specify)	22	7%
Mainly by corporations	12	4%
Mainly by employers	3	1%
Mainly by employment agencies	1	%
Total	**305**	**100%**

Source: Adult Learners in Digital Learning Environments survey

Table A.2.4: Type of providers involved in the survey

How the adult learning provision of the institutions involved in the survey is structured	N	%
Formal education and training (training that leads to a certification/diploma)	160	53%
Non-formal education and training (training which is not regulated and does not lead to certification)	107	35%
Informal education and training (non-structured activities but with at least a partial aim to educate)	38	12%
Total	**305**	**100%**

Source: Adult Learners in Digital Learning Environments survey

Unemployed people	187	61%
People learning for leisure	157	51%
Migrants	146	48%
Retired people	144	47%
Single parents	117	38%
Young early school leavers	114	37%
People with physical accessibility issues, e.g. disabled, chronically ill, mental problems	113	37%
Particular ethnic groups	71	23%
Adult Higher Education students	70	23%
Other (please specify)	**43**	**14%**
Total	**305**	**100%**

Source: Adult Learners in Digital Learning Environments survey: Note Multiple responses involved. Total N= unique institutions involved in the survey

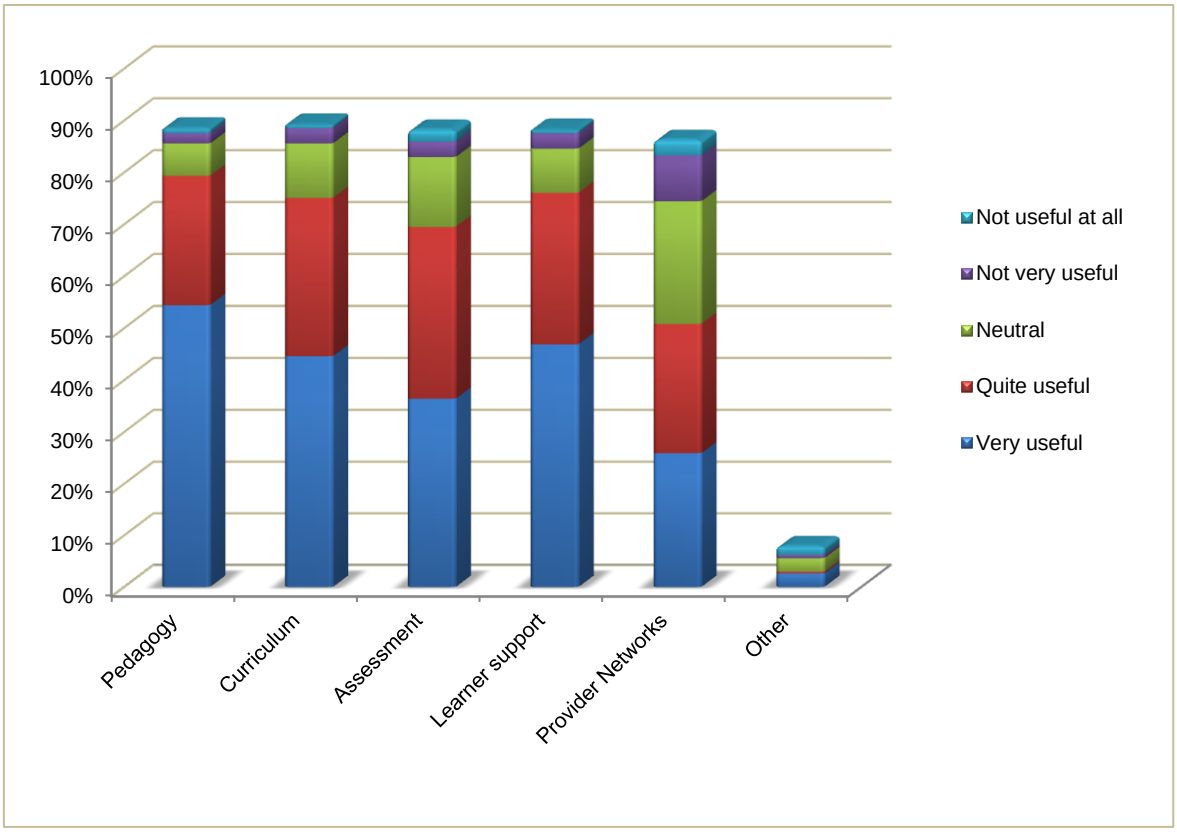
Toolkit findings

One of the aims of this study was to develop a learning toolkit for providers. The aim of this toolkit is to improve the use of ICT and digital learning resources in adult learning institutions; the survey was used to ascertain providers' views on this toolkit.

When institutions were asked to rate on a scale of 1 to 5 'where 1= very useful' and '5=not useful at all' a number of areas that could be covered under the toolkit, pedagogy was regarded by a majority as the most useful area with respect to content which seems to reflect the findings from the country research.

However, the institutions were more divided about whether the toolkit ought to include a section on 'Provider Networks', a forum for providers to discuss ICT and OER approaches.

Figure A.2.1: Areas that should be covered in the toolkit, rated on a scale from 'not useful at all' to 'very useful



Source: Adult Learners in Digital Learning Environments survey N=305

A few institutions provided examples of other areas that could be provided in the toolkit such as good practice examples of innovative low-cost solutions, guidance on how to motivate teachers that have low ICT skills, training for non-teaching staff, how to develop an integrated ICT strategy for learning or how to encourage use of creative commons licencing and clarity of publication implications of OER.

Annex Three: Toolkit

Toolkit design and functionality

The following sections elaborate the developed (April 2015) **design, structure and initial content** for the self-assessment tool. It first sets out and design and structure. Following that the initial set of Likert statements is outlined, based on the key outcomes of the country research and the analysis, and indicative examples of good practice are provided in the initial version of the online Handbook. Lastly, technical issues are presented regarding the design and the mechanisms to transfer the toolkit structure into the EPALE platform.

The toolkit is extendable beyond the initial set of indicators which are presented later in this section. The body of good practice also is extendable since the online facility can quickly be updated with newly identified good practice.

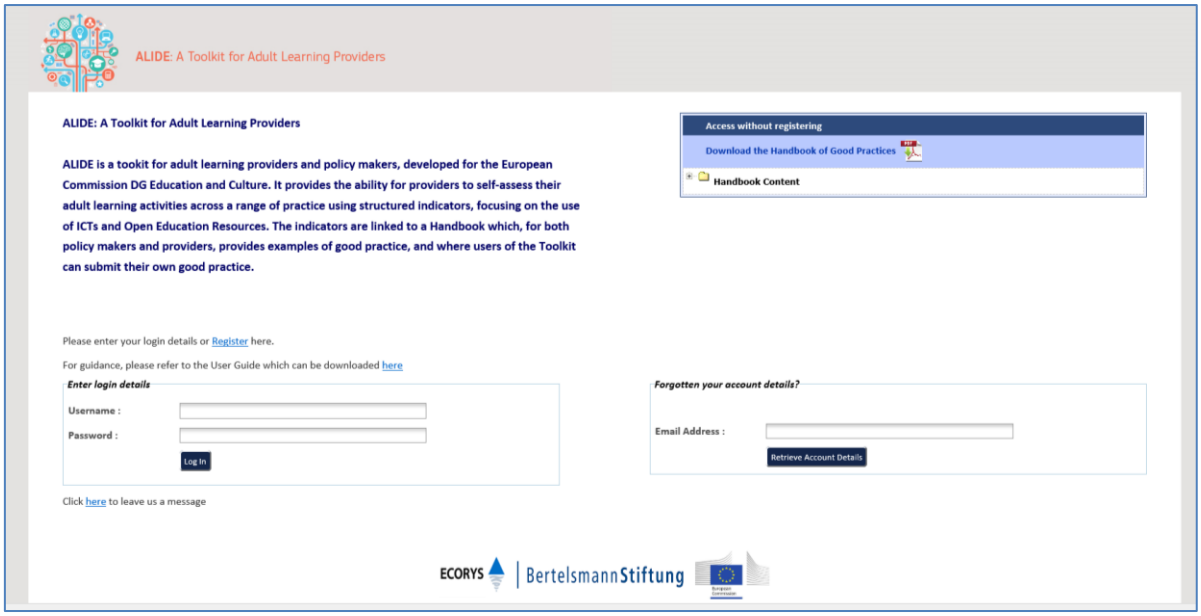
The updating protocols will need to be formalised by EPALE. There are two particular areas of updating. First, the examples of good practice need to be refreshed, to reflect the latest case studies that are being added to EPALE. EPALE has structured themes[172], under which content is organised. For each theme (for example 'Barriers to Learning[173]') material is arranged under heading of Blog, Articles, Events, and Resources. The material under Resources is of particular relevance to the Toolkit, since there are short descriptions provided. That content, and the resource itself, will have been checked and validated by the EPALE content managers, so no further recommendations are made about the updating cycle and validation of content by EPALE. What is recommended is that EPALE content managers check for new content being added to EPALE that can form an additional good practice example on the Toolkit. On a monthly basis the Toolkit online resource of good practice can then be edited along with the PDF version (the Handbook). Since the Handbook is only being made available online there are no printing overheads, only a requirement for clear version management of the Handbook.

Second, on an annual basis, it is recommended that the Likert statements are fully reviewed in the light of the good practice content that has been added to EPALE. It is possible that new Likert statements can be produced as the European landscape of adult learning using ICTs and OER develops. It is important that the Toolkit 'grows' to reflect changing practice.

The **home or 'landing' page** for the toolkit identifies its role and function, and presents the main functions. Figure A.3.1 presents a plan for home page text, with two primary menu options of 'my account' and 'my assessments'. In addition there is a menu option for 'Handbook' so that the best practice examples can be accessed and a download only PDF option. The design below may need to be adapted to conform fully to the EPALE 'house style'.

[172] https://ec.europa.eu/epale/en/node/6#themes
[173] https://ec.europa.eu/epale/en/themes/barriers-learning

Figure A.3.1: ALIDLE Landing Page



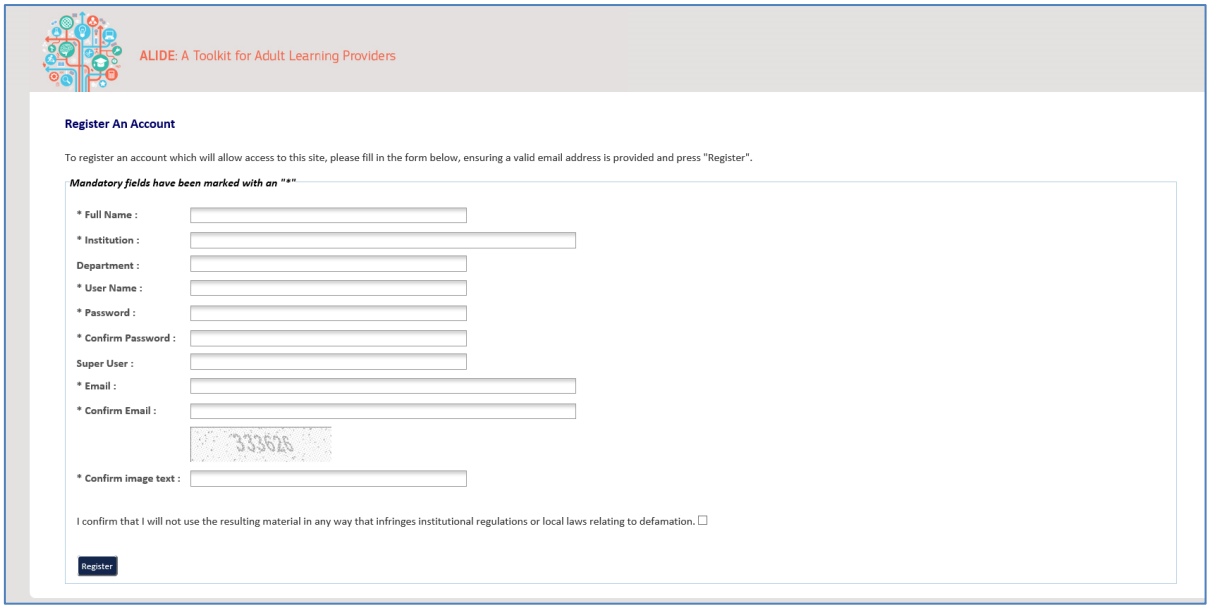
A User Guide (PDF format) for the site can be downloaded.

The home page has the facility for users to **register and to log in** (including a standard option to request a forgotten password to be sent to the registered email account). The reason for registration is because users, when self-assessing, will need to structure and store their assessments, allowing them to start an assessment and to continue it at another time. Unless they have an 'account' on the toolkit it will not be possible for them to store and retrieve assessments. Furthermore, registration (Fig A.3.2) enables the user base of the toolkit to be understood. A final option exists to send a message to the software team.

It is also useful that the PDF version of the Handbook can be made available as a public document, without the need to register. An additional menu option is provided to '**Download Handbook**', in which case a PDF version of the full Handbook can be downloaded. In such cases it will not be known who has downloaded the Handbook since the access will be anonymous – it will only be possible to 'count' another download.

To use the full functionality of the toolkit users need to register (Fig A.3.2)

Figure A.3.2: Registering as an ALIDLE user



Basic user details are requested, and the EU statement about privacy and confidentiality of user details is highlighted (as it is on the Home page).

A 'captcha' is presented to avoid spam sites trying to register on the toolkit.

There is reference on the registration page to the **Superuser**. The toolkit is designed so that it can be used as a group exercise, not just a single user exercise. This toolkit acknowledges that an adult education provider is not just a single organisational entity, but is made up of a community of teachers, learners, support staff, and managers etc. There can be value for a learning provider to ask all of its 'community' to register and to provide their own assessment against the indicators. For example learners may have different experiences/perceptions of the ICT facilities, support, and training than do the managers and teachers.

The Superuser facility allows one person to be given permission by each of the other users to 'see' the assessment scores of the others. This is done through the downloading of an Excel spreadsheet where the scores are provided anonymously. In that way all of the respondents can score openly and honestly without fear of being identified. The Superuser can then have the scores analysed, looking for example at persistently low responses, or bivariate responses (indicating perhaps that teachers and learners may have polarised views). The analysis can then lead to internal review, discussion and debate, using good practices to explore how things can be improved. In that way the toolkit assists the provider in identifying where resources can be invested to deliver improvements.

The toolkit is therefore a non-judgmental resource. It invites users to self-assess, to explore good practice, and to identify where they can improve adult education activities using ICT and OER. It does not attempt to 'score' them against others, but it provides them with the ability to score themselves against a range of practice.

Once a user is signed in the **Home Page** (Fig A.3.3) introduces the facilities of the toolkit.

Figure A.3.3: ALIDLE Home Page

The **self-assessment (My assessments)** option takes users (who have an account, and who are signed on) to a menu where they can assess themselves against all (or a selection of) indicators.

Access the online version of the **Handbook,** which contains sections relating to each of the self-assessment questions.

There is a formal structure of the indicators and Handbook sections follows the successful model implemented in the Erasmus Mundus Quality Assurance toolkit (www.emqa.eu) also developed for DG EAC.

The structure for the self-assessment indicators is:

Indicator: A summary title for the indicator

Interpretation Note: A short description which will appear in a pop-up box on the screen to inform the user about the overall challenge relating to the indicator.

Accompanying Range of Practice: Four graduated statements are presented to the user starting (1) with the weakest practice related to the indicator, and the last (4) being the strongest. All indicators can be revised as EPALE builds an extensive body of good practice and where practice becomes more innovative. This is a further reason that the toolkit is not a normative scoring tool which develops 'league lists', since that would require the content and indicators to be frozen for a specified period of time. Instead, the tool is designed to be dynamic, encouraging users to return, explore, learn, and develop innovative learning resources. There is a fifth option, which is **n/a.** Not applicable for our learning provision. (Where a respondent selects n/a a pop-up box gives them the opportunity to explain why this indicator is not relevant for their adult education activities)

The structure for the Handbook material is:

Indicator/Theme: A summary title for the indicator.

Overall Challenge: The main challenge for providers relating to the theme of the indicator (as in the Interpretation note for the accompanying indicator).

Checklist of Actions: These are itemised action(s) relating to the theme which contribute in achieving the overall challenge.

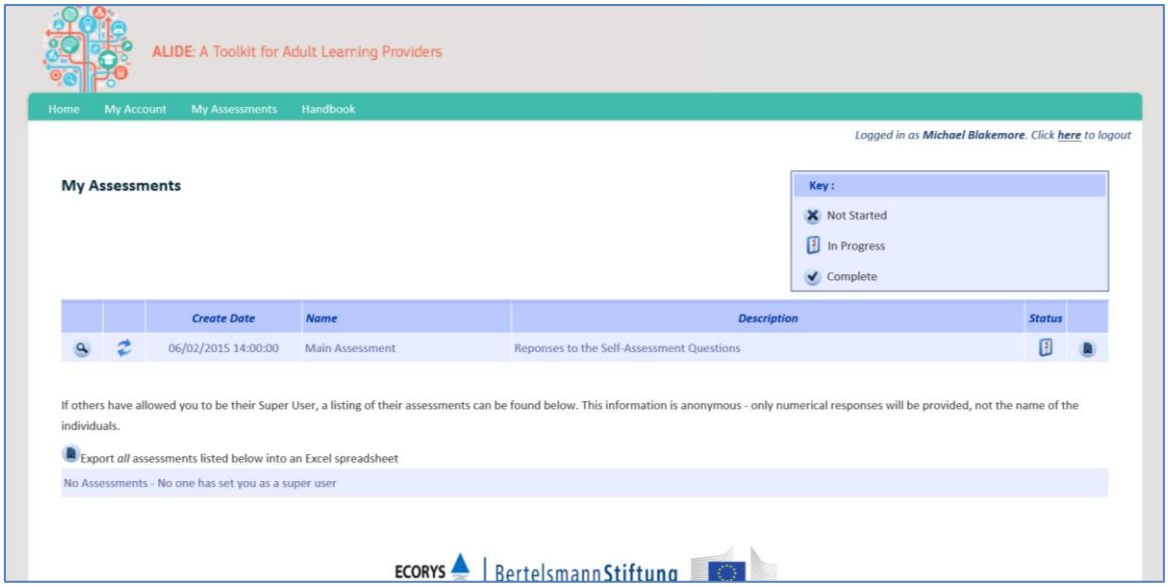
Good Practices: To be populated from the accumulated examples gathered in the literature reviews, the online survey, and the country research.

The first set of indicators has been developed out of the results of the study. The 19 presented later in this section are not final. As the EPALE platform builds more knowledge, and the population of good practice across all of adult education is developed, the indicators can be enlarged, and it will be possible to segment them into groups that are relevant for particular types of users. For example, there are seven potential groups of indicators based on key components from the JRC/OECD framework (Scheuermann and Pedró 2009):

- *National* level strategies. Strategies developed by other Member States to drive ICT-enhanced learning strategies, and the sequence of actions that need to be taken to develop these strategies; for example, how policies have addressed specific barriers such as legal, copyright or finance;
- *Local* level strategies. Focused on how national level strategies are being implemented at the local level, for example through infrastructure investment, support for the development of ICT-based learning skills, and the development of broader support structures;
- *Institutional* level. How provider strategies incorporate an explicit focus on the use of ICT;
- *Teacher* education level: strategies developed by adult learning providers that increase the competence of teachers in using ICT as part of the delivery of adult learning;
- *Learning* environmental level. How online environments are used for adult learning activities and how to focus on their specific advantages for adult learning;
- *Collective* level. How ICT is used in stimulating more collaborative work among adult learners. This includes content development, sharing and re-purposing; and
- *Individual* level. The extent to which ICT has been used by adult learning providers to influence the take up of adult learning opportunities. (Scheuermann and Pedró 2009).

When users select the '**My Assessments**' option from the main menu they are taken to a screen (Fig A.3.4) where there is a list of their active assessment. There is the developmental potential for a user to have any number of assessments, enabling them to use all or a range of indicators. More usefully, by saving assessments of the same set of indicators over time, users could see how their practice is evolving, since they would have a history of their assessments.

Figure A.3.4: Self-assessment main screen



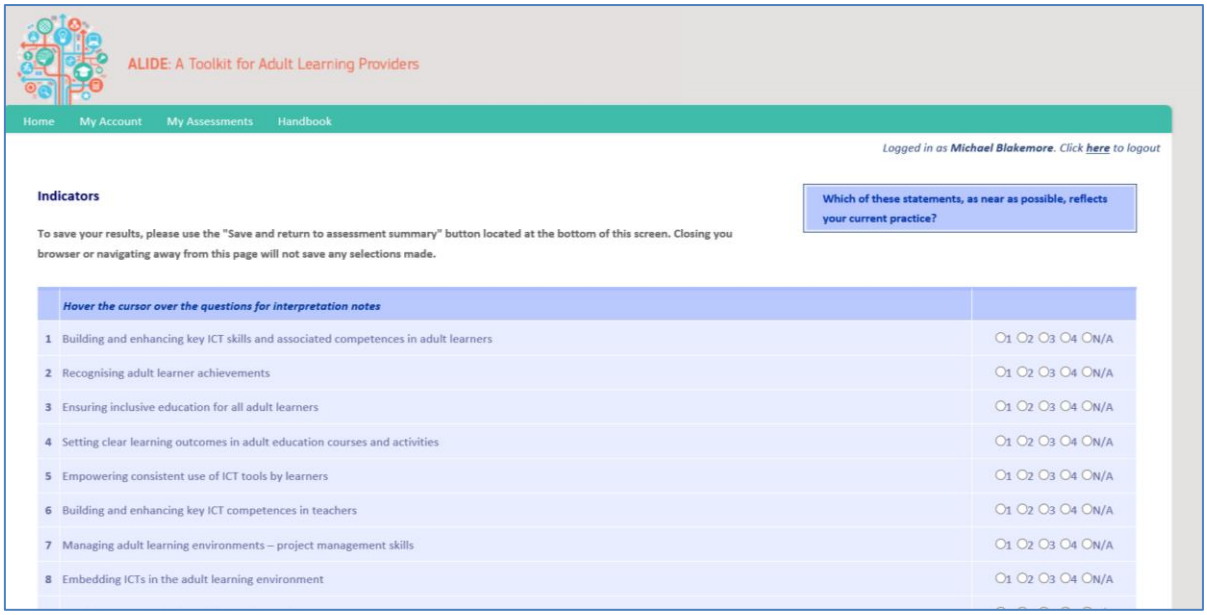
The assessment screen has a menu box with seven menu items:

- At the left is an icon (magnifying glass) which a user clicks to start an assessment;
- The second box (two arrows) is clicked if a user wishes to clear an assessment and start again;
- Box 3 has the time and date the assessment was created;
- Box 4 is the name a user gives to an assessment;
- Box 5 is a short description of the assessment;
- Box 6 is the status of the assessment with three icons to indicate if it is not yet started, is in progress (users can start, save, and return to an assessment at different times/sessions), or it completed;
- Box 7 (a circular icon with a disk symbol) is clicked if a user wishes to download the assessment scores into a spreadsheet.

At the lower part of the screen another download symbol is provided. If someone has been set as a superuser by other users they will be able to download a single spreadsheet of the anonymised scores of all the users.

To start an assessment a user clicks on the first icon and then is taken to the indicator screen (Fig A.3.5).

Figure A.3.5: Self-assessment indicator screen



The indicators are displayed in order, and at the start there are no cells clicked to the right. As a user passes the cursor over the short description of the Likert (Fig A.3.6) a pop-up box is displayed with the Overall Challenge and the Checklist of Actions.

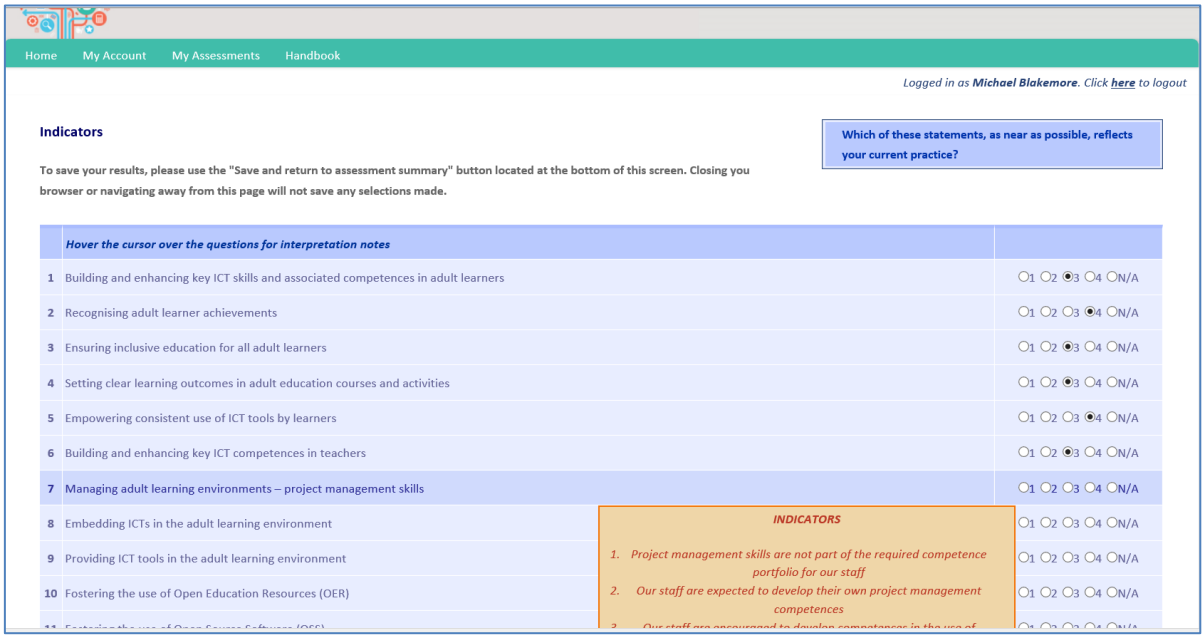
Figure A.3.6: Pop-Up Box when the cursor is over the Likert description

Then, as the cursor is moved over the response are at the right (Fig A.3.7) the Likert statements are displayed. A not-applicable in response 5 allows users to select the questions most relevant for their adult learning activities.

Figure A.3.7: Pop-Up Box when the cursor is over the response boxes

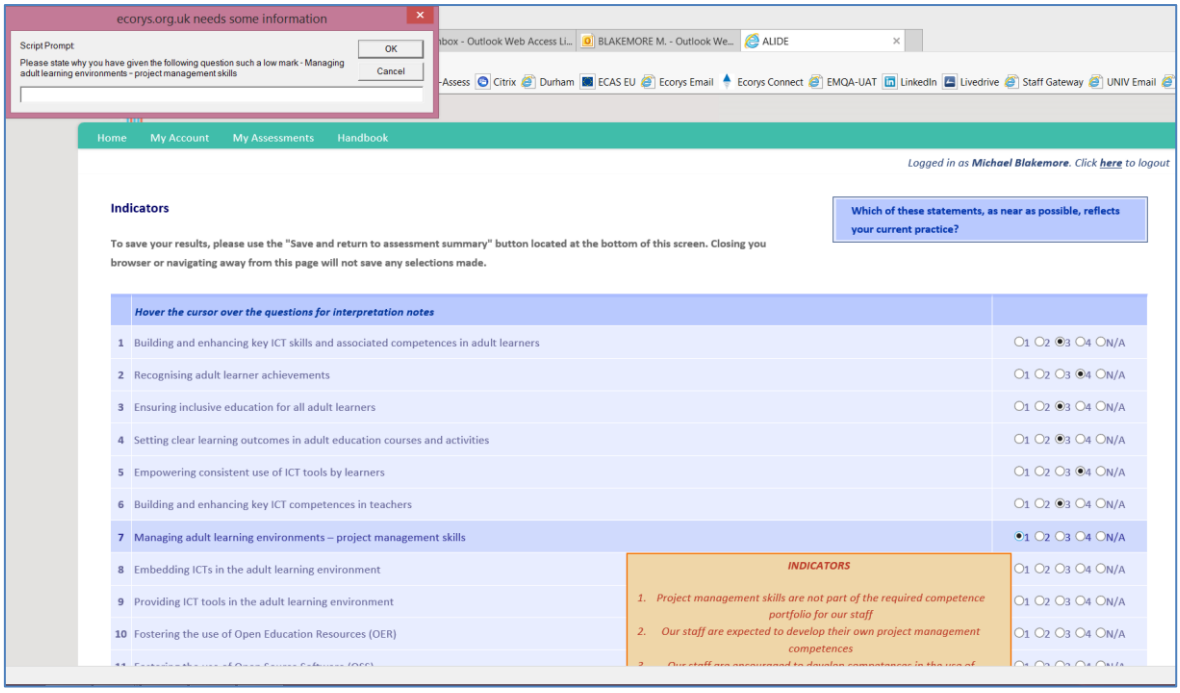
As user move down the list they can click the response (Fig A.3.8) which (as the upper highlighted box states) most relates to their current practice. Importantly, the responses are not 'saved' at this stage, allowing users to re-select a response.

Figure A.3.8: Clicking the response boxes



A response at level 1 represents the weakest of the range of practice, so it is helpful to understand why a user thinks their practice is 'weak'. Any response of 1 will result in a pop-up box (Fig A.3.9) where users can provide comments to explain the score. If they do not wish to comment they simply 'cancel' the box. Comments are stored anonymously within the ALIDE internal database and can be accessed by the system manager software.

Figure A.3.9: Explaining a response of 1



Users are able to provide overall comments about the Likert questions, the contextual material, and the toolkit overall. At the bottom of the question set (Fig A.3.10) a write-in box invites comments. Comments are stored anonymously within the ALIDE internal database and can be accessed by the system manager software.

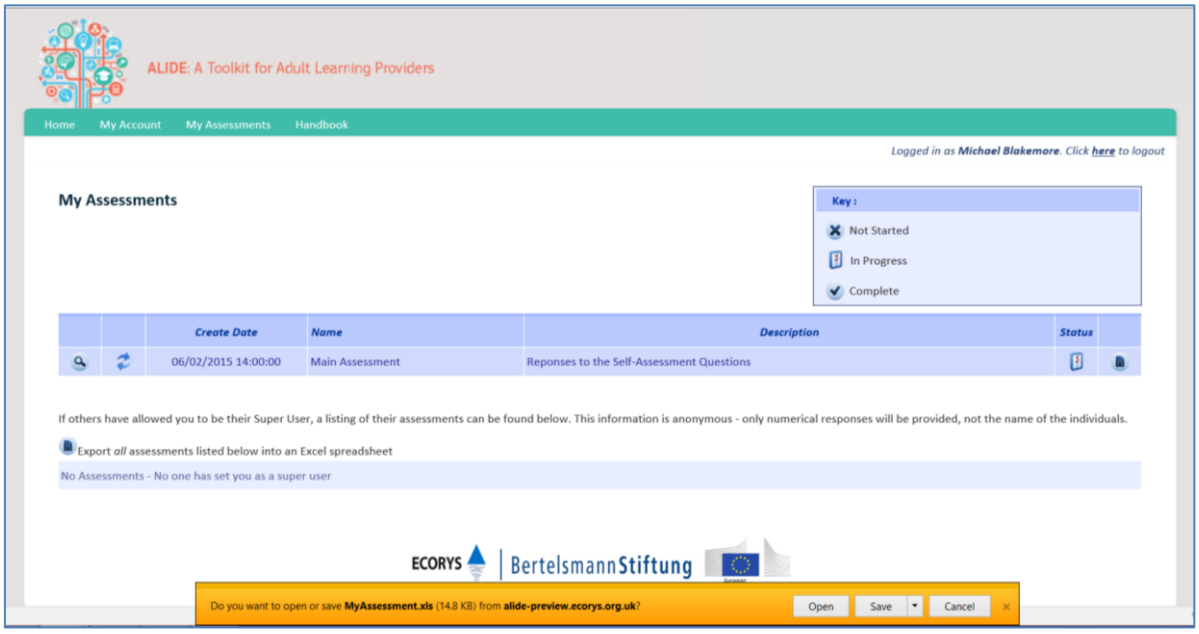
Figure A.3.10: Providing overall comments about the Likerts

The self-assessment responses can be saved at any time (Fig A.3.11) and the responses can be returned to later to continue or complete them.

Figure A.3.11: Saving the responses

Once the assessment is saved a user can move to any menu option. Returning to the main assessment screen there is the possibility to click on the far right icon and to download (Fig A.3.12) the assessment scores into a spreadsheet. For a superuser who has been nominated by others so 'see' their anonymised scores, an option at the lower part of the screen will export a consolidated spreadsheet with all scores.

Figure A.3.12: Exporting Scores



The Handbook of material can be accessed from two locations. First, in the public domain on the landing page (Fig A.3.13), where the material is structured in the same order as the Likert statements, and also when signed in (Fig A.3.14):

Figure A.3.13: Handbook Screen on Landing Page

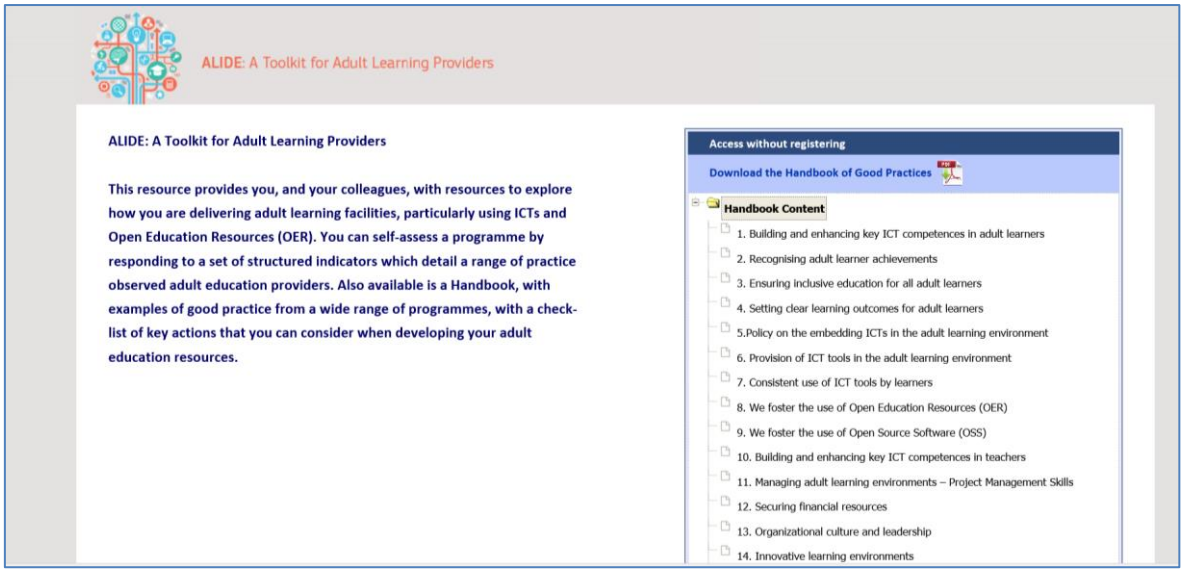
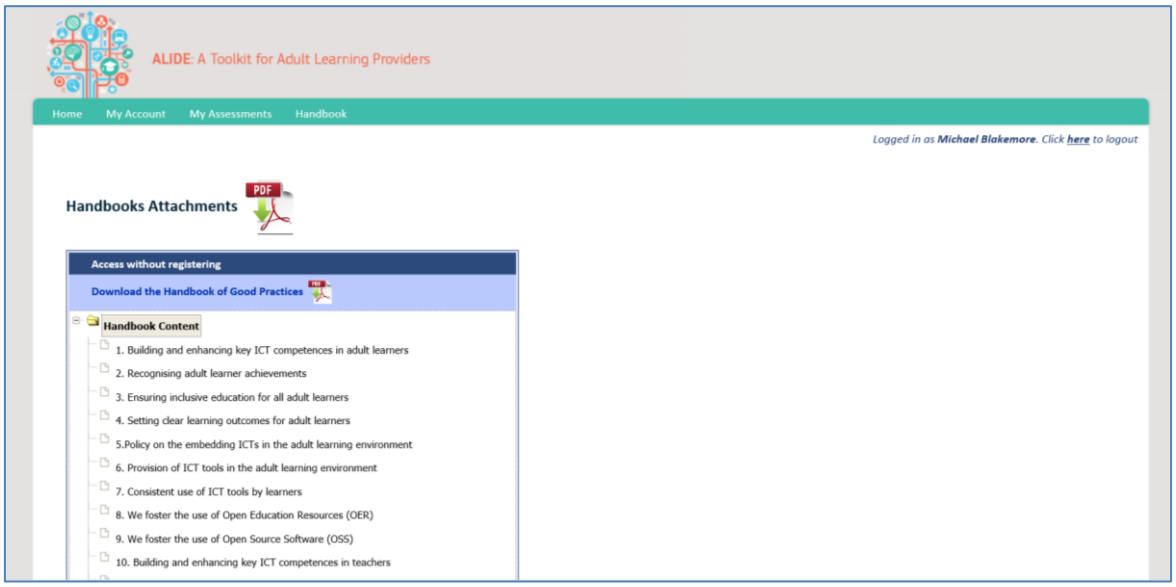
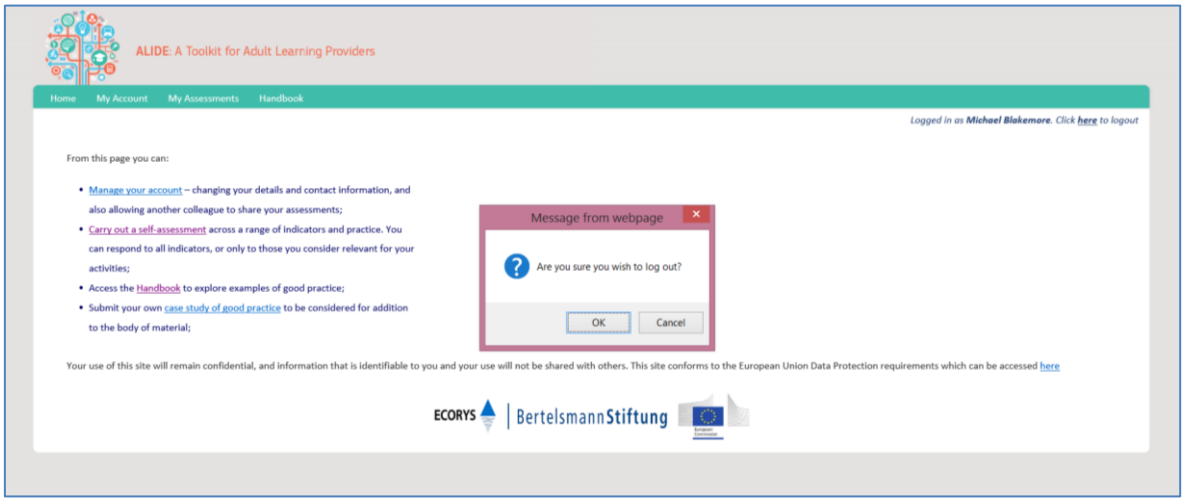


Figure A.3.14: Handbook Screen on Landing Page



Finally, at any time, users can logout from the toolkit (Fig A.3.15)

Figure A.3.15: Logout Screen



Technical Overview

A 'beta test' version of the ALIDE Website was developed to show how the structure above works operationally, and was made available to the European Commission for testing purposes. This section details the technical infrastructure that underpins the ALIDLE Web Site. The Web site contains the online Self-Assessment Tool and the Handbook of good practices.

Once the site is fully developed as part of the EPALE platform a Secure Sockets Layer (SSL) certificate will be installed on the operational public website to encrypt internet traffic being transmitted between the website and users' browsers. To that end, the web site URL will change from http: to https:. Once the SSL certificate has been installed, users browsing to www.xxx.eu will automatically be redirected to https://www.xxx.eu.

Following formal design procedures will ensure that the Web site can be transferred to the EPALE hosting service after the end of the current contract.

The Software Development Tools are Windows Server 2008 R2 Standard Edition, running IIS (Internet Information Services) version 7 provides the hosting environment for the Web Server. A Web server is responsible for accepting HTTP requests from user Web-browsers and responding to them with HTTP responses along with optional data contents, which are usually Web-pages such as HTML documents.

The Web Server also runs and manages Microsoft's version 4.5 of the .NET Framework. The .NET Framework is a software framework that is Microsoft's standard development platform. It allows for programs and Web-sites written in a multitude of programming languages such as C#, VB.NET, SQL, to be executed and run within a single Operating System. In ECORYS UK's case, this would be Microsoft Windows Server 2008 R2.

Before the advent of the .NET Framework, software written in different languages could not be hosted (executed on) on a single Operating System. This previously resulted in a large amount of heterogeneous software being written which could not be integrated with one another. Commercially, the .NET Framework has been behind the success multinational conglomerates such as Dell, Hewlett-Packard and Amazon, who have consolidated and streamlined their business process and turn-around times.

Microsoft Visual Studio 2013 Professional is used to develop the programming logic and structure for the Web pages. ALIDLE code has been written in C# with ASP.NET. This latter of which forms a subset of the Microsoft's .NET Framework. All C# algorithms have been written in an Object-Oriented manner which promotes code-reusability, performance and quick maintenance. The C# code has been written, tested, implemented and maintained by an accredited Microsoft Certified Technology Specialist.

The Web Server is backed up on a daily basis, and has Anti-Virus software installed to continually check against potential infection by viruses.

The ALIDLE database comprises the Likert statements, the user details, the information for the Handbook, and user responses to Likert statements. It is hosted on a server running Windows Server 2008 R2 Standard Edition as its operating system. This server serves as a Web-server, providing the Web-pages to the user whenever ALIDLE is accessed via a Web-browser.

The Database server runs SQL Server 2008 R2 Standard Edition. Within the SQL Server environment, a specific database to hold ALIDLE data has been created.

There is a minimum access policy implemented so that the site conforms to the necessary data protection compliance. This database can only be accessed by the company's Database Administrators (the designated software developers), and access to account data on the ALIDLE site itself beyond the landing page is restricted to individual users of the account, and is protected with a password.

Microsoft SQL Server 2008 R2 Standard Edition provides the database environment within which SQL statements are written to manage the data manipulation of the ALIDLE database (the Likert Statements). Transact SQL statements, encapsulated within Stored Procedures were written to perform DML (Data Manipulation Language) that can extract, modify, commit and delete operations for the data within the ALIDLE database.

All access to the database is via a SQL Server login which has access only to execute these Stored Procedures, mitigating the risk of SQL injection and enhancing database performance. The database has been architected, developed, tested, implemented and maintained by Ecorys UK Head of Systems Development (Reuben Pearse) who is an accredited Microsoft Certified Technology Specialist. The Database server is backed up on a daily basis and has Anti-Virus installed to continually check against potential infection by viruses.

The **Reporting Server** (the production of performance statistics, and the anonymous consolidation of user comments about the Likert Statements) is built using Windows Server 2008 R2 Standard Edition. Reporting outputs are designed and implemented using SQL Server Reporting Services software.

For example, ALIDLE allows users to provide any useful feedback when they select a Likert statement that scores 1, or can provide general feedback about the analytical tool. The resulting information is encapsulated in a SQL Server Reporting Services Report which can only be accessed by relevant ECORYS UK employees, and any onward transmission to the client is done only on an anonymised basis.

Integration with corporate Active Directory provides a transparent, yet fully secure authentication and authorisation methodologies ensuring only relevant individuals can view specific reports. Active Directory is an infrastructure where users' accounts, emails and ICT access (network drives, Websites, and network logons) are administered and managed. When a new member of staff joins ECORYS UK, an

account, which comprises of a username, password and email address are created for them. Their account is then given the appropriate security restrictions which allow them to conduct their job without compromising the security of the ICT infrastructure – for example only certain folders on the main volume are accessible by certain employees, for example Human Resources. If and when the member of staff leaves ECORYS UK, their account is automatically de-activated.

The Reporting server is backed up on a daily basis and has Anti-Virus installed to continually check against potential infection by viruses.

Industry Standard tools are used which also facilitate a daily backup of the software, and have automated administrator alerts in case of any failures. A failure can be if a scheduled job running overnight to back-up the databases fails. Provisions are in place whereby should the former occur, email alerts are sent immediately to the ECORYS UK Database Administrator.

Likewise if the scheduled job to back-up the network drives, where all ECORYS UK staff save their data, an email alert is sent to the ECORYS UK System Administrator.

ECORYS UK's Systems Development practices provide a User Acceptance Testing platform (UAT) and LIVE deployment platform. The strategy being that an application is developed and released for testing and review on UAT. Based upon feedback, feature requests and any identified bugs, a development phase uses the UAT platform, and a site is deployed to LIVE status only when a client had authorised its release. Once the application's stake-holders are satisfied, the application is released and deployed onto the LIVE platform.

Any requested changes made after an application has been Released to Manufacture (RTM) will first be developed, implemented, white-box tested, black-box tested, RTM and deployed to the LIVE platform with client agreement.

User Guides and Technical Documentation are written to client project needs.

Once an application is deployed to a LIVE platform it is ready to be formally documented from a technical perspective. This documentation covers;

- Database architecture diagrams including Entity Relationship Diagrams;
- Application Business Processes;
- The relevance and actions of all database Stored Procedures
- Data access from the user, through the application to the database; and
- Overview and associated descriptions of all web-pages and respective C# algorithms that provide technical functionality of the application.

The website conforms to most WAI (Level 1 and 2) **website accessibility** requirements, and currently the only areas which fail to meet basic accessibility are two low impact form elements.

A Web page form allows a user to enter data on a Web page and the data is then sent to the server for processing. Web-forms resemble paper forms because Internet users fill out the forms using checkboxes, radio buttons, or menus. For example, Web forms can be used to enter shipping or credit card data to order a product or can be used to retrieve data (e.g., searching on a search engine).

In the case of ALIDLE, a Web form encompasses the Likert questions. Whenever a selection is made, the page is then submitted to the Web server, which then parses the data (the selection made for a question, and the user account). This data is then passed to the server running SQL Server 2008 R2 Standard Edition, which validates

the user account credentials and updates the ALIDLE database with the selection they had made. Once this has been completed, the SQL Server notifies the Web server that the transaction is complete. The Web server acknowledges the notification and re-displays the Web-form with refreshed data.

All of the above occurs when a selection is made for any given Likert question – the whole process takes milliseconds to complete and the user then sees the page refresh with the updated information.

The website has been designed to be cross-browser compatible in order to reach all audiences without having restrictions placed on users with regards to the choice of browsers used. Rigorous testing will ensure that the website will operate as intended across the latest versions of Internet Explorer, Mozilla Firefox, Google Chrome and Apple Safari.

Once the application is deployed to our LIVE environment, liaison will take place with the EPALE web-platform team to ensure that the tool is signposted in the resources area on the main EPALE website. Downloads of the handbook (in PDF format) will also be made available via this site.

Likert Statements

The proposed initial set of Likert statements follow, along with the other material that forms the structure for the Handbook. Each Likert indicator is also a Theme for the Handbook.

The Likert Questions go from the weakest response (1) to the strongest response (4). Wherever possible the examples of good practice will detail the strongest response. A response of 4 would normally be accompanied by clearly documented processes/strategy/policy.

Learner Level Indicators

Indicator/Theme 1: Building and enhancing key ICT skills and associated competences in adult learners

1. We expect learners to acquire the necessary competences in literacy, numeracy, languages, ICT-skills and soft skills that will enable them to engage with innovative learning environments.
2. We will direct learners to resources/courses where they can acquire the necessary competences in literacy, numeracy, languages, ICT-skills and soft skills that will enable them to engage with innovative learning environments.
3. We have specific programmes which help learners to acquire the necessary competences in literacy, numeracy, languages, ICT-skills and soft skills that will enable them to engage with innovative learning environments.
4. We check the competences and skills of each of our learners and help them to build, and actively support, an individualised programme in key areas of literacy, numeracy, languages, ICT-skills and soft skills that will enable them to engage with innovative learning environments.

Overall Challenge:

- To ensure that the adult learners are provided with the relevant skills and competences in using ICT effectively in their learning activities

Checklist for Action:

- Have competence testing in place to assess the ICT, and associated literacy and numeracy skills and competences of the learners.
- Help learners to develop a personalised plan to bring their skills and competences up to the level where they can effectively engage with ICT tools.
- Direct learners towards appropriate resources that will provide them with ongoing opportunities to update and upgrade their ICT skills and competences.
- Where learners have specific language needs (second languages) make sure they are given specific advice and support to improve their language competences.

Indicator/Theme 2: Recognising adult learner achievements

1. After completing the learning participants receive a general statement about attending the course, with details such as the course content.
2. After completing the learning participants receive a formal certificate from the institution.
3. After completing the learning participants receive a formal statement/transcript, which may be accompanied by other recognition such as digital badges.
4. After completing the learning participants receive a formal statement/transcript, and a clear statement of how the learning can be validated and recognised.

Overall Challenge:

- To ensure that learning achievements are documented in a transparent and clearly communicated structure, and in a form that enables the learning to be formally validated and recognised against an educational degree.

Checklist for Action:

- Provide learners with a statement of learning, detailing the courses, content, learning outcomes, and achievements.
- Document learning achievements in a transparent way (enabling validation and recognition), for example using digital badges or forms of recognition that will help the learning to be transportable across Europe and beyond.

Indicator/Theme 3: Ensuring inclusive education for all adult learners

1. We do not have specific support to take care of learners with special needs.
2. We provide general support to take care of learners with special needs, on an ad-hoc basis depending on financial resource availability.
3. We have a stated policy for providing support to take care of learners with special needs, addressing learner needs when they arise.
4. We have an explicit policy and strategy for providing support to take care of learners with special needs, and ensure that our learning resources (platforms and pedagogy) are 'accessible for all'.

Overall Challenge:

- To ensure that learning resources are accessible to, and usable by, learners regardless of their special needs.

Checklist for Action:

- Put a clear policy in place for designing learning resources on an 'accessible to all' basis.
- Make sure special learning needs are systematically identified for all learners, and support mechanisms are identified.
- Make sure ICT are specifically suited or adapted to help those learners with special needs.

Indicator/Theme 4: Setting clear learning outcomes in adult education courses and activities

1. We do not define or assess learning outcomes.
2. We define learning outcomes that are targeted for our adult learners but we leave it to the learners to assess individually whether the learning outcomes have been achieved.
3. We define learning outcomes that are targeted for our adult learners and we have mechanisms in place to monitor how learners achieve the outcomes.
4. We systematically identify learning outcomes that are targeted for our adult learners and we have an organisation-wide programme to monitor how learners achieve the outcomes.

Overall Challenge:

- Detailing that the development and provision of learning resources delivers clearly structured learning outcomes.

Checklist for Action:

- Identify learning outcomes for each learning activity.
- Have mechanisms available to check that the adult learners have achieved the targeted learning outcomes.
- Install a review process that, across the programmes of adult learning, assesses the extent to which the learning outcomes have been achieved, and feeds the results back into the review process.

Indicator/Theme 5: Empowering consistent use of ICT tools by learners

1. Learners are expected to make sure they have access to relevant ICT devices to access learning resources 'beyond the classroom'.
2. We do not provide all our learners with ICT devices that enable them to access learning resources 'beyond the classroom'. However, we maximise their ability to access our in-house facilities, and provide them with information about how to access other relevant resources (e.g. libraries, community centres etc.).
3. We have a defined strategy to provide all our learners with (where needed) ICT facilities that enable them to learn 'beyond the classroom' and to be able to engage with the learning resources when they are able to.
4. In addition to a strategy on ICT-facility support we ensure that all of our learning resources are available through the ICT devices of choice by designing the resources to be interoperable across devices.

Overall Challenge:

- To ensure that there is a continuity of access to relevant ICT tools for adult learners.

Checklist for Action:

- Provide learners with information about ICT facilities beyond the provider ICT environment.
- Work with learners to understand their individual needs for ICT access beyond the provider ICT environment.
- Develop an institutional strategy to maximise the availability of ICT for adult learners at any time, any place.

Teacher Level Indicators

Indicator/Theme 6: Building and enhancing key ICT competences in teachers

1. We do not provide, or pay for, specialist training for our teachers to develop relevant ICT skills. It is the responsibility of individual teachers to obtain these skills.
2. We will support teachers on an ad-hoc basis to receive specialist training in the use of ICT in adult education.
3. We have a documented policy which describes a programme of training activities where we will pay for all teachers to develop the necessary ICT competencies that help them to develop innovative learning environments.
4. We have a documented policy which describes a programme resourcing individualised staff training in ICT, which leads to recognised qualifications or digital badges.

Overall Challenge:

- To ensure that all the teachers are fully capable of using the most relevant ICT for their target adults, in their teaching and learning developments.

Checklist for Action:

- Provide ongoing training opportunities for teachers in ICT.
- Recognise and reward teachers for their acquisition of new ICT skills which help them innovate in their teaching activities.
- Maximise the formal recognition of teacher ICT skills.

Indicator/Theme 7: Managing adult learning environments – project management skills

1. Project management skills are not part of the required competence portfolio for our staff.
2. Our staff are expected to develop their own project management competences.
3. Our staff are encouraged to develop competences in the use of standardised project management tools.
4. We actively support (provision, training, institutional support etc.) our educators in the use of the best-suited project management tools.

Overall Challenge:

- To ensure that all teachers can plan, implement, and manage innovative learning environments.

Checklist for Action:

- Provide project management training to all teachers.
- Provide standardised project management tools.

Indicator/Theme 8: Embedding ICT in the adult learning environment

1. It is the responsibility of teachers to identify where ICT can be used in adult education. There is no organisational policy regarding ICT use in adult education.
2. We encourage teachers to explore where they can use ICT in adult education.
3. At the institutional level every teacher is supported in fully supporting the effective use of ICT to deliver adult education.
4. Every teacher is fully supported in embedding ICT into their adult education activities through a clear organisational strategy.

Overall Challenge:

- To develop and implement a coherent strategy for the use of ICT in the adult learning programmes.

Checklist for Action:

- Identify the most suitable ICT for the community of adult learners, consulting also with the learners themselves.
- Ensure that the ICTis well-suited for the learning environment.
- Encourage all the teachers to explore potential ICT for innovative learning developments.
- Gather and synthesise the knowledge from learners and teachers, using it to focus a clearly targeted ICT strategy.

<u>Institutional Level Indicators</u>

Indicator/Theme 9: Providing ICT tools in the adult learning environment

1. It is up to our teachers individually to identify and obtain ICT tools for their adult education activities.
2. We use ICT tools as and when they are available to us.
3. Where possible we will provide the ICT resources, but this is more on a case-by-case basis.
4. We have a documented policy/strategy that is linked to the provision and updating of the necessary ICT resources.

Overall Challenge:

- To ensure that the most suitable ICTs are procured and made available for the adult learning environment.

Checklist for Action:

- Link an ICT strategy to a financial strategy that ensures the most suitable ICT are available.
- Maintain a 'forward look' regarding ICT, to identify proactively what may be potentially suitable ICT for adult learners in the future.
- Encourage teachers and learners to explore how ICT developments can add value to their teaching and learning activities.

Indicator/Theme 10: Fostering the use of Open Education Resources (OER)

1. The use, re-purposing, or development of OER is not an issue for our organization.
2. While the development or re-purposing of OER is not a current priority for our institution, we encourage teachers to develop knowledge and competences about OER and to assess their usefulness in the learning context.
3. We are aware of the potential benefits in the usage of OER for our adult education activities. We are building internal knowledge and capacity relating to OER and are actively seeking out content that can be of relevance to our activities.
4. The use, re-purposing and development of OER is a clear strategic priority and we have a stated organisational policy. Our work is based on an internal commitment (training and resources etc.) of all teachers for the development and usage of OER.

Overall Challenge:

- To ensure that the adult education activities make the maximum use of relevant and re-purposable OER.

Checklist for Action:

- Develop an organisational strategy for the identification, acquisition, and purposing of OER that is relevant for the learning needs of the target adult learners.
- Ensure that all teachers are knowledgeable and competent in the use of OER in their teaching resources.
- Provide training and support for teachers in the identification, acquisition, and use of OER.
- Maximise the public (open commons) availability of the organisation's teaching and learning resources.

Indicator/Theme 11: Fostering the use of Open Source Software (OSS)

1. The use of OSS is not an issue for our organization.
2. While the use of OSS is not a current priority for our institution, we encourage teachers to identify opportunities for the use of OSS.
3. We are aware of the potential benefits in the usage of OSS for our adult education activities. We are building internal knowledge and capacity relating to OSS and are actively seeking out resources that can be of relevance to our activities.

4. The use of OSS is a clear strategic priority and we have a stated organisational policy. Our work is based on an internal commitment (training and resources etc.) of all teachers for the development and usage of OSS.

Overall Challenge:

- To identify, acquire, and implement OSS that will deliver cost-benefits and learner value to the teaching and learning activities.

Checklist for Action:

- Develop an organisational strategy for the identification, acquisition, and purposing of OSS that is relevant for the learning needs of the target adult learners.
- Ensure that all teachers are knowledgeable about the potential for OSS in their teaching resources,
- Provide IT support for teachers in the identification, acquisition, and use of OSS.

Indicator/Theme 12: Providing organizational culture and leadership

1. At the management level there is not an explicit focus on the use of ICT and OER in developing innovative learning environments.
2. At the management level we are aware of the potential in the use of ICT and OER in developing innovative learning environments.
3. At the management level we actively encourage the use of ICT and OER in developing innovative learning environments, and all staff are expected to develop competences in this area.
4. At the management level we actively encourage the use of ICT and OER in developing innovative learning environments, and all staff are expected to develop competences in this area. In addition, we ensure that external experts, universities, relevant institutions, and advisory boards provide support and clear strategic guidance to us.

Overall Challenge:

- To ensure that senior management is fully signed up to the use of ICT and OER in the development of innovative learning resources for adults.

Checklist for Action:

- Provide senior management with opportunities to 'play' the part of adult learners and experience the resources being made available.
- Develop links to wider expertise in the use of ICT and OER in the development

Indicator/Theme 13: Innovative learning environments

1. Our learning approaches are built in an ad-hoc and incremental way, largely driven by resource availability rather than a clear strategy.
2. Our teachers are encouraged to explore the potential for innovative learning in their adult education programmes. Where possible we support them in implementing innovative learning in their activities.
3. We are fully aware of the need to develop innovative learning environments that are suited to our community of learners. We actively seek resources and funding to enable innovative learning developments, and maximise the extent to which this is available in our courses.

4. The development of innovative learning is central to our activities, and we have a strategy which includes linking research into learning trends into our learning strategy, and which is linked to a clear programme of staff training and provision of ICT resources.

Overall Challenge:

- To provide an organisational culture that encourages the development of innovative learning environments across all the adult education resources.

Checklist for Action:

- Encourage teachers at the organisational level to explore the potential for learning innovation.
- Provide targeted access to research, knowledge and information about learning developments using ICT and OER.

Indicator/Theme 14: Assuring quality through learner feedback

1. We do not have any formal mechanisms for learner feedback. Feedback is obtained on an ad-hoc basis and rarely are actions taken to respond to the feedback.
2. Learner feedback is obtained at the end of a course through a standard feedback mechanism (questionnaire, online survey etc.). The feedback is considered by individual teachers and reactions are planned by them.
3. Learner feedback is obtained at the end of a course through a standard feedback mechanism (questionnaire, online survey etc.). The feedback is considered at an organisational level, and a summary of the feedback and the planned actions are provided to the learners.
4. We have an internal culture which focusses strongly at the needs of learners with the help of an integrated evaluation process. This covers course evaluation, an electronic resource for our learners to feedback on a regular basis, and we embed learners in our internal review process.

Overall Challenge:

- To ensure that the adult learner is truly put at the centre of all aspects of the teaching and learning activities.

Checklist for Action:

- Provide an organisation-wide evaluation process where learners (anonymously) evaluate their learning experiences, and the results are processed and fed back into the teaching and learning strategy.
- Develop personal development plans for teachers which focus positively on the development and enhancement of their teaching and learning resources and activities.
- Link to independent external experts who can advise on quality issues.
- Communicate the outcomes of evaluation, and the resulting action plan, openly to the adult learners.

Indicator/Theme 15: Assuring quality through external review

1. We do not have any formal mechanisms for external review.
2. External review is obtained on a course-by-course basis dependent on the decision of individual teachers. The feedback is considered by individual teachers and actions are planned by them.
3. External review is sought at the organisation level on an occasional basis. The feedback is considered at an organisational level with teachers then planning actions arising from the feedback.
4. External review is sought regularly at the organisation level through mechanisms such as a panel comprising independent experts and 'alumni'. The feedback is considered at an organisational level, and a summary of the feedback and the planned actions communicated openly.

Overall Challenge:

- To obtain independent expert advice for the ongoing development of the adult education strategy and activities.

Checklist for Action:

- Develop and implement an organisation-wide process for external review of the adult education courses and resources.
- Learners, alumni, teachers, and external experts participate fully in the course review process.
- The review feedback is considered at the organisation level and a plan of action/development is openly communicated.

Indicator/Theme 16: Sustainability

1. We do not actively consider the long-term sustainability of our adult learning activities, but rather operate on a project by project basis.
2. The future sustainability of our adult learning activities is entirely dependent on a continuation of a core project funding stream, and the core funding determines our target adult learners.
3. We regularly review the future needs of our target adult learners, and will target our efforts to 'follow' funding and project opportunities as they arise.
4. We have an institutional strategy for the sustainability of our adult learning activities. For each element of our adult education programme we clearly define what sustainability 'means', who are the key adult learners we will target, and we then focus our efforts on securing projects and activities that are directly relevant to the needs of our adult learners.

Overall Challenge:

- To ensure that teaching and learning activities and resources develop coherently through being underwritten by a sustainable forward-looking, evidence-based strategy.

Checklist for Action:

- Develop and regularly review a sustainability strategy.
- Understand how the adult learner community will develop in the future.
- Develop a clear development plan for adult education resources targeted at the developing target adult learner community.

- Identify potential funding and resourcing opportunities to underpin the sustainability strategy (see indicator 17)

Indicator/Theme 17: Securing financial resources

1. We are wholly dependent on our core sources of funding, and those resources determine the extent to which we can develop innovative learning environments for our adult learners.
2. We are mainly dependent on our core sources of funding, and those resources largely determine the extent to which we can develop innovative learning environments for our adult learners. However, on a project-by-project basis we will secure additional funding where possible.
3. We encourage all our staff to identify and explore additional funding resources for the development of innovative learning environments. Where possible we will apply for projects and resources that will help them enhance their teaching offers for adult learners.
4. We are fully aware of the need to secure a steady income stream to underwrite the development of innovative learning environments for adult education. At an institutional level we actively identify potential sources of funding, support, partnership, or equipment, to ensure that we develop and maintain innovative learning environments for our adult learners.

Overall Challenge:

- To manage financial resources efficiently and effectively, and to plan strategically for resources that match the needs of the teaching and learning strategy.

Checklist for Action:

- Encourage all teachers to identify potential sources of funding that are well-matched to the development of innovative learning for adults.
- Have a clear institutional policy for the identification of potential funding, and provide support for the teachers in applying for funding opportunities.

Indicator/Theme 18: Marketing and promotion

1. We do not actively promote our adult education activities, relying more on personal recommendation.
2. We promote our adult education activities on an ad-hoc basis, largely to our traditional adult learner community.
3. We aim to promote our adult learning activities to a wide potential audience, using online opportunities when they arise.
4. We have an integrated marketing strategy that promotes our adult education activities coherently online, and through key outlets, so that we engage with the widest possible community of targeted adult learners.

Overall Challenge:

- To ensure that knowledge about the adult education resources and programmes reach the widest possible adult learning audience.

Checklist for Action:

- Produce coherent marketing materials that are targeted clearly at the potential adult learners.
- Use a well-targeted range of digital and conventional channels to disseminate the marketing material.
- Develop a consistent house style and content to ensure that marketing messages are consistent.

Policy Level Indicators

Indicator/Theme 19: Providing a digital strategy

1. We do not have a digital strategy in our country; access to the relevant digital infrastructure is entirely left to individuals and providers of education.
2. We are aware that our country needs a digital strategy to support the digital skills development of individuals, but we do not have the right structures in place to develop a strategy.
3. We are in the process of putting together a digital strategy at a national level, this will be based on creating access to the appropriate digital infrastructure for all adult education providers.
4. We have a digital strategy in place which focuses on ensuring that there are no geographical areas of digital exclusion where broadband access is not suitable for innovative adult learning developments.

Overall Challenge:

- To ensure that the necessary ICT infrastructure (broadband etc.) is made readily available for adult education providers regardless of geography (rural, remote, ethnic, language etc.).

Checklist for Action:

- At the national level develop a Digital Strategy that ensures ubiquitous provision of high-speed broadband access.
- Use the opportunities provided at the European level through the Digital Agenda, Horizon 2020, Erasmus+ etc. to develop multi-country projects that collaborate to build innovative adult learning environments.

Indicator/Theme 20: Supporting innovative technologies in education and training

1. We do not have a digital strategy or policy that focuses on the use of innovative technologies in education.
2. We have a digital strategy but this focuses mostly on broadband access and digital inclusion, the use of innovative technologies in education and training is left to the discretion of providers.
3. We plan to develop specific policies linking to a digital strategy which encourages providers to use innovative technologies in their education and training provision.
4. We have a national education and training policy in our country/region which is linked from our digital strategy, and it explicitly encourages the use of innovative technologies in education and training.

Overall Challenge:

- To build on a national/federal strategy to modernise the education system and to deliver innovative teaching and learning for adults.

Checklist for Action:

- Use peer review and peer learning activities at the European level to maximise knowledge about policies to modernise education and to deliver innovative learning for adults.
- Build knowledge about the national/federal policies and strategies to modernise education and to deliver innovative learning for adults.

Indicator/Theme 21: Raising awareness and motivation for the potential of ICT-enhanced learning

1. We leave it up to individual adults to become aware and motivated to engage with of ICT-enhanced education and training for them.
2. We aim to generally raise awareness and motivation regarding the value of ICT-enhanced adult education through referencing it in policies.
3. We promote coherent messages about the value of ICT-enhanced adult education, focusing messages on key target adult segments to raise their awareness and motivation to learn.
4. We promote coherent messages about the value of ICT-enhanced adult education, focusing messages on key target adult segments to raise their awareness and motivation to learn. We actively engage with them to raise awareness and motivation. We also link funding opportunities to a requirement for beneficiaries to understand how to increase awareness and motivation, and commission research and studies to analyse resulting data.

Overall Challenge:

- To understand clearly what are the most efficient and effective mechanisms to raise awareness and motivation for ICT-enhanced learning in target adult segments.

Checklist for Action:

- Provide clear information and messages to potential adult learners, communicating to them the personal value to be gained through ICT-enhanced education and training.
- Work with key intermediaries for target adult user segments (e.g. migrants, socially excluded, low literacy and numeracy levels etc.) to raise the motivation for ICT-enhanced learning.
- Empower and promote examples of adult learners from the target groups as reference points for potential adult learners.

Indicator/Theme 22: Providing a 'nationwide' information/guidance infrastructure for adult learners and adult educators

1. We encourage adult education providers and other organisations to provide relevant information and resource portals, and to link to each other's portals.
2. We leave it to the EU-level EPALE platform to provide integrated access to relevant information and guidance for our adult learners and educators.
3. We provide a schematic web resource that links to relevant portals across the landscape of adult education providers.
4. We provide an integrated national-level resource portal for adult learners, adult educators, and adult education providers, and link it to relevant material also provided through the EPALE platform. We also actively support and incentivise local network building between providers, companies, ICT-developers and guidance infrastructures.

Overall Challenge:

- To develop an online portal for all target adult learners and providers, covering links to learning resources, OER, intermediaries, organisations, providers, best practices, and to enable learners and providers to connect through social networking etc.

Checklist for Action:

- Provide resources for the creation and maintenance of a coherent online 'one-stop-shop' for adult learners and adult education providers.
- Build in social networking facilities to encourage linkages between learners (co-learning) and providers (peer learning), and each other, to maximise the sharing of experience and knowledge.
- Ensure that national-level resources are effectively linked to the EPALE platform.

Indicator/Theme 23: Providing the conditions to maximise the creation and sharing of OER

1. We leave it to the providers of adult education to decide whether they will make resources openly available.
2. We actively encourage the creation and sharing of OER as a matter of principle, but do not have focused policies regarding OER.
3. We have national-level initiatives to enable OER creation and sharing, for example by promoting Creative Commons Licences and directing providers to resources to help them in the creation of OER.
4. We have national-level initiatives to enable OER creation and sharing, for example by promoting Creative Commons Licences, mandating that funded initiatives and projects must release their resources openly, and developing national-level awards for OER creation and sharing.

Overall Challenge:

- To encourage adult education providers to develop skills in creating learning resources, and to freely share learning resources as OER.

Checklist for Action:

- Develop clear policy recommendations regarding to production and sharing of OER.
- Help adult education providers develop the necessary skills and competences to develop OER.
- Provide the legislative framework, such as Creative Commons licensing and

Indicator/Theme 24: Supporting the development of quality-focused ICT/OER-enhanced adult education activities

1. We leave the responsibility for quality control of learning resources and activities to adult education providers.
2. We support (for example through regulation and funding) the development of national-level standards for the quality assurance of ICT/OER-enhanced adult education activities.
3. We actively partner with all stakeholders to create the conditions (for example policy environment, regulation, funding) for the development and implementation of national-level standards for the quality assurance of ICT/OER-enhanced adult education activities.
4. We actively partner with all stakeholders to create the conditions (for example policy environment, regulation, funding) for the development and implementation of standards for the quality assurance of ICT/OER-enhanced adult education activities that are linked to European-level standards and practice including the validation of learning outcomes against the European Qualifications Framework.

Overall Challenge:

- To develop and sustain a coherent and comprehensive quality culture across ICT/OER-enhanced adult education activities.

Checklist for Action:

- Work with all stakeholders to develop standards for ICT/OER enhanced adult education that effectively link to the expectations of the labour market.
- Engage with, and support, the development and use of European-level quality practices and standards.
- Promote quality, and provide reward mechanisms such as national awards for innovative and quality-led/assured ICT/OER enhanced adult education.

Annex Four: Country Comparative Analysis Table

COUNTRY	*POLICY*			IMPLEMENTATION OF ICT		
	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
Brazil	**Name of Policy:** • Law 9,394 LDB-Lei de Diretrizes e Bases da Educação (Guidelines and Basis of Education) • National Plan for Education outlines goals and strategies for 2011-2020 **Focus of Policies:** • Policies targeted on AE in the context of LLL exist and include use of ICT • Focus of policies is to provide AE for all through expansion of AE system esp. distance learning • Funding of innovations in AE • Improve quality and cost-efficiency of AE • Key objectives: Reducing illiteracy, provide basic education **Outstanding characteristics:** • Adults have a legal right for basic education	**Name of Policy:** • Government's digital inclusion agenda **Focus of Policies:** • Support social and economic development by increasing digital skills of citizens	**Key Actors:** • Ministry of Education coordinates programs concerning (ICT-enhanced) AE and distance learning • Brazilian Internet Steering Committee (CGI.br), an internet governance model comprising several stakeholders coordinates all digital initiatives in Brazil • Several universities run programmes and develop innovative forms of ICT-enhanced learning • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs **Type of coordination of AE:** • Combination of bottom up (Ministry + CGI.br) and sectoral top-down coordination of (ICT-enhanced) AE	**Key target groups:** • Illiterate adults (= key challenge for the Brazilian government) • Adults lacking basic skills • Unemployed and lowly qualified adults (National Programme for Access to Professional Education and Jobs) **Role of ICT in targeting these groups:** ICT-enhanced AE is frequently used to address key target groups	**Learner Level:** • Lack of ICT skills among large groups of citizens • Costs associated with participation in (ICT-enhanced) AE **Educator Level:** • Lack of ICT-pedagogy skills of educators • Educator's resistance to use ICT-enhanced AE (traditional mind-sets) **Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • High costs for acquisition and upkeep of ICT	**Approach: Coordinate existing initiatives on ICT-enhanced AE through a joint committee** • Brazilian Internet Steering Committee (CGI.br) • Based on inter-ministerial Ordinance 147 of 31st of May 1995 • Comprises members from Government, Industry, Third sector, and Academia • Coordinates and integrates all digital initiatives in Brazil • Fosters innovation and offers services to education providers • Acts as quality control organ for ICT-enhanced AE • Contributed to significant advances in the use of ICT across Brazil

COUNTRY	*POLICY*			IMPLEMENTATION OF ICT		
	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
			Outstanding characteristics: • Central committee for coordination			
Czech Republic	**Name of Policy:** • Government's LLL Strategy 2009-2012 **Focus of Policies:** • Policies targeted on AE in the context of LLL exist and include use of ICT • Plans to develop a policy/strategy on ICT in AE • Expanding access to AE for all through ICT • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons) • Key objectives: Reducing illiteracy **Outstanding characteristics:** • Focus on Recognition of Prior Learning	**Name of Policy:** • Government's strategy on digital inclusion **Focus of Policies:** • Development of ICT infrastructure • Support social and economic development by increasing digital skills of citizens • Focus on reducing the digital divide	**Key Actors:** • Government issued strategies on LLL and digital inclusion • Ministry of Education and Ministry of Labour and Social affairs are responsible for AE. Governmental agencies coordinate actions. Only Ministry of Education is concerned with ICT-enhanced AE • Several universities run programmes and develop innovative forms of ICT-enhanced learning • Several NGOs are active in the field of ICT-enhanced learning (But focus on schools and Higher Education) • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs	**Key target groups:** • Illiterate adults, also development of digital literacy • Unemployed and lowly qualified adults • Socially disadvantaged adults **Role of ICT in targeting these groups:** • ICT-enhanced AE is occasionally used to address key target groups	**Learner Level:** • Low interest and participation in AE in general • Lack of awareness of availability and benefits of (ICT-enhanced) AE • Costs for participation in (ICT-enhanced) AE **Educator Level:** • Lack of ICT-pedagogy skills of educators • Educator's resistance to use ICT-enhanced AE (traditional mind-sets) **Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • Limited availability of suitable ICT-	**Approach: Set the base for ICT-enhanced AE through a national strategy that fosters digital literacy** • Strategy for Lifelong Learning including recognition of prior learning • Based on government resolution No. 761 on 11 July 2007 • Outlines three main strategic goals: • Recognition of prior non-formal and informal learning and development of a National Qualifications Framework • Equal opportunity to eliminate barriers in the labour market, especially for unemployed people • Development of literacy skills of adults, particularly in relation to their ability to use ICT

COUNTRY	*POLICY*			IMPLEMENTATION OF ICT		
	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
			Type of coordination of AE: • Combination of bottom up and strong top-down coordination of AE **Outstanding characteristics:** • No central agency for coordination • Combination of top-down and bottom up approach on ICT-enhanced AE		enhanced learning material for adults	
Estonia	**Name of Policy:** • Estonian Life-long Learning Strategy 2014-2020 • Development Plan for Estonian Adult Education 2009-2013 **Focus of Policies:** • Policies targeted on AE exist and include ICT • Expand ICT-enhanced learning across all educational branches and all age groups • Focus of policies is to provide AE for all through expansion of AE system esp.	**Name of Policy:** • Development Plan of the Information Society 2020 **Focus of Policies:** • Development of ICT infrastructure • Development of learning materials (OER) • Improve quality and cost-efficiency of AE • Support social and economic development by increasing digital skills of citizens ("competitivenes	**Key Actors:** • Ministry of Education, Ministry of Social Affairs and Ministry of Social Affairs coordinate the AE. Only Ministry of Education is concerned with ICT-enhanced AE • Association of Estonian Adult Educators (AEAE) and Estonian Non-Formal Adult Education Association (ENAEA) act as umbrella organizations to coordinate AE programs • Estonian e-University consortium and Estonian e-VET consortium disseminate ICT-enhanced learning • Innovation Centre for Digital Education has	**Key target groups:** • All age groups (Target: increase participation in AE) • Unemployed and lowly qualified adults **Role of ICT in targeting these groups:** • ICT-enhanced AE is occasionally used to address key target groups	**Learner Level:** • Low interest and participation in AE in general ("learning is for the young") • Lack of ICT skills among large groups of citizens • Costs associated with participation in (ICT-enhanced) AE **Educator Level:** Lack of ICT-pedagogy skills of educators	**Approach: Promote ICT-enhanced AE through a national strategy that integrates digital culture in education Estonian Life-long Learning Strategy 2014-2020** • Adopted by the Estonian Government in February 2014 • Most fundamental policy document in the field of education and adult learning • Strategic goals are: ▪ Integration of digital culture in the learning process at all educational levels • Ensuring the availability of digital learning material such as open course

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	distance learning Focus of policies is to ensure employability through access to AE **Outstanding characteristics:** • Focus on production of learning materials (OER)	s)	coordinates and develops ICT-based learning for higher and vocational education • Several universities run programmes and develop innovative forms of ICT-enhanced learning • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers, sometimes in cooperation with NGOs **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, strong role of cooperation between ministries and consortia/associations to organize large scale AE programs • **Outstanding characteristics:** • Central agencies for coordination • Combination of top-down and bottom up approach on ICT-enhanced AE		**Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • Limited availability of suitable ICT-enhanced learning material for adults	materials **Approach: Promote ICT-enhanced AE through an innovation and service centre** Estonian Innovation Centre for Digital Education • Operates under the umbrella of the Information Technology Foundation for Education • Initiates and coordinates activities in the field of ICT-supported learning in higher and vocational education • Focuses on building and sustaining networks and providing technical solutions and support for providers • Offers staff-training on e-learning methodologies, technologies and design • Developed a framework for quality assurance in e-learning, including guidelines for course designers and a recognition process for acknowledging good practice

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
France	**Name of Policy:** • Law on Professional Life Long Learning and Social Dialogue • Law on the orientation and LLL professional development • Law of professional development, employment and social democracy **Focus of Policies:** • Policies targeted on AE exist, but do not include ICT • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons) • Key objectives: Reducing illiteracy, providing basic education **Outstanding characteristics:** • Focus on social equity and upward mobility	**Name of Policy:** • None identified through country research • **Focus of Policies:** • None identified through country research •	**Key Actors:** • Ministry of Work and the Ministry of National Education coordinate professional AE. Both do not focus on ICT-enhanced AE • Inter-ministerial dialogue on the development of Life Long Learning is as of now not concerned with ICT-enhanced AE • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, dialogue between ministries regarding LLL **Outstanding characteristics:** • No central agency for coordination • Bottom up approach on ICT-enhanced AE	**Key target groups:** • All age groups (Target: increase employability and competitiveness) • Illiterate adults (National plan of fight illiteracy launched in 2014) • Unemployed and lowly qualified adults **Role of ICT in targeting these groups:** • ICT-enhanced AE is occasionally used to address key target groups	**Learner Level:** • Lack of ICT skills among some groups of citizens (especially the disadvantaged) • Preference for traditional face-to-face forms of learning • Lack of validation for ICT-enhanced learning **Educator Level:** • Lack of ICT-pedagogy skills of educators **Policy + Institution Level:** • Limited availability of suitable ICT-enhanced learning material for adults	**Approach: Promote the use of ICT-enhanced AE through market-transparency for learners** • Portal www.formasup.fr • Created by the Ministry of Higher Education and Research in 1999 • Enables students and adults to search for Open Distance Learning courses in Higher Education • Courses are searchable by type of diploma, fields, localisation and type of provider • Similar project exists from the MIPP+ Association which promotes the use of ICT within professional development for low qualified persons and has developed a database of software and products to facilitate the integration of this target group into professional training

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
Germany	**Name of Policy:** • Federal level: SGB III (German Social Code), but also others like the Distance Learning Act (Fernunterrichtsgesetz • State level: Various state laws on adult education • Specific areas of AE are also regulated by a variety of other laws **Focus of Policies:** • Policies targeted on AE exist, but usually do not include ICT • Focus of policies is to provide AE for all through funding of AE system • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons) • Key objectives: Reducing illiteracy	**Name of Policy:** • German Digital Agenda **Focus of Policies:** • Development of ICT infrastructure • Support social and economic development by increasing digital skills of citizens	**Key Actors:** • Ministry of Education (BMBF) and Federal Labour Agency coordinate federal AE programs (both including ICT) • BMBF funding programme "digital media in professional education" sparks innovation in ICT-enhanced VET and AE • State and Regions regulate and provide funds • Several universities run programmes develop innovative forms of ICT-enhanced learning • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, strong differentiation between AE on a state level (focus: general AE) and AE on a federal level (focus: employability)	**Key target groups:** • All age groups (Target:increase participation in AE) • Illiterate adults • Unemployed and lowly qualified adults **Role of ICT in targeting these groups:** • ICT-enhanced AE is occasionally used to address key target groups	**Learner Level:** • Lack of ICT skills among some groups of citizens (especially the disadvantaged) • Previous negative experience with (adult) education **Educator Level:** • Lack of ICT-pedagogy skills of educators (due to high costs of train-the trainer offerings) • Lack of possibilities for peer-to-peer exchange of AE educators **Policy + Institution Level:** • Limited overall funding for (ICT-enhanced) AE • Limited availability of suitable ICT-enhanced learning material for adults	**Approach: Promote innovation in ICT-enhanced AE through funding programs** • Funding program "Digital media in professional education" • Organized by the Ministry of Education • Program runs since 2010, each round focuses on a specific area of ICT • Funds projects that advance the use of ICT in professional education • Funds research on and the development of new learning technologies through joint ventures between companies and universities, also provides support for the implementation of ICT-enhanced AE within SMEs

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	Outstanding characteristics: • Focus on employability mainly through federal laws on AE, whereas state laws centre on the provision of AE for all adults		**Outstanding characteristics** • No central agency for coordination • Bottom up approach on ICT-enhanced AE, assisted by funding programme			
Greece	**Name of Policy:** • National Action Plan for LLL Law Nr. 3879/2010 as basis for a national strategy on LLL **Focus of Policies:** • Policies targeted on AE in the context of LLL exist and include use of ICT • Focus of policies is to provide AE for all through restructuring of AE system • Key objectives: Reducing illiteracy, provide basic and second chance education	**Name of Policy:** • None identified through country research **Focus of Policies:** • None identified through country research	**Key Actors:** • Ministry of Education is responsible for the LLL strategy and organizes funds, but does not focus on ICT-enhanced AE • National Organisation for the Certification of Qualifications implements system for the accreditation of prior learning, but with no focus on ICT • Several universities run programmes develop innovative forms of ICT-enhanced learning (strong focus on Open Courses and OER) • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or	**Key target groups:** • Illiterate adults • Adults lacking basic skills (Priority is completion of compulsory education for early school leavers) • Unemployed and lowly qualified adults • Immigrants **Role of ICT in targeting these groups:** • ICT-enhanced AE is occasionally used to address key target groups	**Learner Level:** • Lack of ICT skills among large groups of citizens • Costs associated with participation in (ICT-enhanced) AE • Lack of validation for ICT-enhanced learning **Educator Level:** • Lack of ICT-pedagogy skills of educators Lack of possibilities for peer-to-peer exchange of AE educators	**Approach: Strengthen universities as trailblazers for ICT-enhanced AE** Open Courseware Portals of Kapodistrian University of Athens and Aristotle University of Thessaloniki • Open Courseware Portals launched in 2012 and 2013 • Contributes to professionalization of university teaching staff • Digital material includes a large number of courses that are openly accessible • Digital content is built on a pedagogically sound e-learning approach that takes copyright issues into account • Material can be used for AE, but universities do not provide validation for learning outcomes

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	Outstanding characteristics: • Reforms of AE system are planned, but have been delayed by financial problems		workforce needs **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, aim is to restructure AE services, problematic coordination between state agencies and lack of funding **Outstanding characteristics:** • No central agency for coordination • Bottom up approach on ICT-enhanced learning, mainly driven by universities • No focus on ICT-enhanced AE, but rather on schools and higher education		**Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • High costs for acquisition and upkeep of ICT • Limited availability of suitable ICT-enhanced learning material for adults (esp. language)	• Approach makes sense when there is general low participation and interest in AE
Hungary	**Name of Policy:** • Act on Adult Training • Act on Vocational Education • National Social Inclusion Strategy – Extreme Poverty, Child Poverty, the Roma	**Name of Policy:** • Several national documents that emphasise the development of digital competences. For example, the National Info-communication	**Key Actors:** • Ministry of Education, Ministry of Human Resources and Ministry for National Economy all coordinate AE programs. Only Ministry of Education focuses on ICT-enhanced AE • Ministry of Education's Türr István Institute	**Key target groups:** • Unemployed and lowly qualified adults **Role of ICT in targeting these groups:** • Illiterate adults • Adults with no ICT skills • Unemployed people	**Learner Level:** • Low interest and participation in AE in general • Lack of ICT skills among large groups of citizens • Lack of awareness of availability and benefits of (ICT-enhanced) AE	

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	Focus of Policies: • Policies targeted on AE exist, but do not include ICT • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons) **Outstanding characteristics:** • Reform of vocational education system are planned	Strategy 2014-2020 **Focus of Policies:** • Support social and economic development by increasing digital skills of citizens	provides ICT-enhanced adult training for disadvantaged groups • Directorate for VET and Adult Education of the National Labour Office implement policies relating to AE, without focus on ICT • Several universities run programmes develop innovative forms of ICT-enhanced learning • Several NGOs are active in the field of ICT-enhanced learning (focus on schools and Higher Education) • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE		**Educator Level:** • Lack of ICT-pedagogy skills of educators **Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • Limited availability of suitable ICT-enhanced learning material for adults	

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
			Outstanding characteristics: • No central agency for coordination • Bottom up approach on ICT-enhanced learning, mainly driven by universities • No focus on ICT-enhanced AE, but rather on schools and higher education			
Netherlands	**Name of Policy:** • Adult and Vocational Education Act • Secondary Education Act • Specific areas of AE are also regulated by a variety of other laws • Action Plan to combat low literacy **Focus of Policies:** • Policies targeted on AE exist and include use of ICT • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified	**Name of Policy:** • None identified through country research **Focus of Policies:** • None identified through country research	**Key Actors:** • The Ministry of Education coordinates legislative and financial framework of state-regulated AE, with some focus on ICT-enhanced learning • Several universities run programmes develop innovative forms of ICT-enhanced learning • Several NGOs are active in the field of ICT-enhanced learning, e.g. The Reading and Writing Foundation, ETV.nl • Municipalities are responsible for AE from 2015 onwards, there will be no central coordination of AE and AE can be tailored to local needs • Implementation of ICT-	**Key target groups:** • Illiterate adults (Action Plan to combat low literacy) • Adults lacking basic skills • Unemployed and lowly qualified adults • Socially disadvantaged adults • Immigrants **Role of ICT in targeting these groups:** • ICT-enhanced AE is occasionally used to address key target groups	**Learner Level:** • Lack of ICT skills among some groups of citizens (especially the disadvantaged) • Lack of awareness of availability and quality of (ICT-enhanced) AE ("transparency") **Educator Level:** • Lack of ICT-pedagogy skills of educators • Educator's resistance to use ICT-enhanced AE (traditional mind-sets especially of older staff)	**Approach: Promote ICT-enhanced AE through funding programs and cooperation with NGO's** • Dutch "Action Plan to combat low literacy" • Funding has been allocated in the years 2012-2015 • Action Plan recognises the importance of digital learning for addressing people with low levels of education • Several NGO's are involved in implementing the Action Plan, such as Foundation ETV.nl • ETV.nl develops educational content for people with low levels of education. It can be used individually or by AE providers and is provided via www.oefenen.nl.

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	persons) • Expanding access to AE for disadvantaged groups through ICT • Key objectives: Reducing illiteracy, provide basic and second chance education **Outstanding characteristics:** - Focus on production of learning materials (OER)		enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, strong tendency towards decentralization **Outstanding characteristics:** • No central agency for coordination • Top down and bottom up approach on ICT-enhanced learning • Some coordination through platforms that enable exchange of practice and materials or issue studies, eg. SURF Foundation and Wikiwijs		**Policy + Institution Level:** • Limited access to networks and devices, mainly for disadvantaged groups • Limited availability of suitable ICT-enhanced learning material for adults	• The recent evaluation of oefenen.nl showed that in 2012 in total 1.4 million persons had an account. In 2012, 127,000 registered • Of this total, 25% completed at least one module/chapter; and 4% completed an entire programme

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
Norway	**Name of Policy:** • National Education Act • White Paper No. 42 (1997-98) to the Storting, The Competence Reform • **Focus of Policies:** • Policies targeted on AE in the context of LLL exist and include use of ICT • Addressing almost all barriers concerning the use of ICT in education - from low digital literacy of learners to improving the digital skills of educators • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons • Expanding access to AE for disadvantaged groups through ICT	**Name of Policy:** • White Paper published in April 2012 calls for digitization of society **Focus of Policies:** • Support social and economic development by increasing digital skills of citizens Encouraging active digital citizenship will become a key principle in national policies	**Key Actors:** • Ministry of Education has the regulatory responsibility for all levels of formal education, including ICT-enhanced AE • Norwegian Agency for LLL (VOX) implements specific programs and cooperates with stakeholders, including ICT-enhanced AE • Ministry of Education is responsible for the legislative and financial framework of state-regulated AE, and is involved in the production of digital learning materials • Networks issue reports on ICT-enhanced AE, eg. Nordic Network for Adult Learning and Nordic OER Movement • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs	**Key target groups:** • Adults lacking basic skills • Unemployed and lowly qualified adults • Immigrants (Introduction Act grants those who have collective protection a two-year introductory programme including Norwegian language training) **Role of ICT in targeting these groups:** • ICT-enhanced AE is frequently used to address key target groups	**Learner Level:** Lack of ICT skills among some groups of citizens (especially the disadvantaged) • **Educator Level:** - Lack of ICT-pedagogy skills of educators (due to high costs of train-the trainer offerings) - Educator's resistance to use ICT-enhanced AE (traditional mind-sets esp. of older staff) **Policy + Institution Level:** • Limited access to networks and devices, mainly for disadvantaged groups • Limited availability of suitable ICT-enhanced learning material for adults	**Approach: Coordinate initiatives on ICT-enhanced AE through a national agency** Norwegian Agency for Lifelong Learning (VOX) • Responsible for several national programmes on ICT-enhanced AE • Develops new pedagogical approaches and digital tools for AE • Publishes reports and fact sheets on different topics concerning ICT in education • Provides professional development of teachers through workshops on ICT and communities of practice • Maintains web-based portals aimed at adult learners like Utdanning.no (internet portal for information about the entire education sector in Norway) and Delogbruk.no (initiative which stimulates educators at all levels to share learning resources and experiences)

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	Outstanding characteristics: • LLL is a key principle in education policy, use of ICT is integrated • Adults have a legal right for basic education • Several web portals promote the implementation of government policy regarding the use of ICT in education		**Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, strong role of cooperation between ministries and consortia/associations to organize large scale AE programs, online portals promote AE policy **Outstanding characteristics:** • Central agency for coordination • Top down and bottom up approach on ICT-enhanced learning • Some coordination through web portals that promote the implementation of policies regarding ICT-enhanced education, e.g. Utdanning.no (information about the education sector in Norway; Delogbruk.no stimulates educators to share learning resources and experiences (ca 10.000 users))			

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
Poland	**Name of Policy:** • No single Act or Regulation that addresses adult learning, but AE is referenced in: Constitution of the Republic of Poland and Regulation of the Minister of the National Education (January 2012) **Focus of Policies:** • Policies targeted on AE in the context of LLL exist • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons) • Expand ICT-enhanced learning across all educational branches and all age groups **Outstanding characteristics:** • Adults have a right to access public	**Name of Policy:** • Nat. Broadband Programme; • Integrated Programme of Nat. Digitalisation; Programme Solidarity between Generations • Several other policies tackle the issue of ICT-enhanced adult learning e.g. "Human Capital Development Strategy," "Broad Agreement for the Development of Digital Skills" and others **Focus of Policies:** • Development of ICT infrastructure • Support social and economic development by increasing digital skills of citizens	**Key Actors:** • Various Ministries are responsible for AE, cf. Ministry of National Education, the Ministry of Science and Higher Education, most of them do not focus on ICT-enhanced AE • Agencies such as the National Centre Supporting Vocational Training and LLL coordinate programms • Several universities run programmes develop innovative forms of ICT-enhanced learning • Implementation of ICT-enhanced AE is also driven by public ("Local Continuing Education Centres" and "Urban Practical Training Centres") as well as private providers and employers that correspond to market or workforce needs	**Key target groups:** • Adults lacking basic skills and early school leavers • Unemployed and lowly qualified adults **Role of ICT in targeting these groups:** • ICT-enhanced AE is rarely used to address key target groups	**Learner Level:** • Low interest and participation in AE in general • Lack of ICT skills among some groups of citizens (especially the disadvantaged) • Lack of awareness of availability and benefits of (ICT-enhanced) AE **Educator Level:** • Lack of ICT pedagogy skills of educated • Educator's resistance to use ICT-enhanced AE (traditional mind-sets esp. of older staff) • Lack of possibilities for peer-to-peer exchange of information across AE educators	**Approach: Promote the development of ICT-enhanced AE through ESF Funding** • Warsaw School of Computing project "Efektywni 50+" • Co-financed by the European Social Fund • Implemented by Warsaw Higher School of Informatics and its partners • Objective was to support the education of adults in the 50+ age group • EU financial support allowed to facilitate greater use of ICT for specific target groups

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	education institutions for free • Development of learning materials (OER)		**Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, various ministries are involved, a taskforce has been established to enhance coordination • **Outstanding characteristics:** • No central agency for coordination • Top down and bottom up approach on ICT-enhanced learning • Important role of EU-funding programmes		**Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • Limited availability of suitable ICT-enhanced learning material for adults (esp. language)	
Portugal	**Name of Policy:** • Technological Plan for Education **Focus of Policies:** • Policies targeted on AE in the context of LLL exist and include ICT • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons)	**Name of Policy:** • None identified through country research **Focus of Policies:** • None identified through country research	**Key Actors:** • Ministry for Education, Ministry of Economy and various other ministries are responsible for AE. Only Ministry of Education and Ministry of Economy have a focus on ICT-enhanced AE • National Agency for Qualification and VET coordinates AE and has some focus on ICT-enhanced AE (joint supervision of the Ministry of Solidarity, the Ministry for Education	**Key target groups:** • Illiterate adults • Adults lacking basic skills • Unemployed and lowly qualified adults • Socially disadvantaged adults • Immigrants and minorities **Role of ICT in targeting these groups:** - ICT-enhanced AE is occasionally used to address key target	**Learner Level:** • Lack of ICT skills among large groups of citizens • Costs associated with participation in (ICT-enhanced) AE • Lack of awareness of availability and benefits of (ICT-enhanced) AE **Educator Level:** • Lack of ICT-pedagogy skills of educators • Educator's	**Approach: Introduce accreditation of training institutions to boost educators skills for ICT-enhanced AE** • Accreditation of training institutions and trainers who apply for public funds • Under the responsibility of the Directorate General of Employment and Work Relation • Only certificated providers can apply for public funds and operate within the National Qualifications System

COUNTRY	*POLICY*			IMPLEMENTATION OF ICT		
	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	• Key objectives: Provide basic and second chance education, reduce school drop-out **Outstanding characteristics:** • Focus on Recognition of Prior Learning		and the Ministry of Economy) • Directorate General of Employment and Work Relations accredits training institutions. Only certificated providers can apply for public funds and operate within the National Qualifications System. Digital skills of Educators are an indicator in the accreditation process • Several universities run programmes develop innovative forms of ICT-enhanced learning, esp. the Catholic University and the Institute for Distance Learning/eLearning Lab • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs	groups	resistance to use ICT-enhanced AE (traditional mind-sets) **Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • High costs for acquisition and upkeep of ICT • Limited availability of suitable ICT-enhanced learning material for adults	• Accreditation of trainers is mandatory and the training for trainers includes the development of skills in ICT • Accreditation system recognises the technical and pedagogical ability of the entity to perform training and is granted for areas of education and training

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
			Type of coordination of AE: • Combination of bottom up and top-down coordination of AE, various ministries are involved in AE **Outstanding characteristics:** • No central agency for coordination • Top down and bottom up approach on ICT-enhanced learning • Important role of EU-funding programmes			
Spain	**Name of Policy:** • Organic Act on Education, LOMCE • National Action Plan for LLL **Focus of Policies:** • Policies targeted on AE in the context of LLL exist and include ICT • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons)	**Name of Policy:** • National Reform Programme **Focus of Policies:** • Development of ICT infrastructure and strengthening the use of ICT in Spain	**Key Actors:** • Ministry of Education and Departments for Education of the Autonomous Communities regulate AE within their areas, some focus on ICT-enhanced AE • Ministry of Employment and Social Security regulates training provision of the employment authorities. No focus on ICT • Local authorities regulate AE provision of their territory, manage staff, develop curricula and are	**Key target groups:** • Illiterate adults • Adults lacking basic skills and early school leavers • Unemployed and lowly qualified adults • Socially disadvantaged adults • Immigrants **Role of ICT in targeting these groups:** • ICT-enhanced AE is occasionally used to address key target groups	**Learner Level:** • Lack of ICT skills among some groups of citizens (especially the disadvantaged) **Educator Level:** • Lack of ICT-pedagogy skills of educators • Lack of suitable methodologies and concepts for ICT-enhanced AE • Lack of possibilities for peer-to-peer exchange of information across	**Approach: Provide access to ICT-enhanced AE through a national agency** **Centre for Innovation and Development of Distance Education (CIDEAD)** • Under the responsibility of the Spanish Ministry of Education • Coordinates and organises the elements and processes of distance education for adults • Covers various programmes and qualifications (from primary to upper

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	• Focus of policies is to provide AE for all through expansion of AE system esp. distance learning • Key objectives: Provide basic and second chance education, reduce school drop-out **Outstanding characteristics:** • Focus on bridging the gap between school education and vocational training • Focus on recognition of prior learning		in charge of distance education • Local authorities, business organisations, trade unions and accredited training institutions may collaborate and participate in the implementation of programs linked to training for employment • Ministry of Education's Centre for Innovation and Development of Distance Education (CIDEAD) regulates distance learning for adults • National Institute of Educational Technologies and Teacher Education (INTEF) promotes MOOCS and OER **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, tendency towards decentralization		AE educators **Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • High costs for acquisition and upkeep of ICT • Limited availability of suitable ICT-enhanced learning material for adults	secondary levels) • Facilitates access to education for adults who, because of personal, social, geographical situations are unable to continue learning in the education system • Current projects are "Aula mentor" (skill development for adults) **Approach: Provide access to OER for AE through a central database for providers and public audience** Region of Andalusia's MOGEA Database of Andalusian OER materials • Under the responsibility of the regional Ministries of Education • Integrated in a network of AE centres, with the objective to provide them with access to resources and to enable exchange • Repository is accessible to the entire Andalusian educational community and the general public - Teachers can get access to "virtual classes" (reserved for teachers), where resources are

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
			Outstanding characteristics: • No central agency for coordination, yet sometimes locally coordinated programmes • Top down and bottom up approach on ICT-enhanced learning			structured by subject programme, select the resources that they want and upload other resources that they intend to use
Sweden	**Name of Policy:** • 2010 Education Act • 2011 Regulation on Adult Education **Focus of Policies:** • Policies targeted on AE exist and include use of ICT • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons) • Improve quality and cost-efficiency of AE **Outstanding characteristics:** • LLL is a key principle in education policy in which use of ICT is integrated	**Name of Policy:** • National Digital Agenda 'ICT for Everyone- A Digital Agenda for Sweden' **Focus of Policies:** • Support social and economic development by increasing digital skills of citizens and by exploiting potential of ICT • The aim is for Sweden to be the best in the world at exploiting the opportunities afforded by digitalisation	**Key Actors:** • Ministry of Education play a central role in coordination of AE • Ministry of Enterprise, Energy and Communications is responsible for ICT policies and has developed the current Digital Agenda • National Agency for Education oversees AE and supports the development and usage of ICT in general education (provides general advise, best practice and train-the-trainer measures) • Local authorities such as municipalities and folk high schools provide AE • Implementation of ICT-enhanced AE is also driven by public as well as private providers and	**Key target groups:** • Adults lacking basic skills (particularly Swedish, English and maths) • Immigrants **Role of ICT in targeting these groups:** • ICT-enhanced AE is frequently used to address key target groups	**Learner Level:** • Lack of ICT skills among some groups of citizens (especially the disadvantaged) • Lack of awareness of availability and quality of (ICT-enhanced) AE • Lack of validation for ICT-enhanced learning **Educator Level:** • Lack of ICT-pedagogy skills of educators **Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups	**Approach: Fund professional development to boost educators skills for ICT-enhanced AE** • Digital Agenda, 'ICT for Everyone- A Digital Agenda for Sweden' • Published by the Ministry of Enterprise, Energy and Communications in November 2011 • Focuses on digital inclusion for all and covers all policy areas • Purpose is to collate all on-going activities in a cohesive strategy in order to make use of all the opportunities offered by digitalisation to individuals and businesses • Initiatives funded by the Government within the agenda includes professional development of ICT in teaching

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	• Adults have a right for basic education		employers that correspond to market or workforce needs **Type of coordination of AE:** Combination of bottom up and top-down coordination of AE, strong role of national agency to organize large scale AE programs **Outstanding characteristics:** • No central agency for coordination • Top down and bottom up approach on ICT-enhanced learning		• Limited availability of suitable ICT-enhanced learning material for adults	measures on all levels of education
Turkey	**Name of Policy:** • LLL Strategy Document (Ministry of National Education, 2009) • 10th Development Plan 2014-2018 (Ministry of Development, 2013) • Turkey's 2010-2014 Strategic Plan of the Ministry of National Education	**Name of Policy:** • Information Society Strategy Action Plan **Focus of Policies:** • Development of ICT infrastructure	**Key Actors:** • Ministry of National Education has responsibility for several VET and AE institutions • Ministry of Education's General Directorate of LLL (GDLL) is responsible for AE • Several universities run programmes and develop innovative forms of ICT-enhanced learning, esp. Anatolian University Open Education Faculty and	**Key target groups:** • Adults lacking basic skills **Role of ICT in targeting these groups:** • ICT-enhanced AE is rarely used to address key target groups	**Learner Level:** • Low interest and participation in AE in general Lack of ICT skills among large groups of citizens • Lack of validation for ICT-enhanced learning **Educator Level:** • Lack of ICT-pedagogy skills of educators	**Approach: Provide access to ICT-enhanced AE through academic Open Courseware projects** • The Open Courseware project managed by the Turkish Academy of Science • Consortium consist of 61 universities with 8 of them actively creating libraries and resources for AE • Courses under this project are mainly about

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	Focus of Policies: • Policies targeted on AE in the context of LLL exist and include use of ICT • Focus of policies is to ensure employability through access to AE • Expand ICT-enhanced learning across all educational branches and all age groups • Key objectives: Provide basic and second chance education. reduce school drop-outs **Outstanding characteristics:** • Reforms of AE system are planned		Turkish Academy of Science (TÜBA) which leads a consortium with 61 participant universities on Open Courseware for AE **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, rather centralized **Outstanding characteristics** • No central agency for coordination • Top down and bottom up approach on ICT-enhanced learning		• Educator's resistance to use ICT-enhanced AE (traditional mind-sets and legal issues) **Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • Limited availability of suitable ICT-enhanced learning material for adults	engineering sciences, social sciences and basic sciences. • Aims to improve the quality of open resources in higher education and AE • Open Distance Learning is also provided by Anadolu University as main provider in terms of distance and open learning for adults
UK	**Name of Policy:** • Educational policies are set by the ministerial Department for Business, Innovation and Skills (BIS), central governments reference these in	**Name of Policy:** • Digital skills agenda **Focus of Policies:** • Support social and economic development by increasing digital	**Key Actors:** • Department for Business, Innovation and Skills (BIS) as a ministerial unit of the UK Government sets further education policies, interpretation is left to the administrative units • Central governments for	**Key target groups:** • Illiterate adults (esp. digital illiteracy) • Unemployed and lowly qualified adults • Young NEETS (young people who are not in education, employment or training)	**Learner Level:** • Lack of media-literacy among some groups of citizens (especially the disadvantaged) • Lack of awareness of availability and benefits of (ICT-enhanced) AE	**Approach: Promote ICT-enhanced AE through an innovation and service centre** • National Institute of Adult Continuing Education (NIACE) • Advocate organization that supports AE providers to enhance their adult

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	their policies • Welsh policy on 'Delivering Community Learning in Wales' (2010 - 2015) • Scottish 'Adult Learning Statement of Ambition' and 'Scotland's Digital future', Scottish policy 'Adult Literacies in Scotland 2020 (ALIS 2020)' **Focus of Policies:** • Policies targeted on AE exist and include ICT (esp. in Scotland) • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons)	skills of citizens	each of the administrative Units in the UK are in charge of the education systems including ICT-enhanced AE (England, Wales, Scotland, Northern Ireland) • Skills Funding Agency is main public provider of AE and supports over 1,000 organisations, including colleges, private training institutions and employers • NIACE (The National Institute of Adult Continuing Education) is the national advocate for AE and supports providers to through development of concepts, materials and professional exchange • Several universities run programmes and develop innovative forms of ICT-enhanced learning, esp. UK Open University • Digital Skills Alliance is a charity that brings together trusts, public sector entities, third sector organisations and private companies to promote digital skills	**Role of ICT in targeting these groups:** • ICT-enhanced AE is occasionally used to address key target groups	• Previous negative experience with (adult) education **Educator Level:** • Lack of ICT-pedagogy skills of educators • Educator's resistance to use ICT-enhanced AE (traditional mind-sets and legal issues) • Lack of possibilities for peer-to-peer exchange of information across AE educators **Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • High costs for acquisition and upkeep of ICT	learning using ICT • Develops digital literacy of AE providers through events and workshops on how to use ICT in AE • Provides self-evaluation on the use of ICT for AE providers through e-Learning Position Statement (eLPs) tool • Provides surveys, reports and fact sheets on ICT-enhanced AE • Develops educational resources with partners like the BBC

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	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	Outstanding characteristics: • Focus on 'Skills for Sustainable Growth' and reform of the adult skills system		teaching to adults • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, national agency to organize AE programs and drive innovation **Outstanding characteristics:** • No central agency for coordination, some coordination through funding • Top down and bottom up approach on ICT-enhanced learning			

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
US	**Name of Policy:** • National Educational Technology Plan (covers learning, assessment, teaching, infrastructure • Adult Education and Family Literacy Act (supports basic education for out-of-school adults) • Workforce Innovation and Opportunity Act (authorises key employment and training programmes) • Most states have AE standards and some have AE plans that include ICT **Focus of Policies:** • Policies targeted on AE exist and include use of ICT • Focus of policies is to ensure employability through access to AE (reduce barriers in labour market for lowly qualified persons)	**Name of Policy:** • None identified through country research **Focus of Policies:** • None identified through country research t	**Key Actors:** • Education is highly federated; at the national level, federal agencies primarily provide guidance, training, resources, and technical assistance for states, they also issue funding programs, including ICT-enhanced AE • U.S. Department of Education explores use of badges for VET and AE and use of OER • U.S. Department of Labour and Department of Education issued funding program ($ 2 billion) for community colleges and employers including production of OER • States are required to match federal funds and then provide sub-grants to local education providers • States and local municipalities make decisions about provision and curriculum • States and local municipalities are responsible for implementing and	**Key target groups:** • Illiterate adults (esp. when literacy and numeracy skills are below the secondary school level) • Unemployed and lowly qualified adults • Immigrants (esp. English language literacy) **Role of ICT in targeting these groups:** • ICT-enhanced AE is frequently used to address key target groups	**Learner Level:** • Lack of ICT skills among some groups of citizens (especially the disadvantaged) **Educator Level:** • Lack of ICT-pedagogy skills of educators • Educator's resistance to use ICT-enhanced AE (no research data on effectiveness + legal issues) **Policy + Institution Level:** • Limited access to networks and devices, mainly in rural areas and for disadvantaged groups • Limited availability of suitable ICT-enhanced learning material for adults (especially open content, also language)	**Approach: Foster production and use of OER for AE through funding programs** TAACCCT competitive grant program (Trade Adjustment Assistance Community College and Career Training) • Department of Labour and Department of Education announced a 4-year $2 billion grant programme in 2011to support partnerships between community colleges and employers to train dislocated workers for new careers • To ensure impact grantees are required to license products with a Creative Commons Attribution 3.0 License • Focus on the cost-saving, extensive reach, and flexibility aspects of OER as key benefits for providers and learners • Similar OER projects are "Open Educational Resources to Support Adult STEM Teaching and Learning" and several state-level "Textbook Replacement Initiatives

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	Adult learning policy	**ICT policy**	**Key actors and coordination of ICT policy**	**Target groups**	**Barriers**	**Approaches**
	Does the country have a specific policy framework for adult education? Does it include ICT-enhanced learning?	*Does the country have ICT-related policies that are important for adult education?*	*Who are the key actors behind the implementation of ICT-enhanced adult learning and how are their actions coordinated?*	*Who are the target groups identified by the general adult learning policy framework?*	*What are the key barriers to access to ICT-enhanced learning?*	*How do good practice approaches/Initiatives support ICT-enhanced AE?*
	• Improve quality and cost-efficiency of AE • Development of learning materials • Validation of AE through badges for workforce skills development • Research and Monitoring of the use of ICT-enhanced learning (Report "Call for Evidence in Digital Learning") • Key objectives: Reducing illiteracy, provide basic and second chance education **Outstanding characteristics:** • Strong focus on use of ICT in education to increase efficiency • Focus on production of learning materials (OER)		reporting on their programs • Several universities run programmes and develop innovative forms of ICT-enhanced learning, eg. MIT Open Courseware project • Implementation of ICT-enhanced AE is also driven by public as well as private providers and employers that correspond to market or workforce needs **Type of coordination of AE:** • Combination of bottom up and top-down coordination of AE, large scale national funding programs, highly federated, strong role of private providers **Outstanding characteristics:** • No central agency for coordination, some coordination through federal agencies • Top down and bottom up approach on ICT-enhanced learning			

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Annex Six: Digital Workshop Notes

Digital workshop notes

Introduction

This paper covers the key points raised at discussion groups held at the Adult Learning ICT/OER Workshop in Brussels on the 6th of November. The subject areas covered under these discussion groups were informed by the break-out sessions held with the ET 2020 Working Group on Adult Learning on the 17th of September, and the emerging findings from the literature review, the survey and in-depth country work carried out under the '*Adult Learners in Digital Learning Environments'* study.

Discussion Group Findings

Discussion Group 1: Country level strategies (national, regional, local) that support the use of ICT-enhanced and OER approaches in adult learning

Discussion Group 1 covered the following areas:

- How to focus the existing investments into ICT/OER that have been made in learning for young people and Higher Education into activities focused on adult learning; and
- Identifying policy actions that are best suited to the national level for adult learning.

The basis for discussion was in relation to the actions implemented by Spain/UK in promoting the use of ICT/OER in adult learning. Participants were encouraged to identify other actions, and explore the general principles behind, and transferability of, wider practices.

Key points under Discussion Group 1

Generally, participants' felt that there ought to be an overarching EU vision statement on the use of ICT/OER in adult learning to help drive national policies in this area. There were also a number of actions that participants felt had to be put in place at an EU level to encourage Member States to develop polices and strategies linked to the use of ICT and OER in adult learning. These actions have been set out below.

- First and foremost, there was a need for a European Common Framework for the use of ICT and OER in Adult Learning. This framework could be in the form of a guidance document. The framework should be generic and set out key areas that Member States could consider in developing national policies on ICT and OER in adult learning. It should cover the development of an overarching digital strategy in specific areas linked to education and employment'. The digital strategy should also look at the *'Digitisation of the society - ICT for all'* and cover issues around broadband access.

- Member States should be encouraged to use the European Common Framework as the basis for developing national strategies which focus on country specific priorities. For example, a national strategy linked to the adult education strand could cover the following:
    - *Educators/Trainers* - it will need to include the training of teachers in the use of ICT/OER in teaching;
    - *Employers* - to cover the role that employers can play in developing the ICT skills of their workforce;
    - *Unemployed adults/employed adults* - strategies that focus on the developing the digital skills of this group;
    - *Immigrants* - developing the digital skills of immigrants; and
    - *OER* - investing in sustainable structured production of OER.

In addition to the above, there were other comments on the potential that exchange programmes for adult learning teachers could have in building their practical skills on how to embed ICT and OER in adult learning.

Other points made were linked to:

- The need for a strong message at an EU level for actions around the use of ICT and OER in adult learning. For example, in the US, providers are required to develop 5 year plans that cover the use of technology to support education. This requirement is tied to funding;
- The need to recognise that ICT is no end in itself and that it should be seen as the tool not the target;
- Incentivising employers to support learners;
- Linking funding to online provision; and
- The need for the EU to target funding at sustainable infrastructures or initiatives.

Discussion Group 2: How ICT tools and OER resources can be more effectively encouraged in adult learning

Discussion Group 2 covered:

- How, and to what extent, ICT-enhanced and OER-based adult education is effective in improving participation and outcomes;
- Gaps in relation to the use of ICT-enhanced and OER-based adult education at the country levels;
- How gaps can be overcome through policy actions; and
- Conditions that maximise positive impact.

Participants were encouraged to cover teacher competencies and education, funding investments, learner barriers during the discussions.

Key points under Discussion Group 2

Participants under this group felt that it was important to note that

- High quality content is expensive to create; and
- ICT could generate new types of learning barriers, it was therefore important to include a degree of personalisation of learning in promoting such approaches to allow for different learning models for learners with low skills.

With regards to conditions that could maximise positive impact, participants felt that it was important to consider the following:

- The need for a better strategy to create the environment for successful OER development and re-use. For example, will there be a better return on investment by supporting the national development of content that can be re-purposed, rather than spreading funding for content development across diverse providers?
- The need to provide experienced teachers with the opportunities ('collaborative spaces') to develop innovative pedagogies, supported by ICT specialists.
- Train key learners to become teachers to sustain education activities. For example, the case of prisoners in US Washington State who were initially supported by teachers became the teachers (supported by regular contact with the local college).
- Allow adult teachers to 'cluster' – both physically and virtually.
- Provide recognition for adult education achievements with ICT and OER. For example, European innovative adult learner awards, social media badges etc.

Discussion Group 3: How the European Union can support ICT and OER approaches in adult learning across Member States

The topics discussed under this group focused on prioritising action areas, and exploring European-level policy actions. For example through the:

- Promotion and awareness through the networking and interaction of practitioners;
- Promotion of teachers exchanges/teacher, CPD (Capacity building – human resources);
- Use of EPALE and other resources;
- OER capacity building, for example through creative commons licenses and support measures for IPR sharing;
- Funding actions at a pan-European level; and
- Research and studies.

Key points under Discussion Group 3

The discussions started with the need to recognise the gaps and opportunities around the use of ICT and OER in adult learning, for example, the low digital skills of learners and teachers. It also raised issues around the use of existing frameworks such as the Digital Competence Framework (developed by DG COMP), a framework for regional policymakers, and the need to develop this further to ensure it becomes more operational. This framework is currently being used in the Basque Country to measure the digital competences of teachers.

Participants also referred to the need to avoid subsidies to programmes that are funded for only a limited period. Germany was cited as an example, it has not got a comprehensive Life Long Learning (LLL) digital agenda, but there is a big funding programme that funds digitalisation in VET, this is however unsustainable – projects are said to only last for 3 years

European level policy actions recommended by participants include the use of programmes such as Erasmus plus, ESF and EPALE to support initiatives which focus on:

- Digital literacy of teachers in the form of :
  - Awareness raising;
  - Knowledge building to foster personalised education;
  - Pedagogies (for blended learning);
  - Assessment methodologies; and
  - Supporting new pedagogies.
- Digital literacy of the population in the form of:
  - ICT skills;
  - Competence frameworks; and
  - E-competence industry.
- Sharing ideas and experiences and practices:
  - Between teachers and institutions; and
  - Developing Awards that recognise excellence in these areas.

Other EU support areas include using Research to

- Explore "what works" in relation to the use of ICT and OER in teaching and learning, this should not only cover what works, but it needs to look at how it works and the benefits as a result;
- Carry out a stocktake of studies that analyse the potential wins of different policy options;
- Disseminate good practices and examples from projects that are funded and evaluated under EU programmes. This could look at the sustainability and impacts of these projects; and
- The effective use of PIACC and AES studies to support the development of policies in these areas.

Conclusions

Following on from a High Level expert meeting at the end of the Adult learning ICT/OER workshop, it was agreed that whilst the points raised by participants were valid and a good basis for developing recommendations for the study, it was more practical to structure recommendations in the form of short, medium and long term. Key areas to avoid or consider included the following:

1. Proposing the funding of OER development by the EU had to be avoided, recommendations around this area should rather focus on developing conditions for OER development and re-purposing of what already exists.
2. There ought to be a recommendation that covers the development of teacher networks at an EU-level
3. Recommendations should support the development of the skill and competences of potential learners so that the wide community of adult learners can benefit from innovative learning environments.
4. Avoid 'education' overpowering 'learning' in adults. It is expected that people using MOOCs all want educational qualifications as the outcome, when many use MOOCs for informal and non-formal learning – 'dipping in' where they identify value.
5. Whose responsibility and role is it to teach learners how to learn? At what stage do learners 'take personal responsibility'? Which groups can self-learn, and which need guidance?
6. Consider supporting the development of a MOOC for the training of adult educators.

7. Support the developments of 'Digital Learning Awards' that promote innovative adult learning in the following areas:

- Validation
- Outcomes
- Staff training
- OER creation and repurposing

8. Consider recommendations for Member states to use ESF-funding for competence centres for teacher training
9. Develop a recommendation for the EU to strengthen coherent work across DGs on digital rights
10. Develop a recommendation for publicly funded content development to be made publicly available.

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The study aimed to contribute to the work of the Commission and Member States in achieving the objectives set out in the Education and Training 2020 Strategy (ET 2020), which aims (inter alia) to raise the currently largely static rates of adult participation in learning towards the ET 2020 target of 15%, thus contributing to smart, sustainable and inclusive growth.

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