Promoting Online Training Opportunities for the Workforce in Europe

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Promoting Online Training Opportunities for the Workforce in Europe

INTERIM REPORT

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Executive Summary

This document is the interim report for the new European initiative on “Promoting Online Training Opportunities for the Workforce in Europe” (2017-2019) and has been prepared for the Executive Agency for Small and Medium-sized Enterprises (EASME) and the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) of the European Commission. This work is carried out by PwC, EDEN (the European Distance and E-learning Network) and Espace Mendès France.

It presents the key findings from the activities performed during the first phase of the initiative (2017-2018). It contains a state-of-play analysis in the European Union with regard to the adoption of online training solutions by small and medium-sized enterprises (SMEs) for the acquisition of high-tech skills by the European workforce. It specifically presents a description and in-depth analysis of the market and policies and initiatives on online training for the workforce in specific Member States, as well as inputs for a common vision - towards 2030 - based on stakeholder contributions. Finally, it addresses key challenges, mitigation measures and proposed solutions.

It is very difficult for SMEs to find, attract and retain skilled workers especially in high-tech fields. In addition, they typically cannot afford significant training costs requiring long periods of absence of their staff. However, upskilling and reskilling is of key importance for them, as new technological developments quickly make existing knowledge and skills obsolete. New online training developments offer promising opportunities in this respect as they can provide a more flexible, cost-effective and efficient way to train staff. Online training has already become an invaluable resource for most established, large-scale businesses. The adoption of online training solutions by SMEs happens at a slow pace, as the market – in spite of considerable progress – remains immature. This will change in the coming years, as new developments enabled by artificial intelligence (AI) and pedagogical innovation will foster the emergence of powerful online learning platforms and solutions. In order to stay competitive, SMEs need to embrace the emerging education and training revolution and develop a culture of open learning, just in time and just for me training.

The initiative introduces a focus to the important challenge related to the reskilling and upskilling of the European workforce. The objective is to promote new successful approaches to deliver skills related to new digital and key enabling technologies, based on new flexible and adaptable online education and training tools, and to foster the uptake of best practices. The main target group is SMEs. The results need to inform policy makers, social partners and business leaders about effective policies, solutions and funding mechanisms for reskilling and upskilling the workforce.

The tasks are grouped into two main phases. The first phase (2017-2018) was dedicated to the collection and analysis of the latest information and data based on desk research, online surveys, workshops and interviews with key stakeholders. The second phase (2018-2019) will concentrate on engaging a broader ecosystem of stakeholders, finalising a common vision, elaborating detailed recommendations and proposing concrete actions and supporting measures. The final report will provide a solid basis for future actions at the EU and national levels in this field.

When it comes to desk research, an extensive screening of scientific, business and policy publications was performed based on their relevance to the topic with a particular focus on SMEs. The topic of online training was addressed from a broader perspective and included a wide range of solutions for technology-enhanced learning, both bespoke and off-the-shelf e-learning, including video content, mobile learning,
MOOCs, virtual reality, gamification etc. The objective was to select the most recent publications on the topic, with a focus on the opportunities, challenges and solutions in the context of online training in enterprises. After an extensive search, a selection of key publications was made having the highest relevance to the issue in question.

The state-of-play analysis of policy initiatives suggested that there are only a few initiatives in Europe focusing explicitly on promoting online training for SMEs. Many of the identified initiatives emphasise the importance of lifelong learning and imply combining different delivery mechanisms. Multiple identified initiatives target broader public, going beyond enterprises and including also educational providers, and working individuals in general. Most of the identified initiatives have only a national focus. They pursue multiple objectives including promotion and awareness raising, dissemination of good practices, offering guidance and practical support, training and consultancy services, developing and maintaining an ecosystem of providers and users, offering training materials, providing financial support for upskilling etc.

Enterprises of all sizes increasingly need to localise online training content. It allows them to create an interconnected workforce that is not bound by geographic and cultural obstacles. Rather than purely translating information from one language to another, it needs to be adapted to the local context to more effectively convey the same meaning in the target group. The end goal of localisation is therefore to make content feel as if it was exclusively created for the specific target user group. Effective adaptation and localisation strategies include incorporating cultural and associated contextual nuances, using appropriate graphics, adding local flavours, using international formats, and hiring professionals.

The online training market is on the rise. The key factors that are favouring the market growth include flexibility in learning, low costs, easy accessibility, and increased effectiveness of animated learning. Furthermore, escalation in the number of Internet users and growing access of broadband pooled with mobile phones with online capabilities are also actively supporting the market growth. The corporate training market in Europe is one of the most dynamic markets due to the presence of multiple training solution providers and training professionals. The market is more fragmented and specialised than in other global regions. Market analysts predict that the rise of demand for continuous learning in Europe will increase the adoption of different learning methodologies and products. However, factors related to change management, technology obsolescence and vendor-developer partnerships are major restraints that are hindering the growth of this market.

The learning landscape today looks completely different than it did a few years ago. Modern learners expect content to be short and personalised and are more committed to their learning goals. These trends indicate the need for change for both content and technology in the learning space. The technology-enabled learning trends that will have a significant impact on the workplace learning ecosystem include the following:

- There is a growing need for micro learning;
- There is a rapid growth in mobile learning;
- The real-world learning is on its rise;
- Gamification has proven to be an effective strategy;
- Social learning is becoming the mainstream approach.

The analysis of key dynamics within European enterprises suggested that they expect their investment in digital learning platforms and content to increase or stay the same in the near future. Most expansion in digital learning courses comes from decreasing investment in traditional instructor-led training approaches. Despite the positive
momentum in investment, however, budgets for digital learning tend to be relatively low. The use of MOOC style solutions is still a minority approach. Mobile learning is in high demand. Traditional approaches still form the basis of the learning content market. The latter is dominated by off-the-shelf content. The field is moving into the direction of creating “Learning Engagement Systems”, i.e. solutions that use AI and learning analytics based on profile data about learners, their personalities, their habits, goals and feedback from others to drive highly personalised learning.

With regard to the availability of online training, SMEs are in general reported to be restricted in the efficient use of different forms of learning and technology for learning and in adequate management learning approaches. The key challenges with regard to training overall that are faced by SMEs include high costs associated with training provision, the need to interrupt working processes and the associated lack of time, difficulties when identifying suitable training providers and lack of appropriate training providers and programmes. The most popular learning in SMEs is informal one, and the integration with formal training is often not planned.

When it comes to the quality of online training, the challenge remains how to develop and maintain a competitive ecosystem of suppliers around digital learning projects that stimulates to provide better levels of service and solution. The risks around selecting the right suppliers appear to be the greatest when it comes to learning content. In areas such as gamification, business systems solutions, user generated content, serious games, MOOCs, off-the-shelf performance support and virtual reality, enterprises are more likely to get merely an acceptable or poor quality solution. Blended learning and mobile learning do not score significantly better. Only in video content and bespoke content, the quality of the offer is reported to be acceptable. Social learning and analytics are also associated with a high risk of low quality.

The affordability of online training for SMEs is a sensitive issue as they are often reluctant to pay for staff training. This can be explained by the fact that owners and managers of SMEs often do not have enough knowledge about the return of investment and value of training in sustaining competitive advantage as well as about suitable, efficient, and affordable learning solutions. The investment required in order to develop personalised online training platforms and courses is often too high for many SMEs. The most common solution adopted is the purchase of off-the-shelf e-learning courses, with the standardised content. One of the approaches to tackle the abovementioned issue refers to “do-it-yourself’ strategies. However, these approaches should be treated with caution, as professional involvement, including coaching and mentoring, is often needed in order to ensure a high-quality training course.

When it comes to the adoption rate of online training by SMEs in Europe, Member States demonstrate different levels of maturity in using learning technologies. This can be explained by the perceived business value of learning and other technology-related factors. Internet connectivity levels and costs significantly vary across the EU. Mobile phone and social media usage, as well as ownership patterns also vary greatly. Nordic countries are reported to be the most advanced and is a net exporter of online training solutions and learning technologies. The UK is also a vibrant market. The German market is growing rapidly, and it is expected to become substantial in the next few years. France has seen a considerable growth, which has recently slowed down. Spain is recovering and is actively exporting its solutions to South America. Eastern Europe has substantially benefited from the EU structural funds, and much of the infrastructure has been put in place that facilitates the adoption of online training solutions. Strong market growth is forecasted for these countries for years to come. SMEs represent a highly diverse population, and the adoption rate significantly differs per sector and size.
With regard to key players, the digital learning market in Europe remains immature. Single providers hardly ever take a lead in supporting the entire learning solutions portfolio. Most tend to be specialist providers, so it is difficult to purchase high quality solutions for all cases from one provider. A clear trend can be observed with regard to preferred partnering between providers rather than trying to provide a whole set of digital learning solutions by one provider.

The key factors influencing the development costs of online training include among others instructional and outline design, size of the application, media complexity, data reporting and performance support functions, embedding environment and degree of navigation and user interactivity. Other relevant factors refer to standards compliance and usability testing. Some additional costs that need to be taken into account when developing online training include the cost of refining an online training solution and the cost of technology. When developing an online training solution, the critical first step is to fully understand the associated development costs and the decisions that will control those costs in order to achieve the key training objectives, within budget.

Multiple funding models exist when it comes to financing the development and usage of online training. Examples include public funding, public-private partnerships, bundled service agreements, micro financing, technology grants, “bring your own device” programs and user fees. A critical success factor is that the selected funding model is both scalable and sustainable. Therefore, to achieve the goal of moving employee training to a new paradigm of learning, investment in technology-enhanced learning cannot be a one-time effort. There is a need to identify and prioritise the factors that make some technology implementations perform dramatically better than others, including the underlying funding models.

Examples of the latest innovations in pedagogies include learning through social media, learning from the crowd, learning through games, formative analytics, open textbooks, immersive learning and learner-led analytics. In order to identify the factors that would form the base for good online training experience, SMEs first need to perform an analysis of specific needs and objectives of learning. It is a continuous and iterative process that is likely to require revisions of the initially set needs and objectives in the course of the development of online training. The key characteristics of a good online training course for SMEs generally include detailed analysis, structured and interactive content, assessment opportunities, enjoyable and fun activities, and achievable milestones. Other relevant factors among others include visual stimulation, 24/7 accessibility, the use of real-life case studies, certification and accreditation.

At this stage, the following main conditions to be fulfilled for a massive take-up of online training by SMEs were identified:

- Promoting among SMEs highly relevant and successful online training solutions (and benefits for both employers and employees), targeting their specific needs;
- Providing SMEs with capabilities to implement online training for their needs;
- Supporting networks including SMEs and developing understanding of learning economics and joint human resource development programmes;
- Developing schemes for the assessment and recognition of online training in the academic and business sectors;
- Fostering pan-European sectoral collaboration (and cross-sectoral exchanges) between enterprises, academia, VET and supporting structures, to allow greater transferability, flexibility and permeability in educational & training systems;
- Developing measures aiming at quality assurance of the online training offer;
• Encouraging the development and use of micro-credentials through active collaboration between the academic and business sectors;
• Maximising attractiveness, pedagogical and learning relevance of online training;
• Introducing stronger incentives for SMEs to use online training.

The current report also presents inputs for the design of a common vision. It aims to include concrete measures, roles and priorities at the EU and national levels for implementation towards 2030. The development process implies active engagement of all relevant stakeholder groups. The common vision and supporting actions aim at increasing the capacity of industry, social partners, education and training providers and policy makers to successfully shape the workforce transformation in Europe.

Based on extensive desk-research, in-depth interviews with stakeholders and policy makers, two expert workshops and an online survey disseminated among practitioners and industry professionals all over Europe, the main barriers for European SMEs to adopt new online solutions were identified. The most prominent barriers proved to be related to a general lack of enterprise learning strategy, as well as a lack of awareness of relevant online training solutions by employers and employees. Furthermore, the immaturity and fragmentation of the offer was confirmed, with still too little investment available to develop highly successful training solutions. These outcomes indicate the need to promote relevant solutions among SMEs, while also highlighting a key role of supporting greater innovation, scalable and sustainable pilots and new business models, start-ups / scale-ups and more private investment combined with more attractive public funding and incentives schemes.

The key measures at the EU and national levels that were suggested for tackling the abovementioned barriers refer to developing better coordination and mechanisms that would offer information on the opportunities and benefits of online training solutions for SMEs, good practice examples, as well as an opportunity to share experiences with trusted third parties and peers. It is also necessary to strengthen communities of practice for enterprises engaged or considering engaging in online training, where good practices and experiences can be exchanged by enterprises themselves.

One of the key conclusions is that existing policies and programmes have been mainly supply-oriented and mostly led by the academic sector, while there is now a clear need for more demand-based and industry-led initiatives. The latter imply initiatives aiming at providing enterprises and SMEs with much better solutions, information and guidance and at increasing their interest, benefits and motivation to use new and relevant online training platforms.
1. **INTRODUCTION**

This document represents the *Interim Report* for the “Promoting Online Training Opportunities for the Workforce in Europe” initiative (contract nr. EASME/COSME/2017/001; hereafter “Online Training” initiative), prepared by PwC EU Services (hereafter “PwC”) for the Executive Agency for Small and Medium-sized Enterprises (hereafter “EASME”) and the Directorate General for Internal Market, Industry, Entrepreneurship and SMEs (hereafter “DG GROW”) of the European Commission (hereafter “the Commission”). The work within this initiative is carried out by PwC EU Services (hereafter “PwC”) in close cooperation with the European Distance and E-Learning Network (EDEN) and Espace Mendès France (EMF).

The Interim Report presents the key findings from the activities performed during the first phase of the Online Training initiative, and specifically in the period from October 2017 until August 2018. The Interim Report contains the results of the state-of-play analysis in the European Union (EU) with regard to the adoption of online training solutions by small and medium-sized enterprises (SMEs), particularly the ones active in high-tech domains. The report specifically presents the description and in-depth analysis of the market and the policies and initiatives on online training for the workforce in specific EU Member States, as well as the draft common vision based on stakeholder contributions. Finally, the report also addresses the identified challenges, mitigation measures and proposed solutions.

The current chapter presents the context and objectives of the Online Training initiative. It also provides an overview of the key activities performed so far.

1.1. **Context and objectives**

Online training has become an invaluable resource for most established, large-scale businesses. Now it becomes increasingly important also for SMEs. **For most SMEs, and particularly for SMEs active in high-tech domains, it is highly difficult to find, attract and retain highly-skilled individuals.** They cannot afford significant training costs requiring long periods of absence of their staff. At the same time, upskilling and reskilling is of key importance for them, as rapid technological developments quickly make existing knowledge and skills obsolete.

1.1.1. **Context and rationale**

According to ATD’s State of the Industry Report¹, in a one-year period, smaller-sized organisations with fewer than 500 employees spend an average of 1,500 EUR per employee in direct learning expenses, whereas mid-size companies of between 500 to 9,999 employees only spend an average of 680 EUR per employee. With the help of online training, small businesses can reduce their training cost per employee to less than 80 EUR per year². Therefore, **SMEs could use online training as a more cost-effective and efficient way to educate staff.** Online training is also associated with high levels of flexibility and easy access, which are also of key importance for small companies.

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Nevertheless, the adoption of online training solutions by European SMEs happens at a slow pace. The key barriers for adoption among others include lack of motivation of learners, lack of knowledge about the opportunities offered by online training, lack of commitment of senior management and lack of good HR development policy. In order to stay competitive in this rapidly changing world, SMEs need to develop a culture of learning, i.e. build and sustain an environment that inspires and supports employees to pursue learning opportunities. Online training promises to play a crucial role in this respect.

Text box 1-1: Online training: definition and key benefits

Online training here can be defined as training that is delivered, enabled or mediated using digital technology and software applications, associated with learning scenarios and interactive activities, for the explicit purpose of training, learning or development in organisations. Online training here refers to a wide range of digital learning solutions refer to bespoke and off-the-shelf e-learning, including video content, mobile learning, MOOCs, virtual reality, serious games and gamification etc.

Online training is thus any form of learning (informal, non-formal or formal) that is delivered using electronic devices via channels like the Internet. However, training can also be delivered via the Intranet/Extranet networks.

Some key advantages that online training tools bring to workforce training include:

- **Flexibility**: online training materials may be made accessible to the workforce throughout the day. This makes it possible for employees to learn the subject at their own pace and in comfortable settings.
  - Fast learners may complete their training sooner and this enhances productivity.
  - Given that present day employees work out of different time zones, a learning tool that is available 24/7 makes it possible for the employers to offer staff training without a constraint on resources.

- **Improved Pedagogy**: studies have shown that gamification enhances learner engagement and improves retention.
  - Online training also helps with the use of personalised study materials and interactive formats. From the perspective of the employer, they may now reliably use learning tools to match competencies with the learning goals achieved by the employee.

- **Enhanced Collaboration and Reach**: it is possible to gain instant reach to staff and trainers from all parts of the world.

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4 Ibid.
5 This definition builds on the definition from EU15 Ltd (2016) "SMEs & e-learning (SMEELEARN) – e-learning Best Practice Guide", Erasmus+ project nr. 2014-1-UK01-KA202-001610
Online training enables teams from various geographies to collaborate on problem-solving challenges in real-time. It is a win-win for the employer and the staff undergoing training.

- **Reduced Waste & Cost-Effectiveness**: businesses no longer have to spend on commutation, and classroom & infrastructure rentals. Trainer costs are typically one-time since the same material may be reused for multiple batches of learners. Since all materials are in electronic format, paper consumption is significantly reduced.

- **Suitability for Millennials**: today’s employees work not just for money, but also to continually learn. With a classroom style learning environment, there are only a limited number of training programs that an employee could attend over any given quarter.
  
  o With online training, the knowledge is always available at the employee’s disposal – this gives them better access to subjects they are interested in and not necessarily those that would benefit them at work. Not only does this benefit the learner, but is also a promising human resource asset to ensure employee retention.

  o Businesses that enable access to valuable e-learning subjects to their staff enjoy better loyalty from such employees who have a greater sense of accomplishment at their workplace.

- **Scalability**: online training enables employers to quickly create and communicate new policies, training, ideas and concepts. It also allows to achieve a great degree of coverage of the target audience, and ensures that the message is communicated in a consistent fashion. This allows for all learners to receive the same training.

- **High Learning Retention**: blended learning approaches result in a higher knowledge retention rate. It also helps refresh and update the learning materials whenever needed.

SMEs represent one of the most difficult markets for online training, and they may need completely different instruments than large companies. SMEs hardly have time and budget for new learning systems. They are often looking for systems with no cost, and even then, it still fails. To this end, there is a need for a good understanding of how SMEs could be convinced about the benefits of online training and how they could successfully take up these new systems (which would in turn help them survive in this rapidly transforming world). An exploration of SME needs could be performed here (e.g. compliance with GDPR, learning together with their potential customers etc.), including the ways how these needs could be met by online training solutions.

To this end, EASME and DG GROW of the European Commission have launched the Online Training initiative. This initiative aims to explore the role of online training in tackling the skills-related challenges in Europe, with a particular focus on high-tech SMEs. It implies performing an extensive state-of-play analysis, developing a common vision and formulating recommendations for supporting measures. Examples of questions it aims to address include the following:

- What exactly needs to be done and by whom to stimulate the uptake of online training in Europe?

7 https://www.learningpool.com/resources/advantages-of-e-learning/
8 Ibid.
1 Introduction

- How should the funding of online training-related initiatives be organised?
- How can online training best complement other (more traditional) forms of training?
- What are the most promising ways of reaching out to the workforce, to engage them into online training?

The outcome of this initiative will play a prominent role in forming the future EU policy making regarding online training.

1.1.2. General objective

The general objective is to promote successful approaches to deliver new skills related to high technologies, based on online education and training tools, and to foster the uptake of best practices.

The current initiative specifically aims to identify key trends, developments and best practices in the field of online training for the workforce with a particular focus on the needs of SMEs. Another important goal is to identify key stakeholders and experts and bring them together in order to jointly identify key challenges, develop a shared vision and solutions and share and scale-up best practices.

The ultimate ambition is to better anticipate and manage change and to ensure collectively that individuals can be upskilled/reskilled regularly to acquire the right skills at the right time at affordable conditions with a view to face the significant challenges of the impact of digital and key enabling technologies on employment and the future of work.

The current initiative aims to identify specific actions and measures that would allow online training to “take off” and be ready to address the considerable skills challenge which is predicted, especially when it comes to SMEs. It is important to help companies and individuals to make sensible choices regarding reskilling/upskilling issues. There is also a need to identify appropriate funding and brokerage mechanisms to share and exchange solutions.

The main target group is enterprises, especially SMEs. The initiative aims to specifically target professionals, managers, leaders and entrepreneurs in SMEs (including start-ups and scale-ups) that would benefit from online training to acquire and/or update their skills. This will be done in the context of the transformations generated by new Digital and Key Enabling Technologies (KETs).

The results aim to inform policy-makers and business and social leaders with regard to more effective policies, partnerships, and initiatives on online training for the workforce. To this end, the current initiative aims to offer key stakeholders the relevant strategic intelligence, as well as serve as a source of inspiration and impetus for further action.

1.1.3. Specific objectives

The specific objectives of this initiative are as follows:

- **Objective 1:** collecting through desk research the latest information and data with a view to provide a clear, well-structured and comprehensive
description of the state-of-the-art concerning online training opportunities for the workforce and SMEs in Europe⁹;

- **Objective 2**: performing an in-depth analysis and getting feedback on the findings (via online surveys and interviews) from key stakeholders and public authorities and gathering their views;

- **Objective 3**: assessing and better understanding in which ways existing policies and on-going initiatives could be enhanced and scaled up to improve the availability, quality and affordability of online training for the benefit of the workforce and SMEs;

- **Objective 4**: identifying, documenting and supporting the uptake of best practices; proposing the setting-up of dedicated exchanges and cooperation mechanisms that could contribute to facilitate large-scale adoption of best practices and the management of change; promoting networks, partnerships and greater cooperation;

- **Objective 5**: identifying and proposing concrete measures to stimulate innovation in pedagogies (including online learning and training design and assessment) and better use of online technologies for education and training;

- **Objective 6**: proposing adaptation and localisation strategies to leverage the full potential of online training while addressing the dimensions related to diversity, equity and accessibility (diverse languages, cultures, pedagogies and infrastructures etc.);

- **Objective 7**: elaborating a common vision with all relevant stakeholders¹⁰ (public and private) for a long-term agenda and a roadmap. It will include concrete measures, roles and priorities at the EU and national levels for implementation towards 2022 and beyond.

- **Objective 8**: preparing and delivering an interim report presenting the results of the analysis and the state-of-play in Europe, as well as, a common vision: “Vision on the promotion of online training opportunities for the workforce in Europe”;

- **Objective 9**: documenting best practices, i.e. the ten most relevant policies and initiatives at the EU and national levels;

- **Objective 10**: preparing and delivering a final report “Online training opportunities for the workforce in Europe - Towards 2022 and beyond”, including the state-of-play, a common vision, roadmap, best practices and recommendations. This report aims to feed into the orientation of future actions in this field at the EU and national levels;

- **Objective 11**: producing a high-quality brochure for the dissemination of results.

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⁹ This objective implies reviewing the relevant information to constitute an initial solid basis of evidence and prepare the collection of new material

¹⁰ Engaging a broader ecosystem of stakeholders and potential beneficiaries will be crucial for generating ideas and validating the vision and proposals for action
Six expert workshops are foreseen during the course of the work. A final conference will be organised in Brussels in September 2019. At this occasion, a press release will be produced and the brochure will be disseminated summarising the findings, the recommendations and the guidelines. The event will target policy makers and other key stakeholder groups including the developers, adopters and promoters of online training.

1.1.4. Expected results

The main results are expected to be the following:

- A better understanding of how policies and initiatives in support of online training for the workforce can be designed at the EU and national levels;
- Having a common vision with a roadmap for implementation towards 2022 and beyond;
- Helping the EU and Member States in designing and implementing policies and measures for the promotion of online training opportunities for the workforce;
- Encouraging innovation in pedagogies and better use of online technologies;
- Promoting the acquisition of high-tech related skills;
- Fostering localisation strategies and better addressing diversity, equity and accessibility;
- Facilitating the identification, the promotion and the uptake of best practices;
- Proposing a set of concrete measures.

The final report is expected to constitute a contribution to the efforts of the European Commission and Member States to facilitate the successful implementation of the “New Skills Agenda” and of the European industrial policy.¹¹

1.1.5. Project design

The tasks of this initiative are grouped into three Work Packages (WPs) corresponding to the two main phases of 12 months each (see Figure 1-1).

¹¹ https://ec.europa.eu/growth/industry/policy_en
1 Introduction

The first phase was dedicated to the collection and the analysis of the latest information and data based on desk research, online surveys, workshops, interviews of key stakeholders. The current interim report presents the results of this analysis, including the state-of-play in the EU and a common vision on the promotion of online training opportunities for the workforce in Europe.

The second phase will concentrate on documenting best practices, engaging a broader ecosystem of stakeholders, elaborating recommendations and proposing concrete supporting measures. The final report will be released at the end of this phase. It aims to provide a basis for possible future actions at the EU and national levels in this field.

1.2. Activities performed so far

A detailed overview of performed activities is available in bi-monthly progress reports. The current section aims to summarise the key developments. The activities performed during the first phase of this initiative correspond to the activities of WP1 “Structured collection of latest data and analysis”, consisting of five distinctive but interrelated tasks.

1.2.1. Task 1.1: Initiating project activities

The current task implied organising a kick-off meeting, developing an Inception Report, setting up a Steering Committee and creating a group of project informants.

The group of project informants refers to a community of highly qualified external experts that are engaged in the current initiative by means of workshops, in-depth interviews, online surveys and other ways of stakeholder consultation. When setting up the group, we aimed for a good representativeness of multiple stakeholder groups, a good geographical balance and a good gender balance. This group is constantly expanding, with new contacts being added in the course of the initiative. At this moment, the group of project informants consists of more than 150 experts. Their inputs have been collected for all key activities of the first phase of this initiative.
### 1.2.2. Task 1.2: Preparing and carrying out data collection

Task 1.2 implied preparing and collecting through multiple means the latest information and data with a view to provide a clear, well-structured and comprehensive description of the state-of-the-art concerning online training opportunities for the workforce and particularly SMEs in Europe. This task implied reviewing the relevant information to constitute an initial solid basis of evidence and facilitate further collection of new material.

Within this Task, an extensive scan of relevant desk-research resources (per topic of analysis) was performed, including sources recommended by stakeholders. This task also included actual data collection activities related to the state-of-play description of relevant policies and initiatives and the state-of-play description of the online training market in Europe. Detailed desk-research was performed for each specific topic of analysis, complemented by 30 in-depth interviews with the representatives of multiple EU Member States and key experts in the field of technology-enhanced learning.

The first expert workshop was held in Brussels on 20 March 2018. It focussed on the key challenges and solutions for promoting online training among SMEs in Europe. One of the key conclusions of the workshop was that the existing policies and programmes have been mainly supply-oriented, while there is a clear need for demand-oriented initiatives. The latter imply initiatives aiming at raising awareness of SMEs regarding the benefits and opportunities of online training and increasing their motivation to use it. A detailed overview of the discussion points and conclusions of the first workshop is available in a separate report.

Additionally, an online survey was developed and launched in April 2018, with a duration of two months. In the context of the state-of-play analysis, based on desk-research, in-depth interviews, multiple email and phone consultations with key experts and the first expert validation workshop, the project team has accumulated an extensive knowledge base. This knowledge base was then systemised, clustered and translated into a wide range of possible solutions/measures aiming to stimulate the uptake of online training by companies (particularly high-tech SMEs) in Europe. The first online survey aimed to obtain broader stakeholder validation of the identified measures. The online survey specifically aimed to detect the key priorities among the identified measures, which would then need to be further developed and incorporated into a common vision for the EU policy making. In total, the survey collected 145 stakeholder responses. A detailed online survey implementation plan, including the questionnaire and the applied approach is available in a separate report.

### 1.2.3. Task 1.3: Conducting in-depth analysis

Based on the accumulated knowledge base, an extensive data analysis was performed including key barriers for SMEs to adopt online training, the situation in specific MS, suggested policy measures and programmes, and specifically inputs regarding the measures to be introduced at the EU level. This task also involved identifying major policies and initiatives per MS, collecting relevant information on each initiative, identifying good practice examples and an in-depth analysis of the identified good practices.

The second expert workshop was held in Genova on 18 June 2018. The workshop aimed to address the abovementioned need for a paradigm shift, and specifically to elaborate on a demand-led strategy for promoting online training among SMEs in Europe and to further develop a blueprint for the common vision. The workshop
featured good practice examples of existing demand-oriented initiatives. The relative immaturity and fragmentation of the offer was confirmed, with still too little investment available to develop highly successful training solutions. These outcomes indicate the need to promote the importance of learning among SMEs, while also highlighting a key role of supporting greater innovation, large scale pilots and new business models, start-ups and more private investment combined with more relevant public funding and incentives schemes. A detailed overview of the discussion points and conclusions of the second workshop is available in a dedicated workshop report.

1.2.4. Task 1.4: Further elaboration of the common vision

Task 1.4 implied further elaboration on the common vision, the main challenges, the key focus areas and the main actions and priorities for the promotion of online training for the workforce. The obtained knowledge base was systemised and translated into specific prioritised directions for action, with a particular attention to the role of the EU and national policy makers. The results of this exercise form a blueprint for a demand-led strategy for promoting online training among SMEs in Europe and are presented in Chapter 4 of this report.

Within this Task, the third expert workshop will be organised in Brussels on 2 October 2018, to review progress to date and get the views and comments of experts on the proposal for a common vision.

1.2.5. Task 1.5: Developing and disseminating interim report

Task 1.5 implied developing a draft Interim Report and organising a meeting with a Steering Committee and the European Commission and EASME. The Steering Committee meeting took place on 25 September 2018 in Brussels.

1.3. Report structure

The Interim Report is structured as follows. Chapter 2 provides a state-of-play description of the online training market in Europe. It includes the analysis of market drivers, trends and dynamics. It also addresses the issue of availability, quality and affordability of online training for SMEs in Europe. The results of the analysis of the popularity of online training among SMEs in different EU Member States are provided. Finally, we also elaborate on key players and cooperation mechanisms. Chapter 3 presents the state-of-play description of relevant initiatives, strategies and publications. It also addresses the main adaptation and localisation strategies. The topic of development costs and funding models is examined. This chapter also contains the analysis of the latest innovations in pedagogies, the criteria for good online training for SMEs and the main conditions to be fulfilled for a massive take-up of online training by SMEs. Chapter 4 presents a draft proposal for the common vision and is structured around the prioritised directions for action, based on the outcomes of stakeholder consultation. Finally, Chapter 5 provides an overview of the identified challenges, mitigation measures and next steps.

Annex A provides an overview of key messages for the most prominent scientific, policy and business publications. Annex B contains a list of stakeholders that have been consulted so far by means of workshops and in-depth interviews. Annex C offers an overview of the online survey questions. Finally, Annex D provides an overview of Digital Learning Technologies and their maturity.
2. STATE-OF-PLAY DESCRIPTION OF THE ONLINE TRAINING MARKET IN EUROPE

The current chapter provides a state-of-play description of the online training market in Europe. It specifically addresses the key market drivers, trends and dynamics, as well as a topic of availability, quality and affordability of online training for SMEs. The chapter also covers the analysis of the adoption rate of online training among SMEs in different EU Member States. Finally, it addresses key players and cooperation mechanisms.

2.1. Market drivers, trends and dynamics

In this sub-section, we briefly address the key trends on the online training market, including key drivers and dynamics.

2.1.1. Market size and growth rate

According to Research and Markets, the global e-learning market is estimated\textsuperscript{12} to grow at a CAGR (Compound Annual Growth Rate) of around \textit{7.2\%} over the next decade to reach approximately 325 billion USD (281 billion EUR) by 2025\textsuperscript{13}. Some of the key trends that are favouring the market growth include growing popularity of learning through gaming in the recent years, implementation of IT security and cloud based solutions, rapid growth in online content & digitalisation, and innovations in wearable technologies\textsuperscript{14}.

Similar figures are provided by Stratistics MRC, stating that the global e-learning market was accounted for 165.21 billion USD (142.48 billion EUR) in 2015 and is expected to reach 275.10 billion USD (237.76 billion EUR) by 2022, growing at a CAGR of 7.5\% during the forecast period\textsuperscript{15}. The growth can be explained by the provided flexibility in learning, low cost, easy accessibility, and increased effectiveness of animated learning. Furthermore, escalation in number of internet users and growing access of broadband pooled with mobile phones with online capabilities are also actively supporting the market growth\textsuperscript{16}.

Based on the report by Research and Markets, the e-learning market in Europe is forecasted to grow at a CAGR of 12.27\% during the period 2016-2020\textsuperscript{17}. This figure, however, refers to both academic and corporate e-learning. No publicly available data was identified on the actual or forecasted e-learning (online training) market size specifically for Europe and specifically for corporate e-learning (let alone for SMEs). The overall EU corporate training market is forecasted to grow at a CAGR of nearly 9\% between 2016 – 2020\textsuperscript{18}. However, this figure includes all types of corporate training, and not exclusively online training.

The corporate training market (which is much broader than online training alone) in Europe \textit{is one of the most dynamic markets} due to the presence of multiple training

\textsuperscript{12} This estimate refers to both academic e-learning and corporate e-learning. Depending on technology, market is segmented into Learning Management System (LMS), mobile e-learning, application simulation tool, rapid e-learning, podcasts, learning content management system, virtual classroom knowledge management system and other technologies.


\textsuperscript{14} Ibid.

\textsuperscript{15} \url{https://www.reuters.com/brandfeatures/venture-capital/article?id=11353}

\textsuperscript{16} Ibid.

\textsuperscript{17} \url{https://www.businesswire.com/news/home/20160812005654/en/E-Learning-Market-Europe-2016-2020-Adobe-Systems-Blackboard}

\textsuperscript{18} Based on market research by Technavio, see \url{https://www.docebo.com/blog/elearning-eu-industry-based-training/}
solution providers and training professionals. The market is also more fragmented and specialised than in other global regions, and players are designing solutions for specific requirements like problem-solving, behavior-developing skills, and other non-conventional IT skills. The analysts also predict that the corporate training market in Europe will soon be enlarged by new players and providers, and that it will see a rise in training organisations that deal with specific industries. Market analysts predict that the rise of demand for continuous learning in Europe will increase the adoption of different learning methodologies and products. However, factors related to change management, technology obsolescence and vendor-developer partnerships are major restraints that are hindering the growth of this market.

According to Ambient Insight, the self-paced e-learning market size in Western Europe was around 8 billion USD (6.8 billion EUR) in 2016, while the Eastern Europe market was around 1 billion USD (0.85 billion EUR). However, this figure represents only part of the total online training market in Europe. The key reason for market growth in Europe can be linked to increasing adoption of these solutions by SMEs.

Although no exact figures were found for the actual or forecasted online training market size specifically for European SMEs, the highlighted market developments indicate positive dynamics when it comes to the overall e-learning market size in Europe and globally, as well as the overall corporate training in Europe. No firm conclusions, however, can be made regarding the extent to which this growth can be attributed to the growing adoption of online training solutions by SMEs. While there is some indication that this adoption is increasing, it is unclear how fast it is happening and what the future forecast looks like. Therefore, future research efforts need to be allocated to exploring the market size and trends explicitly for online training in SMEs.

2.1.2. Key trends in online training

The learning landscape today looks completely different than it did five years ago. Modern learners expect content (and the learning approach overall) to be short and personalised and are more committed to their learning goals. These trends indicate the need for change for both content and technology in the learning space. The need now exists for learning solution providers to visualise what has not been seen before and formulate solutions that blend modern learning with traditional and personalised learning experiences and bring these at par with contemporary mobile applications and just-in-time learning methods.

The technology-enabled learning trends that will have a significant impact on the workplace learning ecosystem include the following.

Trend 1: Traditional e-learning is in steep decline

The anticipated growth of the overall online training market does not stem from the "traditional e-learning". According to the study by Ambient Insight Research (2016), the global CAGR for self-paced e-learning products is clearly negative, at -6.4 percent over the next five years. Self-paced e-learning products include online courses,

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19 https://www.docebo.com/blog/elearning-eu-industry-based-training/
20 Ibid.
21 Ibid.
22 Ibid.
23 Ibid.
25 Ibid.
managed education services, managed training, e-books and learning management systems.

One of the key drawbacks of the traditional e-learning approach is that it often relies on massive amounts of information, while not offering a mechanism for guiding learners further along the learning journey. Learning and Development managers need to completely rethink their approach to training. They need a solution that focuses on the learners themselves – what they want, how they behave and what they can contribute. No publicly available figures were found on the trends in the adoption of traditional e-learning specifically for European SMEs.

**Trend 2: The growing need for microlearning**

Learners expect content that is consistent with the new format of digital learning, namely short, relevant, contextualised, personalised, on their mobile devices. While most learning leaders identify with this trend, not many of them actually apply microlearning. That is because microlearning solutions require design and technology, which most existing platforms, authoring tools, and processes do not fully support. Most organisations today are dealing with challenges in technology infrastructure and established design best practices that prevent them from adopting microlearning quickly.

Microlearning goes beyond content, and makes it possible to learn on-the-go in small specific bursts. To this end, microlearning offers small businesses an opportunity to approach employee training in a whole new way. However, small companies may need support with exploring the available microlearning programs and strategies.

**Trend 3: Rapid growth in mobile learning**

Mobile learning or m-learning also suggests to be a suitable option for SMEs. Most people have access to at least a smartphone, and people often have multiple mobile devices. With an audience supplying their own hardware, the cost of implementing m-learning programs becomes more affordable than other alternatives. Furthermore, m-learning also allows employees to feel an extra level of responsibility for their training, since their training modules are literally always in their hands.

There is a common misconception that m-learning is only relevant for large companies. However, “the mobile app revolution” is suggested to have an especially powerful impact on small businesses, as it helps these companies reduce expensive, redundant processes and makes them leaner and more cost-efficient. Some apps offer free versions to small business owners to help them better train their employees.

**Trend 4: The rise of real-world learning**

Apart from making learning engaging, there is a need to bring learners closer to the "real world". Virtual/Augmented Reality (VR/AR), as it has the ability to close infrastructure gaps, will have an increasing impact on how organisations can achieve

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32 Ibid.
that. Some companies are now using VR/AR technologies to increase sales effectiveness, educate customers, and establish brand recall. Different VR/AR cases and requirements are expected to emerge over several other areas in the coming years.

Small businesses can now also leverage on VR/AR solutions to advance experiences of their customers. Due to the initially high cost of the relevant equipment, these technologies were not always affordable to SMEs. However, as the technologies become more mature, the cost of the equipment will continue dropping further.

**Trend 5: The effectiveness of gamification**

Gamification has proved to be an effective strategy for employee engagement. A vast majority of learning teams use gamification as a component of their digital learning strategy. The use of gamification in learning solutions is expected to grow in the coming years.

While many of the companies adopting gamification are large enterprises, it is also suitable for small businesses and startups. Gamification has a good fit with the unique office culture of startups. One of the main reasons why small businesses hesitate to explore gamification is the fear that these systems will be expensive, and difficult to introduce. However, the gamification market is becoming more specialised everyday, leading to more affordable “turn-key” gamification solutions that are also feasible for SMEs.

**Trend 6: Increasing collaboration with social learning**

Collaboration is becoming a mainstream tool to engage employees, enable for smarter decision-making and enhanced business outcomes. Collaborative networks are shortening the time-to-business and cutting costs to drive employee engagement and transparency. Social learning has a clear role to play as learning teams build and deploy the modern learning technology in the organisation.

If a company has an online forum board where learners post their questions or concerns, an effective strategy could be to move that over to a social media platform where they can engage in a more lively and educational discussion with their peers. It is also possible to bring discussions to blogs, and virtual meeting sites. If there are certain topics that seems to be actively discussed amongst the learners, it would be advisable to make that a feed or post on a dedicated social media page.

**Trend 7: Learning Engagement Systems and personalisation of learning**

The digital learning field is moving into the direction of creating “Learning Engagement Systems”, i.e. solutions that use profile data about learners, their personalities, their habits, goals and feedback from others. The objective is to drive personalised learning and provide coaching and connections to help keep workers

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36 Ibid.
38 Ibid.
connected with their ambitions and their personal development priorities (enabled by Artificial Intelligence (AI))\textsuperscript{41}.

Specifically, a distinction needs to be emphasised between \textbf{personalised and personal learning}. While personalised learning implies some degree of customisation, essentially all learners get the same experience. In case of personal learning, the role of the training system is not to provide, but to \textit{support} learning, while the decisions about what to learn, how to learn, and where to learn are made outside the training system, by the individual learners themselves\textsuperscript{42}. Personalised learning can be compared to choosing from a menu at a restaurant, while personal learning is comparable to shopping at a grocery store and cooking your own meal\textsuperscript{43}. The notion of personal learning builds on the idea that if people are to become effective learners, they need to be able to learn on their own\textsuperscript{44}. For that, they need to be able to find the resources they need, assemble their own curriculum, and follow their own learning path. In this case, education/training providers and policy makers can only facilitate this process, while keeping in mind that there are too many and too varied needs of individual learners.

The third expert workshop held in the context of the current initiative explicitly focused on the topic of personalisation of online training for SMEs. It was agreed by the stakeholders that personalisation of learning is vital for the adoption of online training solutions by companies of all sizes, and particularly small businesses.

Besides technological developments changing the learning landscape, it is important to keep in mind also the relevant social transformations in the workforce. Examples of relevant topics include “gig economy”, realities of modern learners (impatient, distracted and overwhelmed), the rise of millennials and other new generations, aging workforce, a changing role of women in the workforce, social learning etc. Furthermore, the developments with regard to recruitment practices and recognition need to be taken on board too (e.g. recruitment based on potential rather than qualifications; recruitment for access to people who can do the work rather than an ability to perform work directly; open badges; evolving role of employment agencies etc.).

\textbf{2.1.3. Key dynamics within companies in Europe}

According to Fosway Group report (2017)\textsuperscript{45}, companies constantly revisit their learning solutions. The latter are often transactional rather than strategic, and frequently have a short shelf life. More than 90% of analysed European companies expect their investment in digital learning platforms and content to increase or stay the same in the near future. Most expansion in digital learning courses comes from decreasing investment in traditional instructor-led training approaches. The pressure on Learning & Development (L&D) overall is often to reduce costs or deliver more with the same budget. Despite the \textit{positive momentum in investment}, however, the \textbf{overall company budgets for digital learning tend to be relatively low}\textsuperscript{46}.

Furthermore, companies tend to pay increasing attention to \textbf{measuring the impact of (online) training on business results}\textsuperscript{47}. The direct impact of learning could be measured through surveys of both employees and their managers (e.g. a metric on the learning tools that are most effective for acquiring different types of knowledge; or a

\textsuperscript{43} Ibid.
\textsuperscript{44} Ibid.
\textsuperscript{46} Ibid.
\textsuperscript{47} Ibid.
measuring learning effectiveness is a challenging key performance indicator, yet digital learning platforms often have built-in analytics to create a basis for that. The analytics allows companies to run reports on usage to see what is most effective and to dismiss those assets that are not being used. Ultimately, companies need to work towards connecting the learning outcomes and business outcomes, such as attrition, employee engagement, and sales growth.

The following developments can be observed within companies in Europe with regard to digital learning solutions:

- The majority of analysed companies already uses social and collaborative solutions (social media platforms, blogs and fora, virtual meeting sites etc.).

- The use of MOOC style solutions is still a minority approach, with around a third of analysed companies using these platforms.

- Mobile learning is in high demand for learning platforms for European companies (almost 75% of analysed companies either already use or expect to use mobile learning features from learning platforms in the near future).

- As highlighted above, the field is moving into the direction of creating “Learning Engagement Systems”.

- Traditional approaches still form the basis of the learning content market. The latter is dominated by off-the-shelf content (for 81% of analysed companies, it is the most commonly used approach).

- Video becomes increasingly popular as a digital learning solution and covers all forms (user generated, bespoke or off-the-shelf). In many instances, YouTube has become the reference model for company’s performance support learning.

- Blending formal and informal training, as well as offline and online training, is a historical trend that will continue.

A combination of video, mobile and user generated learning is shifting the learning landscape towards capturing “real” organisational learning rather than that, which is solely provided by the learning department.

### 2.1.4. Towards a new model for company learning

The main drivers for learning transformation within companies include a need for creating a competitive advantage, closing the skills gap, and retaining and motivating new workforce. In moving towards accelerated, continuous learning, companies need to develop a culture of accountability and excitement around learning, and specifically:

- Devote resources and efforts to understand skill gaps, customer needs, and employee shortfalls;

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50 Based on the findings of Fosway Group (2017) "Digital Learning Realities 2017: Part 2 –Trends, Drivers and Measures of success”, in association with learning technologies, July 2017


52 Based on the findings of Fosway Group (2017) "Digital Learning Realities 2017: Part 2 –Trends, Drivers and Measures of success”, in association with learning technologies, July 2017

53 In order to become learning organisations

- Ensure that learning is specific to the individual and relates to specific business and career goals;
- Motivate and guide employees through the tools, helping them develop personalised plans, and monitor their progress.

Stakeholders generally suggest that **companies should be relatively “hands-off” when it comes to employee learning**. It is the responsibility of the workers to learn and acquire the needed skills and competencies for their jobs, and it is important to monitor the outcomes and not micromanage the process they use for getting there. At the same time, **it is vital for companies to motivate their employees to learn** by setting a good example. A company could view corporate learning not as curriculum, but as a set of experiences, including classroom courses, online training, coaching, mentoring, and informal collaboration. Introducing innovative learning tools and programs that allow employees to study independently and experiment with new ideas is reported to be motivating, which can lead to higher engagement, productivity gains, and even bottom-line benefits.

In case of SMEs, that typically do not have human resources dedicated to the topic of employee learning, there is a clear need for straightforward, accessible and affordable solutions to address the points above. **Social learning and mobile learning** prove to be particularly promising in this respect. Social media allows companies to access up to date information as is needed, collaborate with external expertise and widen their skills base. Mobile learning enables just in time learning allowing SMEs to be responsive and flexible to emerging needs.

### 2.2. Availability, quality and affordability of online training for SMEs

The current sub-section addresses the topic of availability, quality and affordability of online training for SMEs.

#### 2.2.1. Availability of online training for SMEs

SMEs are in general reported to be restricted in the efficient use of different forms of learning and technology for learning and in adequate management learning approaches. Data across OECD countries show that **SMEs participate 50% less in training activities overall than large firms**. The key reasons for this difference include a lack of critical mass within the firm enabling them to afford (both financial costs and the cost of employee’s time) and access formal training opportunities.

When it comes to training in general, SMEs typically face the following challenges:

- **High cost/too expensive to provide training** - associated with the costs of hiring external training providers; universities typically do not offer short courses and are more suited for larger companies; courses offered by public institutions are often too broad/basic, teachers lack industrial experience;

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57 Ibid.


60 OECD (2013) "Skills Development and Training in SMEs", OECD publishing

61 Ibid.

62 Ibid.
• **Impossible to interrupt** production time/lack of time – due to company size, employees are constantly needed to maintain production and service; in order to allow an employee time off work to carry out training, there is an increase in the workload of other employees or there is a resulting reduction in product output;

• **Too difficult to identify suitable training providers or lack of training providers/programmes** – it is often difficult for SMEs to assess the quality of the available training programmes, or, in some cases, there is a lack of awareness that training opportunities exist. Some SMEs are highly specialised, and in their case, there is a lack of training programmes that suits their needs.

The most popular learning in SMEs is **informal** one, and the integration with formal strategic training is often not planned. SMEs are more inclined to participate in knowledge-intensive activities as a way of learning new techniques or new ways to operate. This includes learning by interacting with consultants, suppliers or clients; or attending conferences, meetings or internal activities such as quality control activities. Access to mentors (often outside the business) can be important here, as are informal networks. These activities, however, do not carry formal qualifications or standard training certificates. Most companies, however, focus on and recognise only formal learning programs, thereby losing valuable opportunities.

There is a need to recognise the role of accessibility of SMEs to online training by emphasising multiple ways in which online training can be accessed using latest technologies including smartphones, iOS and Android apps.

### 2.2.2. Quality of online training for SMEs

With SMEs coming from diverse backgrounds, a **“one-size-fits-all” approach is often not suitable**. For companies, the challenge remains **how to develop and maintain a competitive ecosystem of suppliers around their digital learning projects** that stimulates to provide better levels of service and solution. There is a trend for some companies to look for unconventional suppliers.

**The risks around selecting the right suppliers appear to be greatest when it comes to learning content.** In areas such as gamification, business systems solutions, user generated content, serious games, MOOCs, of-the-shelf performance

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63 At the same time, the need to interrupt working processes is eliminated with the use of Electronic Performance Support Systems (EPSS) that represent an alternative to training. EPSS are integrated into the work processes, and are there to support rather than interrupt those.


66 Ibid.


70 Ibid.


support and virtual reality, companies are 60% likely to get merely an acceptable or poor quality solution\textsuperscript{73}.

Blended learning and mobile learning do not score significantly better\textsuperscript{74}. Only in video content and bespoke content, the quality of the offer is reported to be generally acceptable\textsuperscript{75}. Social learning and analytics are also associated with a high risk of low quality\textsuperscript{76}. Only 10-15% of digital learning platforms are rated “very good”\textsuperscript{77}. Without a proper approach, digital learning is between 50-70% likely to have a mediocre impact on an organisation\textsuperscript{78}.

2.3. Affordability of online training for SMEs

SMEs are often reluctant to pay for staff training. In difficult times, training budgets are often the first to be reduced or fully removed. It can be explained by the fact that owners/managers of SMEs often do not have enough knowledge about the long-term value of training in sustaining competitive advantage and about suitable, efficient, and affordable learning solutions\textsuperscript{79}.

The investment required in order to develop personalised online training platforms and courses is often too high for many SMEs (especially the ones with less than 10 employees)\textsuperscript{80}. The most common solution adopted is the purchase of off-the-shelf e-learning courses, with the standardised content\textsuperscript{81}.

One of the approaches to tackle the abovementioned issue of affordability vs. personalisation for SMEs refers to \textit{“Do-it-yourself” (DIY) strategies}\textsuperscript{82}. DIY online courses follow the micro-learning methodology. They are a mixtures of chunk size learning content (i.e. videos, tests and html5 e-learning lectures), structured in a pre-planned sequence. The creation of this type of content can be done by anyone. The investment needs with regard to time and money could vary, depending on the chosen educational methods and output formats.

DIY approach in online training allows SMEs to avoid the need to outsource course creation, opting for a “keep it simple” ways (which, in turn, saves more time for planning, focusing on the content, using templates, creating narrated presentation videos etc.). With DIY approach, money and time investment needs could be drastically reduced. Some initiatives already exist\textsuperscript{83} that provide comprehensive support for the course creators, and specifically online courses and templates, offline and online workshops and mentoring programs, technical infrastructure (local studio and the

\textsuperscript{73} Ibid.
\textsuperscript{74} Ibid.
\textsuperscript{76} Ibid.
\textsuperscript{77} Ibid.
\textsuperscript{78} Ibid.
\textsuperscript{79} Hamburg, I. (2015) “Improving e-Learning in SMEs through cloud computing and scenarios”, E-learning-instructional design, organizational strategy and management, InTech
\textsuperscript{81} EU15 Ltd et al. (2015) “European-wide e-Learning Recognition Review Report”, Erasmus+ project nr. 2014-1-UK01-KA202-001610 (SMELEARN project)
\textsuperscript{82} Based on the presentation of Ádám Bodor “The anatomy of online course creation and DIY (Do it yourself) strategies”, Webuni (Hungary) during the second expert workshop on 18 June 2018 in Genova (Italy)
\textsuperscript{83} See, for example, Webuni. It has own online educational platform, which provides an opportunity for “knowledge owners” (Teachers, Professionals, Influencers, Training companies, SME’s, Institutions, Corporations, Umbrella organisations, etc.) to create and publish their own-made online courses on an open online marketplace. Based on this course portfolio, Webuni has launched an isolated and filtered marketplace for SMEs, where they can find a shortlist of the available courses, which suit them. They can purchase the ready courses there for their employees getting bundle discounts on them, and get comprehensive support for the management of the whole process. More information available at: https://webuni.hu/
mobile course creation studio box) etc. However, these approaches should be treated with caution, as professional involvement, including coaching and mentoring, is often needed in order to ensure a high-quality training course.

2.4. Adoption rate of online training among SMEs in different EU Member States

Our extensive desk-research did not identify any studies/initiatives that would quantitatively measure the adoption rate of online training explicitly among SMEs in different EU Member States. The results presented in this sub-section correspond to the analysis carried out in the context of the current initiative.

When analysing the adoption rate, it is important to keep in mind that **SMEs represent a highly diverse population.** First of all, the demand for online training solutions among SMEs varies per sector. SMEs that have a more high-tech orientation, in general tend to be more actively involved in online training. Within the sub-population of high-tech SMEs, ICT SMEs tend to be leading when it comes to the adoption of online training solutions. Additionally, the adoption rate of online training solutions by SMEs varies per size. Their size (here we distinguish between micro (up to 10 employees); small (10 - 50 employees); and medium (50 – 250 employees) sizes) tends to positively correlate with SME use of online training, i.e. larger SMEs are more keen to use and take the advantages of online training.

Based on in-depth interviews with Member State (MS) representatives, we were able to indicate an overall adoption rate of online training among European SMEs in 21 EU MS (see Figure 3-1). For that purpose, we interviewed national experts in technology-enhanced learning that were nominated by stakeholders as experts with a ‘helicopter view’ on the developments in their country. All analysed MS were clustered into three groups, namely ‘high’ (online training is a regular part of SME training activities), ‘medium’ (online training becomes increasingly popular among SMEs) and ‘low’ (SMEs hardly use online training solutions) based on expert judgement. This analysis should therefore not be viewed as any kind of statistical exercise, and it is based purely on qualitative inputs of the consulted experts.

Ten analysed MS reported low popularity of online training among SMEs (namely CY, EL, HU, IE, IT, LV, MT, LT, PL, RO). Only one MS (SE) reported high popularity of online training among SMEs. The remaining MS (namely AT, BE, DE, ES, FI, FR, HR, PT, SI, UK) demonstrate medium popularity of online training. This exercise was meant to get an overall expert estimate of the state of play specific EU MS, and it does not represent a thorough quantitative analysis. As highlighted above, to our knowledge, no quantitative studies exist so far, offering statistical data for this topic.
FIGURE 3-1: Popularity of online training solutions among SMEs in different EU Member States

Related statistical data can be found in the data on lifelong learning, such as the one provided by Eurostat as % of the population aged 25 to 64 participating in education and training in general (the latest data is available for 2011 and 2016; see Figure 3-2)\(^84\). The data suggests that the leading MS in lifelong learning in general are Sweden, Denmark, Finland, Netherlands and France, which is in line with our findings on the adoption of online training.

FIGURE 3-2: Adult participation in lifelong learning, 2011 and 2016 as % of the population aged 25 to 64 participating in education and training (source: Eurostat)

At the same time, when consulting the data of the European Innovation Scoreboard 2018\(^85\) on SMEs with marketing/organisational innovations, a different pattern emerges

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\(^85\) [http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en](http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en)
Online training market in Europe

(see Figure 3-3). Countries such as Sweden, Denmark and Finland, for example, appear lower in the chart, being surpassed by multiple other MS, including, for example, Belgium, Germany and Ireland (with a relatively low score on lifelong learning by Eurostat and a medium or low adoption rate of online training according to expert estimate).

![Figure 3-3: SMEs with marketing and organisational innovations (source: European Innovation Scoreboard 2018)](https://www.learninglight.com/marketing-elearning-company-europe/)

In general, **EU MS demonstrate different levels of maturity in using learning technologies**. This can be explained by the perceived business value of learning and technology-related factors. For example, Internet connectivity levels and costs significantly vary across the EU. Mobile phone and social media usage, as well as ownership patterns also vary greatly. These factors have a direct impact on the maturity of the market of online training and learning technologies.

Nordic countries are reported to be the most advanced and is a net exporter of online training solutions and learning technologies. The UK is a vibrant market too. The German market is growing rapidly, and it is expected to become substantial in the next few years. France has seen a considerable growth, which has recently slowed down. Spain is recovering and is actively exporting its skills and solutions to South America. Eastern Europe, in turn, has substantially benefited from the EU structural funds, and much of the infrastructure is has been put in place that facilitates the adoption of online training solutions. Strong market growth is forecasted for these countries for years to come.

Table 3-1 provides a detailed overview of the situation in each of the analysed MS.

### TABLE 3-1: Situation regarding the rate of adoption of online training in specific Member States

<table>
<thead>
<tr>
<th>Country</th>
<th>State-of-play regarding the adoption rate</th>
<th>Key challenges</th>
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</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Online training in general is popular among mid-sized to larger</td>
<td>Initial online training solutions could not fulfill high expectations of companies with</td>
</tr>
</tbody>
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87 [https://www.learninglight.com/marketing-elearning-company-europe/](https://www.learninglight.com/marketing-elearning-company-europe/)
88 Ibid.
89 Ibid.
90 Based on in-depth interviews with MS representatives.
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<tr>
<th>Country</th>
<th>State-of-play regarding the adoption rate</th>
<th>Key challenges</th>
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<tbody>
<tr>
<td>Austria</td>
<td>Companies in Austria, less with SMEs. However, MOOCs are not so popular among Austrian companies yet. Only a few of the larger companies uptake external MOOCs or even create their own MOOCs.</td>
<td>regard to saving costs, flexibility, scalability, new networking opportunities, improving employee retention rates etc. There is lack of awareness of/experience with online training and specifically MOOCs. If companies are aware of MOOCs, often they still do not dare to create their own MOOCs because of missing experience. If they are aiming to use external MOOCs, they often lack experience and time to identify the right external MOOCs and integrate them into their training offers. Other challenges are related to company secrets, legal limitations, confidentiality issues, and technical security issues such as company firewalls blocking the access to certain platforms.</td>
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<tr>
<td>Belgium</td>
<td>The adoption rate largely depends on the size of companies. Larger companies usually have structured learning programmes for their employees, but smaller companies do not have time/manpower to spare to organise learning programmes, let alone giving employees time off to do these learnings.</td>
<td>SMEs also tend to have highly specific training needs. There may be a language barrier in select areas of Wallonia, but generally trainings in English (sourced internationally) should not be an issue. Cost of trainings does not seem to be a major barrier either. However, employees (who undertake training themselves out-of-pocket or beyond working hours) will probably expect some recognition or compensation.</td>
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<tr>
<td>Croatia</td>
<td>It is not popular among small companies. At the same time, it is quite widely used by medium-sized and large companies. Medium-sized companies have more training for their personnel. In smaller companies, it is more opportunistic, and there is usually no systematic learning and development process.</td>
<td>Availability of funding; Willingness of workers: this is not just motivation, but sometimes they are not skilled enough to use the technologies; Lack of recognition of achievements in a formal way; Language-barriers: in high-tech SMEs, English is common. However, older workers and low-skilled workers might prefer Croatian language training. Internet access/technology infrastructure is not a significant challenge anymore, except in some areas, e.g. islands, mountains.</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Online training is extremely unpopular among companies, especially SMEs. A rough estimate would be that about 5-10% of companies in Cyprus are currently to some extent engaged in online training. For small companies, this figure would be under 3%. There is still a long way to go before online training becomes a popular phenomenon for companies in Cyprus.</td>
<td>Low interest in training in general: many companies in Cyprus are family businesses, they typically do not have a long-term vision, especially regarding their skills needs. Training (even in a face-to-face form) is considered a luxury. Most companies (roughly 95%) do not look outside. Companies are not really bothered by lack of training, they see it as a waste of time. As long as they keep doing well, they are not interested in changing the situation. It is a cultural</td>
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## Online training market in Europe

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<tr>
<th>Country</th>
<th>State-of-play regarding the adoption rate</th>
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<tr>
<td>Germany</td>
<td>The popularity of online training in Germany has grown significantly in the last decade. There was a shift from web-based training (WBT) to mobile learning. Video content is also highly popular, especially for SMEs, in particular for informal learning.</td>
<td>Traditional education providers continue to focus on face-to-face classes. This also has to do with the lack of entrepreneurial courage. There is a lack of e-learning skills among users/companies and education providers.</td>
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<tr>
<td>Greece</td>
<td>Online learning is much more popular with professionals and freelancers rather than in the corporate environment. Demand for online learning is not often initiated through the corporate organisations but rather, proactive individuals and professionals following courses out of their own interest.</td>
<td>The biggest challenge is the attitude towards lifelong learning, business culture and regulatory framework for learning. The level of ICT infrastructure in terms of internet access and device availability is also mediocre in Greece. Investments are required especially in the countryside.</td>
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<tr>
<td>Finland</td>
<td>Online training has become mainstream for large companies (based on the experience with hundreds of companies). This shift took place in recent years, and now many companies start looking online first before they consider traditional forms of learning. The situation is still different with small companies. Only very few small companies are using online training on large scale, neither Small companies see that online training development in full-scale is a resource-challenge they cannot tackle. Companies lack understanding about the opportunities offered by online training and how to apply online training in different purposes. There is lack of understanding about the economics of learning – where costs actually incur and how costs can be kept low without sacrificing the quality of...</td>
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<td>have they established strategic initiatives or roadmaps to develop and utilise online training on a regular, systematic basis. There is a small but significant niche market in SME sector that focuses on partner and client training. High-tech SMEs are at the forefront of small companies when it comes to the use of technology-enabled learning solutions. They are the ones primarily using online training, as it is often the most efficient way for them to meet their training needs. For example, small companies operating globally and having a need to train their partners and customers all over the world can hardly use traditional training methods for that, and online training is exactly the solution they need. There are generally two main directions for online training, namely off-the-shelf materials or resources that are ready to be used but sometimes do not fit the need, and customised training that is tailored to the needs of a specific company, but is more challenging to develop. For many companies, online training becomes the only way to meet their evolving training needs, and traditional methods do not fit anymore.</td>
<td>learning. For SMEs in particular it is critical to understand the financial impact of training investment and how the impact can be made positive. Lack of trust in online training used to be an issue in Finland, but after a lengthy period of experimenting with different ways of doing it, the issue is not so evident anymore. Managers lack skills and capabilities to provide online training – according to recent studies most managers consider online training as an essential business enabler but similarly consider that they are not doing enough to increase employee training opportunities. Lack of concepts, tools and services that fit the specific demands and budget of SMEs. Technology barrier becomes less and less prominent, especially for the new generation of workers. Lack of centralised resources for finding information about online training methodologies, different solutions available and how to apply them appropriately, and learn and share experiences with peers.</td>
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**France**

Many companies are still not using online training, especially small businesses. Regarding recognition of experience, France has programmes since 2002 that recognise formal/informal education and skills. However, not everyone uses them. High-tech businesses are actively involved in (online) training. Other types of businesses often do not do it at all. Small business see lifelong learning as a “tax” and not as an opportunity to improve their business. When they look for something specific, they have difficulty with finding the training they need. In high-tech SMEs, international training in English is quite common. In other sectors, a foreign language is likely to be a challenge. **Hungary**

In some sectors, training is not popular. Within small companies, even if government activities are going online, the way of thinking is changing slowly. There are about 10-50 high-tech SMEs directly working towards the US/global In medium sized companies, English is common. However, for small/micro companies, Hungarian language is preferred. Typically SMEs hire already trained people rather than spend time/money

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91 The first LMS and learning system implementations were heavily technology-driven and were focussing mainly on the infrastructure and technological solutions, rather than actual learning. It was essentially done in a “wrong way” by forgetting the user experience and what the systems should stand for in the first place (learning). This partly ‘spoiled’ the overall attitude of people towards online training in the early days (around the end of 90s – mid 2000).
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<tr>
<td>Hungary</td>
<td>markets, e.g. Prezi, Bnovative Architecture, design, GPS, niche tech companies among others.</td>
<td>training people. Almost any other activity by the company is seen as more important than actually training people. Hungary is well-connected and Internet connectivity does not represent a challenge, except in some rural areas.</td>
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<td>Ireland</td>
<td>Often SMEs are not aware of what online training might be. In contrast, companies like Amazon and Google, and many spinoff companies are highly aware and use it actively. However, in the non-high-tech field, it is hardly known and therefore not used.</td>
<td>Investment: SMEs need to know what kind of investments they need to make in terms of money, time, expertise. Psychology: training is associated with negative experience from school. Lack of experience: there is a lack of leadership and managerial experience in this area. There is a fear that employees on training might either give away sensitive information OR leave the firm once they go through the training, and that fear holds companies back.</td>
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<tr>
<td>Italy</td>
<td>For large companies in Italy, it has become quite common to use online training. The use of online training by SMEs, however, is still rather limited. A rough estimate would be that about 15% of all companies (counting both large and small and medium-sized companies by the unit) in Italy use online training, and when looking at SMEs only, this number would be about 5%.</td>
<td>Historically, training is considered by companies in Italy as a cost item rather than investment. Technology infrastructure in Italy is still slightly behind many other EU countries. There is often a conflict between HR people and IT people in large companies when it comes to agreeing on the overall digital training systems and architectures. Training service providers in Italy are still quite traditional. For example, VET is coordinated by the regions, and the latter do not yet proactively mandate the use online training. Trends like microlearning, social learning, VR, serious games etc. have not been largely applied yet. In general, the provided online training is hardly exciting and engaging, and the learner has to be truly motivated to complete it. It is still the first generation online training, with low attention to the aspects of learning experience, learner on boarding and engagement. The budgets spent on the development of online training contents in Italy are rather low (compared to the United Kingdom or Nordic countries). At this stage, most of the market is not yet asking for more attractive online training products and they are not ready to allocate higher budgets to it.</td>
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<tr>
<td>Latvia</td>
<td>Online training is not popular among companies in Latvia. Companies still prefer face-to-face training instead. Nevertheless, there are already some tools and platforms for online training (e.g. MOOC platforms), offered by universities. These courses,</td>
<td>The preference for face-to-face training stems from historical tradition. It is more a cultural issue that is difficult to change.</td>
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<td>Country</td>
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<td>however, are often meant for students, not professionals. Large companies sometimes use internal e-learning platforms for generic training of their personnel (e.g. on safety issues). Other types of online training are hardly used by companies in Latvia.</td>
<td>Most small companies are localised in three cities (Vilnius, Kaunas and Klaipeda), which makes it easy to meet physically and to train employees in a traditional way (i.e. physical presence at the training). When companies start operating internationally, the issue of location becomes more sensitive and there, online training may play a more important role. Although it happens slowly, more and more companies start using the opportunities of online training.</td>
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<td>Lithuania</td>
<td>Many companies in Lithuania are SMEs. Most of them are not using online training. The popularity of online training varies per sector, however, in general, companies prefer more traditional ways of learning. Online training is not yet a significant part of a learning culture of small companies in Lithuania. In terms of content, companies mostly use online training for social &amp; management skills and for ‘hard-core’ technical skills (e.g. for ICT sector). In terms of language, online training in English is a common practice, especially for the high-tech sectors (such as ICT), and it typically does not represent a barrier for (high-tech) companies to follow specific training.</td>
<td>Lack of awareness about opportunities offered by online training; Accreditation: most countries are struggling with the certification issue with regard to online training. State universities are being cautious about what materials they serve online and which materials are used exclusively in formal learning.</td>
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<tr>
<td>Malta</td>
<td>With regard to bespoke e-learning, it is still at an early stage and availability is low. Not many MOOCs are available that are produced in Malta for the Maltese. They are developed mostly by the academic community in Malta. The Maltese government is also going to launch a new platform. Platforms like Coursera/FutureLearn become increasingly popular.</td>
<td>SME owners often lack knowledge of the opportunities offered by online training and the benefits it offers. Young generation typically proactively looks for learning solutions, they are better aware of the opportunities of online training and where to find it (in contrast to older generations). In some cases, teachers at universities may even be deliberately ‘hiding’ online training from students due to their fear that online training will someday replace them. People working at companies often do not feel there is a need for them to advance their skills. They feel safe about their job. It is only when they plan to look for a new job, they are more likely to consider some forms of training.</td>
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<td>Poland</td>
<td>Over 70% of Polish entrepreneurs continue to invest in expensive stationary training and do not use the opportunities offered by online training.</td>
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<td>Country</td>
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<tr>
<td>Portugal</td>
<td>Only a few companies in Portugal actively use online training as a formal way of learning. For small high-tech companies, online courses are more popular in a self-learning mode, completely outside the formal training system. Big companies and corporations use formal online courses. Companies increasingly appreciate the flexibility offered by online training. There is still a need to prove that online learning is effective (compared to face-to-face learning). Panorama e-learning study (2014) estimated that roughly 10% of training courses are offered in online mode, while 90% imply face-to-face learning. The study covered enterprises, public bodies, training organisations and higher education.</td>
<td>There is a need to increase digital literacy; the barriers are focused on the negative perception related to lack of human interaction in online training. There is a need for a positive discrimination in relation to e-learning and b-learning due to the mistrust of the formal system. E-learning is still a relatively new concept, although it exists already for many years. It may be a matter of a cultural barrier since many people do not trust it as a form of training and prefer human interaction.</td>
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<tr>
<td>Romania</td>
<td>E-learning is used in some companies, but not all companies use online training frequently. A rough estimate would be that about 10% of companies use online training regularly, especially those in the ICT field. Most of these are in the major cities Bucharest, Cluj-Napoca and Timisoara. Some companies use MOOCs and SPOCs like Lynda.com</td>
<td>Not knowing the advantages or disadvantages of certain trainings Quality concerns about trainings (Lack of) trust in the people/institutions providing the trainings Language barrier Access to ICT, especially in rural areas Speed of broadband coverage in cities Updated technology to run e-learning content and activities</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Online training among SMEs in Slovenia is not widely used. High-tech SMEs more often use elements of online training than other SMEs. Video content and off-the-shelf content are most often used in companies. Only a low percentage of high-tech SMEs as part of their training options use also virtual reality, gamification or serious games. Participation in MOOCs is often based on a personal decision of an employee and is not part of an overall training strategy of SMEs.</td>
<td>Lack of company’s learning strategy, Lack of knowledge and understanding of employers and employees what online training really is and about the opportunities offered by online training, Lack of commitment from management, Lack of high quality content, Fear of high development costs.</td>
</tr>
<tr>
<td>Spain</td>
<td>Online training already has a high popularity among high-tech start-ups. They try to find an ‘easy’ way to access knowledge, and they acknowledge the benefits that online training can provide in this respect. Being active in a high-tech world makes these companies per definition better predisposed for</td>
<td>It is often difficult to assess the actual outcome of the training. That may prevent companies from actively using it. Many companies do not see training of their employees as a key priority, and instead prefer to focus on operational activities (i.e. selling, buying, developing products etc.).</td>
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### Country

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<th>Country</th>
<th>State-of-play regarding the adoption rate</th>
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<tbody>
<tr>
<td>Sweden</td>
<td>Online training is already a mature way of giving training in Sweden now. Especially high-tech companies use multiple online learning resources – even freely available, for example, on YouTube. Company training in Sweden is aligned with the business context. Most of the time, drivers for training refer to meeting business Key Performance Indicators (KPIs). The adoption of online training has also been actively supported by Swedish government.</td>
<td>There is a lack of good cases to copy. There is a fear of manpower loss during training time. There is a big difference between sectors and regions in the country. On average though, companies are mature and understand that training is generally a good idea for the company and employees despite momentary inconvenience.</td>
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<td>United Kingdom</td>
<td>In the UK, online training is increasingly popular but limited to a few areas: Compliance with regulations (either Europe-wide or national; e.g. GDPR); Manufacturing techniques (which can also be learnt via videos on YouTube); Online training for social media; Growth hacking. Other than that, e-learning is highly limited, and what exists seems to be happening only at specific companies. A lot of players are offering trainings; however, most are not UK-based. The majority of the UK-based training providers tend to be universities.</td>
<td>While many providers market their trainings as tailor-made, they are ultimately not catered to the needs of the individual SMEs. Ideally, tailor-made content means it is either linked to the exact business/sector of the SME or the pace/standard of the learner. The trade-off of cost and time is always challenging for SMEs.</td>
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### 2.5. Key players and cooperation mechanisms

The digital learning market in Europe remains relatively immature. Single providers hardly ever take a lead in supporting the entire learning solutions portfolio. Most tend to be specialist providers, so it is difficult to purchase high quality solutions for all cases from one provider\(^\text{92}\). Instead, a clear trend can be observed with regard to preferred partnering between providers (rather than trying to provide a whole set of digital learning solutions by one provider)\(^\text{93}\).

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\(^93\) Ibid.
Figure 3-4 below provides an overview of the number of e-learning companies for specific Member States. The latest publicly available data refer to 2012. This data has to be treated with caution not only because of its reference to the situation six years ago, but also due to covering the whole e-learning domain (including e-learning for students and broader publics, and thus going beyond the area of the online training for companies, and particularly SMEs). Nevertheless, it provides an overall impression with regard to the number of e-learning providers in specific countries, and indicates the leading role of France, UK and Germany in that respect.

FIGURE 3-4: Number of e-learning companies in selected European countries (2012; source: Statista 2018)

At a later stage of this initiative, we also aim to explore the opportunities for data analysis offered by the OECD's Survey of Adult Skills (PIAAC), and specifically to examine the feasibility of obtaining some estimates for job-related training hours in

96 http://www.oecd.org/skills/piaac/publicdataandanalysis/
SMEs by country, the share of distance (and open) education, perceived usefulness and other relevant questions.

Table 3-2 describes the situation regarding the key players in each of the analysed Member States, based on the qualitative analysis conducted in the context of the current initiative.

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
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<tbody>
<tr>
<td>Austria</td>
<td>The only Austrian university platform imoox is not focusing on company-MOOCs. Telekom Austria have their own company-internal platforms and are highly experienced. AVL List GmbH participate in the BizMOOC project and have co-produced the MOOC on Intrapreneurship which was also recommended to all their employees. However, those are only large companies. Almost every larger company has its own e-learning/LMS system. Many of them are offered in cooperation/hosted by external partners, such as ELC GmbH, IMC, Click &amp; Learn, Bit Online, Webducation GmbH etc.</td>
</tr>
<tr>
<td>Belgium</td>
<td>There are some initiatives supported by the government and/or union-driven. For example, on the CEVORA97 platform, many trainings are free and comparable to Lynda.com. There are few companies targeting upskilling and reskilling SMEs, but most active players target individuals who are interested in upgrading their skills. For example, VDAB98 provides retraining specifically targeting retrenched SMEs. Employment agencies like Voka99 and Unizo100 also organise training around some topics.</td>
</tr>
<tr>
<td>Croatia</td>
<td>There are a few private companies producing local e-learning materials. Universities are involved in it too, but mainly for academic purposes rather than for companies.</td>
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<tr>
<td>Cyprus</td>
<td>The market is currently underdeveloped. There are only a few (1-2) providers that have experience with developing online training. These are private companies. It is also rather costly to develop online training in Cyprus.</td>
</tr>
<tr>
<td>Germany</td>
<td>The e-learning market consists of a large number of local providers of all sizes. The key players are SAP Education, tts GmbH, imc information multimedia communication AG, Know How AG!, Haufe Group GmbH101.</td>
</tr>
<tr>
<td>Greece</td>
<td>There are some established online training providers like the University of Athens Adult Education Institute. It is run as a for-profit business unit focussed on fully online (non-blended) self-paced learning with a traditional examination at the end, for courses like accounting and auditing. In general, more and more universities are entering this market but still in an amateurish way. In the private sector, a group of companies called Centres for Continuous Vocational Training receive structural funds for training disadvantages groups, (e.g. currently unemployed people). They develop some blended learning variants of their learning materials.</td>
</tr>
<tr>
<td>Finland</td>
<td>The market is not that advanced in terms of number of players. There are only a few companies that have ‘serious’ product or service offerings. There are also multiple players that develop learning videos (i.e. video production companies). However, those often lack a good understanding of the underlying learning needs and pedagogics.</td>
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97 https://www.cevora.be/landing
98 https://www.vdab.be/
99 https://www.voka.be/voka
100 https://www.unizo.be/
### Online Training Market in Europe

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<tr>
<td><strong>Additionally</strong>, many self-service solutions become available allowing companies to develop their own learning materials. This area is growing fast, but it can cover only a limited part of the demand, because these tools or services alone are not sufficient to make good learning – professionals with expertise and insights on corporate pedagogics are needed.</td>
<td></td>
</tr>
<tr>
<td><strong>The Finnish market is a mix of local (national) and international companies. Many companies use learning products (particularly off-the shelf) and LMS by global providers. However, when it comes to the development of customised in-house training, companies tend to prefer local (national, sometimes even regional) providers. This situation may also change at some point, and companies will also ‘order’ customised training from abroad. For example, Context Learning is already providing services internationally (covering about 30 language regions), but being a considerably small online training service provider (and a pioneer in the field), this is more an exception than a rule on the market.</strong></td>
<td></td>
</tr>
<tr>
<td>Generally, cooperation between online training providers is challenging, companies compete for clients and do not see the real benefits of cooperation. There are too few joint projects where 2 or more companies offer online training courses or solutions to corporate clients.</td>
<td></td>
</tr>
<tr>
<td><strong>France</strong></td>
<td>France Université Numérique (FUN) the national strategy in the context of which FUN-MOOC platform was created. It is a platform for universities, grandes écoles and other partners. It includes FUN-corporate for professional education where the courses are given by university experts. Some start-ups have created platforms for other players. Big companies typically have their own platforms. Some start-ups work for big companies and sometimes participate in the trainings from big companies. Speaking of Coursera/EdX/FutureLearn and similar platforms, there are typically not that many French universities on these platforms.</td>
</tr>
<tr>
<td><strong>Hungary</strong></td>
<td>There is a Digital Welfare programme targeted at digitalisation to ensure equality of access and outcomes with regard to digital access. It includes Digital Startup programme for SMEs (including e-learning) and Digital Export (all the ways businesses can do import/export using digital means). Many Hungarian universities offer online courses/training. Key private players are large tech companies like Google providing trainings as vendors. Google Hungary approached the Hungarian government regarding themes like Digital Workshop, Smart Business and Online Marketing Academy. Typically, LMSs like Moodle and the various MOOC platforms are used. Neptune is also common – used for content organisation, enrolment, examination etc. Custom-made special platforms or customised versions of LMSs are becoming increasingly popular.</td>
</tr>
<tr>
<td><strong>Ireland</strong></td>
<td>The sector in Ireland is dominated by multi-national corporations – Apple and Intel alone command a significant portion. The state government had a programme called SAS – one of their divisions was dedicated to online training. There are educational providers such as educational boards. There are also smaller private companies, which focus on soft skills, diversity and inclusion and other values-related training.</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td>The current market offers many opportunities for large companies and public organisations. However, the way how e-learning is developed is still highly traditional (e.g. pricing based on page count). There are multiple small boutique companies developing bespoke e-learning on a price competing basis. There are multiple companies providing LMS and LCMS-related solutions (e.g. the LMS by Docebo, Together LMS by SkyLab and eXact LCMS by eXact Learning Solutions are world-leading companies in this field) on a product basis. While some large companies choose to work also with international LMS/LCMS providers, when it comes to content, the preference typically goes to local companies. In terms of content, it is thus a predominantly national market. That is related to the...</td>
</tr>
</tbody>
</table>

102 [https://www.docebo.com/it/](https://www.docebo.com/it/)
<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latvia</td>
<td>Universities are the main providers of e-learning courses(^{10}). There are also some vendor-developed courses (e.g. Cisco, Microsoft), but they are available in an international format in English and are not customised to the local context. For most ICT companies though, is it is not a barrier and they are used to follow such courses in English.</td>
</tr>
<tr>
<td>Lithuania</td>
<td>When it comes to social &amp; management skills-related online training, about 70% of it comes from foreign training providers (with 30% left to the providers from Lithuania). More and more local training providers start offering online courses for ‘soft’ skills. In case of hard-core technical training, more than 90% of supply refers to foreign training providers. It can be explained by a high importance of recognition/certification for users, and a higher value attributed to the certification by prominent foreign providers. Lithuanian training providers can hardly withstand the foreign competition in this respect.</td>
</tr>
<tr>
<td>Malta</td>
<td>There are no significant national players when it comes to online training. The local academic community, e.g. University of Malta, do produces some MOOCs but they are more academic and not directly catering to the needs of the labour market. The rest is imported, and includes players like Coursera, EdX and FutureLearn. Their materials are generally favourably received, on par with a university education. Local and international players are not currently working together.</td>
</tr>
<tr>
<td>Poland</td>
<td>There are quite many companies offering the development of online training. However, many people who actively do online training, use the offer of the foreign providers (in English). The latter are associated with high quality and good reputation, which Polish online training solutions often do not have. However, for the massive uptake of online training by companies (particularly SMEs) in Poland, there is a clear need to have high-quality supply in Polish.</td>
</tr>
<tr>
<td>Portugal</td>
<td>Portugal currently has a small e-learning market, there is a limited number of organisations (private companies, universities) involved in the development and provision of online training for companies. Most part of the e-learning companies are multinationals (for instance Deloitte, PwC, Cisco, Microsoft, others). Local companies are small firms. Multinational companies of different sectors tend to have their own providers for IT and e-learning. Some Higher Education Institutions or their Interfaces act as e-learning providers, and raise awareness on e-learning, being also involved in large projects with companies, but the market is not in expansion.</td>
</tr>
<tr>
<td>Romania</td>
<td>No platforms made in Romania were identified. Lynda.com is reported to be highly popular. Vendors like Microsoft also provide trainings to companies. MOOCs are known to local companies too. Romanian universities like University of Timisoara and University of Bucharest are also entering this space.</td>
</tr>
</tbody>
</table>

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\(^{10}\) See, for example, LU Open Minded platform that is also open for managers and professionals: http://www.openminded.lv/; as well as (e.g. Baltijas Datoru Akadēmija https://www.bda.lv, NH mācību centrs https://www.nh.lv/), Centre for Lifelong Learning of TSI: https://www.tsi.lv/lv/content/tsi-muzieglitibas-centrs

105 https://www.cegos.it/
106 https://www.open-knowledge.it/
107 http://www.skylab-italia.it
109 http://www.creattività.com/
110 See, for example, LU Open Minded platform that is also open for managers and professionals: http://www.openminded.lv/; as well as (e.g. Baltijas Datoru Akadēmija https://www.bda.lv, NH mācību centrs https://www.nh.lv/), Centre for Lifelong Learning of TSI: https://www.tsi.lv/lv/content/tsi-muzieglitibas-centrs
<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Slovenia</td>
<td>One of the key players when it comes to the development and provision of online training to companies in Slovenia would be DOBA Business School specialised in fully online learning and offering also online/blended programmes for companies. Companies such as B2, Akademija znanja, Kadrin, Go tečaji, SAP Slovenia also offer corporate training programmes from different fields.</td>
</tr>
<tr>
<td>Spain</td>
<td>Spanish is a popular language, and that stimulates local providers to develop a wide variety of online training solutions in the local language. The online training supply can be used far beyond Spain (e.g. in Latin America), ensuring a massive target audience and good market opportunities. That makes national players on the market quite strong, and there is often no need to use the supply of prominent foreign providers (e.g. in English). Spanish companies typically refer to the latter in case they need some highly specific training not yet available in Spanish. International platforms like Coursera or EdX are also quite popular.</td>
</tr>
<tr>
<td>Sweden</td>
<td>There are a couple of catalogues for finding e-learning. There are also a few LMS platform providers; however, they do not create their own content. The vendors of high-tech products are also key training providers. In the high-tech industry, online training is often vendor-driven. Online skills-training platforms like Lynda.com are also quite popular. Lynda especially has a local office in Sweden and a strong marketing strategy. Some of their courses are available through various LMS vendors. In Sweden, platforms like EdX and Coursera are seen as academic and not exactly business-applicable.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>There are three groups of training providers within the UK: universities and other higher educational institutions (e.g. Universities of Coventry, Gloucestershire and Salford, putting out a lot of e-learning content); private training companies (some are SMEs themselves whereas others are more established players); and finally online skills-training portals like Udemy[^1] are also gaining ground.</td>
</tr>
</tbody>
</table>

[^1]: https://www.udemy.com
3. **STATE-OF-PLAY DESCRIPTION OF RELEVANT INITIATIVES, STRATEGIES AND PUBLICATIONS**

The current chapter presents the state-of-play description of the identified policy initiatives and best practice examples. It also addresses the associated development costs and funding mechanisms, as well as the main adaptation and localisation strategies, and provides an overview of the latest scientific, policy and business publications. The chapter also includes the analysis of the latest innovations in pedagogies, as well as the criteria for good online training for SMEs. Finally, it covers the main conditions to be fulfilled for a massive take-up of online training by SMEs.

3.1. **Overview of identified policy initiatives**

Based on extensive desk research, in-depth interviews with representatives of different EU Member States and two expert workshops, an overview of relevant policy initiatives was developed. In total, 21 relevant initiatives were identified. Desk research focussed exclusively on the publicly available materials in English. Therefore, for the initiatives to be identified through desk-research, a reference in English was a necessary pre-condition. To this end, the provided overview should by no means be treated as exhaustive. It rather has an indicative and illustrative nature, and aims to offer a general picture of the state-of-play regarding the relevant policy initiatives in Europe. Table 2-1 provides an overview of the identified initiatives, including data on coordinating organisations, type, coverage, objectives and target groups.

As can be seen from the Table, relevant policy initiatives were identified not for all EU Member States. In most cases, it can be explained by the fact that such initiatives simply do not exist in those countries, as was often confirmed during in-depth interviews. The project team will continue exploring the relevant policy landscape during the second phase of the initiative, especially based on stakeholder inputs during future workshops and interview rounds. As a result, Table 3-1 should be considered as being work in progress.

Our analysis suggests that **there are few initiatives focusing explicitly on promoting online training for SMEs**. Multiple identified initiatives target broader public going beyond companies and including also educational providers, and working individuals in general.

**Most of the identified initiatives have national focus.** It can be explained by the fact that the search for the relevant initiatives was performed primarily from the national perspective. The overall population of relevant initiatives contains also diverse activities at the EU level, as well as multiple regional and local initiatives and projects, that fall beyond the scope of the current analysis, but still need to be considered for the overall understanding of the current state-of-play.

The identified initiatives **pursue multiple objectives** including promotion and awareness raising, dissemination of good practices, offering guidance and practical support, training and consultancy services, developing and maintaining an ecosystem of providers and users, offering training materials, providing financial support for upskilling etc. The most popular objective refers to promotion and awareness raising of lifelong learning in general and online training in particular.

**Many identified initiatives do not explicitly focus on online training**, and instead emphasise the importance of lifelong learning combining different delivery mechanisms (i.e. online and offline learning). Stakeholders suggest that this may be the most effective way to approach it, as online training should not be positioned as a goal in itself, but rather represents means for continuous upskilling in the context of lifelong learning.
The final column on Table 3-1 addresses the results of the identified initiatives. It indicates whether the initiative has already been completed, is ongoing or has not yet been launched. Most of the identified initiatives are ongoing. For the initiatives that have already been completed, we aimed to look for the evidence of a formal evaluation and the analysis of achieved results. In most cases, it was not possible for the project team to identify such evidence. This does not immediately indicate that the formal evaluation has not been performed for those initiatives, but can also stem from the fact that the search was performed in English, while the evaluation results may be available only in a local language or those may not be published on the Internet. In any case, hindered access to such information or its complete absence indicate a clear need for a higher transparency and systemisation of lessons learned, and a more rigorous assessment of impacts achieved by the relevant initiatives. Future research efforts need to be devoted to this issue.
### TABLE 3-1: Overview of identified initiatives

<table>
<thead>
<tr>
<th>Nr</th>
<th>Country</th>
<th>Title</th>
<th>Type</th>
<th>Coordinator</th>
<th>Coverage</th>
<th>Objectives</th>
<th>Target group</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Croatia</td>
<td>Framework for promoting lifelong learning and adult education</td>
<td>Policy, awareness raising and promotion</td>
<td>The Agency for VET and Adult Education</td>
<td>National (Croatia)</td>
<td>Raising awareness of the need for lifelong learning</td>
<td>Working population</td>
<td>Ongoing initiative – a survey was conducted with 2369 individuals to inform the development of a strategic framework for the promotion of lifelong learning between 2017-2021.</td>
</tr>
<tr>
<td>2.</td>
<td>Germany</td>
<td>Digitale Medien in der beruflichen Bildung</td>
<td>Funding</td>
<td>Bundesministerium für Bildung und Forschung</td>
<td>National (Germany)</td>
<td>Pilots, awareness raising, dissemination of good practices</td>
<td>Consortia, including universities, SMEs</td>
<td>Ongoing initiative – the BMBF will promote and fund various vocational education and training programs with more than 25 million EUR per year from 2017 onwards.</td>
</tr>
<tr>
<td>3.</td>
<td>Germany</td>
<td>Open Educational Resources</td>
<td>Promotion</td>
<td>BIBB – Bundesinstitut für Berufsbildung</td>
<td>National (Germany)</td>
<td>Raising awareness</td>
<td>Chief learning officers in SMEs and content developers</td>
<td>Completed – Wikimedia Germany completed a report on Mapping Open Educational Resources, including a research phase, a dialogue phase and ending with a public symposium to develop practice-oriented solutions to advance the creation, dissemination and use of OERs in Germany.</td>
</tr>
<tr>
<td>4.</td>
<td>Germany</td>
<td>BMBF Roadshow – Digital Media in everyday use of VET</td>
<td>Promotion</td>
<td>BIBB – Bundesinstitut für Berufsbildung</td>
<td>National (Germany)</td>
<td>Communication campaign, platform for assistance and</td>
<td>Companies, SMEs</td>
<td>Ongoing initiative – the roadshow consists of user workshops in various cities across Germany, where</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Nr</th>
<th>Country</th>
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<th>Target group</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Finland</td>
<td>ChangeLearning Alliance</td>
<td>Community of practice</td>
<td>Context Learning Finland Ltd., Universal Learning Systems (Ireland)</td>
<td>EU/global</td>
<td>Training and consultancy services and networking opportunities with a focus on technology-enhanced learning</td>
<td>Online training developers and client companies</td>
<td>Ongoing - ChangeLearning is an alliance of leading companies providing added value to quality training and strategic organizational development consultancy services116.</td>
</tr>
<tr>
<td>6.</td>
<td>Finland</td>
<td>DIGILE Digital Services Program (2012-2015)</td>
<td>Networking and collaboration</td>
<td>Finnish Funding Agency for Technology and Innovation (TEKES)</td>
<td>National (Finland)</td>
<td>To bring together services enablers and platforms to rapidly launch, expand and ensure maintenance of new services including educational solutions</td>
<td>online training providers, academic institutions</td>
<td>Completed – Digile presented 35 demos from its “Digital Services” program in end-2014117.</td>
</tr>
<tr>
<td>7.</td>
<td>Finland</td>
<td>Learning Solutions Programme (2011-2015)</td>
<td>Networking and collaboration</td>
<td>Finnish Funding Agency for Technology and Innovation (TEKES)</td>
<td>National (Finland)</td>
<td>Developing an ecosystem of online training providers and fostering joint development of learning solutions, establishing networks</td>
<td>online training providers, academic institutions</td>
<td>Completed – Tekes (Finnish Funding Agency for Innovation) wrapped up the program by sharing 25+ success stories118.</td>
</tr>
<tr>
<td>8.</td>
<td>Hungary</td>
<td>Grow with Google Hungary</td>
<td>Training</td>
<td>Google</td>
<td>EU/global</td>
<td>Promoting and developing digital skills through online and offline</td>
<td>SMEs, broader public</td>
<td>Ongoing initiative – Google Hungary offers free courses, tools and personal consulting opportunities –</td>
</tr>
</tbody>
</table>

115 BMBF (2018), BMBF-Roadshow: Digitale Medien im Ausbildungssalltag, available at: https://www.qualifizierungdigital.de/  
116 ChangeLearning Alliance (n.d.), ChangeLearning Alliance, available at: https://www.linkedin.com/company/changelearning-alliance/  
117 DIGILE (2014), Digile Digital Services program presents 35 demos, available at: https://www.slideshare.net/digile/digile-3-review  
<table>
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<tr>
<th>Nr</th>
<th>Country</th>
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<th>Target group</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Italy</td>
<td>TRIO (Technology, Research, Innovation and Orientation)</td>
<td>Promotion and awareness raising, training and certification</td>
<td>Regional government of Tuscany (co-financed by the European Union)</td>
<td>Regional (Tuscany region)</td>
<td>Offering free and accessible online learning materials</td>
<td>Citizens, public administrations and private organisations</td>
<td>Could not find information on the results of this initiative.</td>
</tr>
<tr>
<td>10.</td>
<td>Latvia</td>
<td>Improvement of the professional competence of the workforce (2010-2013)</td>
<td>Promotion and awareness raising, training and certification</td>
<td>State Education Development Agency (co-financed by the European Union)</td>
<td>National (Latvia)</td>
<td>Increasing the competitiveness of the workforce and improving labor productivity</td>
<td>Employed individuals</td>
<td>Completed – The State Education Development Agency together with 4 partners cooperated to establish a qualitative vocational education system that functions continuously and corresponds to the needs of the economic sectors by setting up 12 sectoral expert councils, researching sectoral qualification structures for provisioning vocational education and finally, based on the results of sectoral research, VET programmes were restructures to fit newly developed occupational standards and professional qualifications.</td>
</tr>
<tr>
<td>11.</td>
<td>Lithuania</td>
<td>Kompetencijos LT</td>
<td>Funding/grants for training</td>
<td>The Lithuanian Ministry of Economy</td>
<td>National (Lithuania)</td>
<td>Supporting companies financially with</td>
<td>SMEs</td>
<td>Ongoing initiative – implementation plan approved and financing</td>
</tr>
</tbody>
</table>

119 Google’s free thematic workshop programme, which was launched in 2016, has reached over 35,000 SMEs. They held 100 workshops and 4,000 personal consultations in 26 cities in 2017, he said. In 2018, the programme hopes to reach a further 20,000 SMEs.

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<tr>
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</thead>
<tbody>
<tr>
<td>12</td>
<td>Malta</td>
<td>Get Qualified</td>
<td>Funding</td>
<td>Ministry of Education and Employment</td>
<td>National (Malta)</td>
<td>Financial support for upskilling when required courses are not available locally</td>
<td>Working individuals</td>
<td>Ongoing initiative – students of all levels are granted tax credits for the achievement of qualifications and certifications required by industry.</td>
</tr>
<tr>
<td>13</td>
<td>Malta</td>
<td>MyJourney</td>
<td>Promotion and awareness raising</td>
<td>The Ministry of Education and Employment</td>
<td>National (Malta)</td>
<td>Ensuring inclusive education and promoting lifelong learning</td>
<td>Secondary education students</td>
<td>Ongoing initiative – MyJourney allows secondary school students to blend core academics with academic/applied/vocational subjects in a personalised and inclusive learning environment to reach their full potential.</td>
</tr>
<tr>
<td>14</td>
<td>Poland</td>
<td>PARP Academy</td>
<td>Promotion and awareness raising, training and certification</td>
<td>Polish Agency for Enterprise Development (co-financed by the European Union)</td>
<td>National (Poland)</td>
<td>Promotion of online training among SMEs, offering actual training and certification</td>
<td>SMEs, large companies, people aiming to start businesses, e-trainers</td>
<td>Ongoing initiative – The Polish Agency for Enterprise Development (PARP) hosts the PARP Academy educational portal for SMEs providing free online training. The Academy began with just 2 e-learnings in 2006 and by 2012, had impacted more than 150,000 participants. Since 2012, all trainings have been updated with currently 104 e+m-learnings and multiple “knowledge pills”.</td>
</tr>
<tr>
<td>16</td>
<td>Portugal</td>
<td>3600 Panorama e-Learning Portugal</td>
<td>Promotion and awareness raising, quality standards</td>
<td>TecMinho – University of Minho Interface</td>
<td>International (Portugal)</td>
<td>Stimulating e-learning implementation e-learning trainers and practitioners from public and</td>
<td>Ongoing initiative – The Panorama E-learning Observatory aims to</td>
<td></td>
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</tbody>
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</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Portugal</td>
<td>INCoDe.2030</td>
<td>Promotion of digital competences</td>
<td>Fundação para a Ciência e a Tecnologia, I.P. – FCT (commissioned by Portuguese government)</td>
<td>National (Portugal)</td>
<td>Raising the digital competencies of Portuguese citizens by engaging a broad range of stakeholders</td>
<td>General population</td>
<td>Not yet implemented – The Portugal INCoDe.2030 initiative addresses the concept of digital competences in a broad manner – including basic digital literacy, research, communication, content creation, designing digital solutions, integration of interdisciplinary knowledge and data analysis, use of artificial intelligence, advanced instrumentation, communication networks and development of cyber-physical systems.</td>
</tr>
<tr>
<td>18</td>
<td>Portugal</td>
<td>Training e-trainers</td>
<td>Quality standards, training</td>
<td>IEFP – Institute of Employment and Professional Training and TecMinho – University of Minho Interface</td>
<td>National (Portugal)</td>
<td>Professionalisation and certification of e-trainers: Digital Edu Competences for online educators; e-trainers course Referential</td>
<td>e-trainers from public and private sectors</td>
<td>Unable to find information about the results of this initiative.</td>
</tr>
<tr>
<td>19</td>
<td>Slovenia</td>
<td>Slovenian Digital Coalition – digitalna.si</td>
<td>Policy</td>
<td>The Government of the Republic of Slovenia</td>
<td>National (Slovenia)</td>
<td>Improving e-skills, better integrating ICT in education and lifelong learning for inclusion in the digital society</td>
<td>Broader public</td>
<td>Not yet implemented – The Slovenian Digital Coalition intends to harmonise the digital transformation of Slovenia according to the Digital Slovenia 2020 strategic framework, in</td>
</tr>
<tr>
<td>Nr</td>
<td>Country</td>
<td>Title</td>
<td>Type</td>
<td>Coordinator</td>
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</table>
| 20 | Spain       | **State Foundation for Training and Employment**<br>**FUNDAE (formerly Fundación Tripartita)**<br>**Promotion, training (not explicitly focussed on online training), funding**<br>**The Ministry of Employment and Social Security**<br>**National (Spain)**<br>**Promoting digital competences, Training Program for the improvement and acquisition of digital and technological professional skills**<br>**Companies, particularly SMEs** | Ongoing initiative – The State Foundation for Training and Employment (FUNDAE) oversees the the Sistema de Formacion para el Empleo with the mission of training people for work and continuous re/upskilling. This is achieved by providing subsidies for companies training their workers, and subsidized trainings for both employed and unemployed workers. | 126 Digital Slovenia (2018), Digital Coalition, available at: http://www.digitaina.si/digital-coalition-.html  
128 Fundacion Estatal (2018), Sistema de Formacion para el Empleo, available at: https://www.fundae.es/Con%C3%B3cenos/Pages/PFormacion%20de%20empleo.aspx | 127 | 126 |
<table>
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<tr>
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<td></td>
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<td></td>
<td>SMEs</td>
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<td></td>
<td>through vocational educational training&lt;sup&gt;129&lt;/sup&gt;.</td>
<td></td>
</tr>
</tbody>
</table>

<sup>129</sup> AISAB.EU (2018), Objectives, available at: http://www.aisab.eu/node/21
3.1.1. **Best practice examples**

In order to extract best practice examples, a multi-dimensional benchmarking approach was used, and the identified policies/initiatives were compared along **5 specific dimensions:**

1. **Impact:** What impact has a policy/initiative reached so far in terms of its effectiveness?

2. **Transferability:** To what extent is a policy/initiative transferable to other contexts (whether it is linked to specific framework conditions such as legislation, cultural aspects etc.)?

3. **Scalability:** What is the potential of a policy/initiative for extending its coverage to broader target groups?

4. **Adaptability:** To what extent are the results produced by a policy/initiative likely to be relevant for years to come?

5. **Innovativeness:** To what extent does a policy/initiative promote new ways of training?

As outlined in the previous sub-section, in general, a landscape of initiatives focusing explicitly on promoting and stimulating online training among SMEs in Europe is rather scarce. As a result, the project team faced a challenge of identifying a sufficient number of initiatives that strongly match the analysis criteria. The following initiatives formed the top three most promising examples:

- **Digital Media in Everyday Curriculum roadshow** (Germany);
- **PARP Academy** (Poland);
- **Panorama e-learning Observatory** (Portugal).

Below we present each of them in more detail.

**Digital Media in Everyday Curriculum roadshow (Germany)**

The roadshow “**Digital Media in Everyday Curriculum**”\(^{130}\) (Germany) presents nationwide digital concepts for vocational education and training. In interactive workshops, participants can learn about innovative tools and applications and try them out for themselves. In 2018, the roadshow stops in Koblenz, Wittenberge, Stuttgart, Munich, Hanover and Cologne. This initiative was launched by the Federal Ministry of Education and Research (BMBF). Its aim is to support training and specialist work with digital formats and to optimise the day-to-day training. The roadshow presents best practice case studies.

The Federal Institute for Vocational Education and Training (BIBB), which supports BMBF’s funding measures, broadcasts the results of the projects and provides information on the potential of the concepts developed for educational practice. The events are aimed at training staff from companies, inter-company educational institutions, vocational schools and educational institutions from all over Germany.

Interested vocational training officers are invited to get to know concrete application possibilities of selected media concepts. Since the kick-off event in June 2016, more than 550 trainers have made use of this offer.

The workshops, moderated by the developers of the practical concepts, offer an introduction to case-specific applications of digital media. They allow the participants, against the background of their individual operational tasks, to test their own media formats, reflect them and adapt them to their own needs. They also get in touch with the respective project managers of the pilot projects and can network with each other.

**PARP Academy (Poland)**

**PARP Academy** (Poland) since 2006 is an educational portal for small and medium-sized enterprises enabling access to free online training. The aim of the portal is to popularise access to remote education (e-learning) among micro, small and medium enterprises and people planning to create their own business. The PARP Academy offer currently includes 94 interactive electronic trainings: 42 business e-learning trainings, 42 business m-learning trainings (for mobile devices: smartphones and tablets), 5 e-learning trainings and 5 m-learning trainings dedicated to trainers. The training topics are tailored to the needs of companies from the SME sector. Upon completion of a course, learners receive a certificate. It is also possible to develop training on demand.

At the PARP Academy, every participant who completes the training has the opportunity to set up his training community and become its Ambassador. The ambassador manages the training process in his/her community, proposes paths from over 250 PARP Academy training modules, schedules the schedule in which community participants receive automatic messages and reminders, invites their friends and colleagues, observes their progress, controls statements on forums etc.

Communities for trainers are special communities at the PARP Academy. They are used to improve their coaching skills and develop knowledge about the organisation, preparation and implementation of online training. The Academy offers ready e-learning and m-learning trainings for trainers, available through the training community, additionally also business training “Blended learning”, and rapid learning.

**Panorama e-learning Observatory (Portugal)**

The “*Panorama e-learning Observatory*” (Portugal) aims to promote e-learning in Portugal and the flexibility in Lifelong Learning. It aims to record successful experiences, good innovative practices in Portugal for the use of e-learning, as well as to provide a set of tools useful in promoting this type of training. Specific activities include disseminating existing good practices in Portugal; sharing models for the design, implementation and evaluation of training projects in e-learning and b-learning; providing an e-learning legislation repository; providing a glossary of terms relevant to e-learning, contributing to their clarification; promoting the use of e-learning in the development of Lifelong Learning.

The creation of the “*Panorama e-learning Observatory*” stems from the project “*Panorama e-Learning Portugal 2013*”, a study promoted by TecMinho in partnership with Quaternaire Portugal within the framework of the POAT-FSE, to evaluate e-learning, contributing to the construction of a model of regulation.

3.1.2. **EU-level initiatives**

On 25 September 2013, The European Commission has published a Communication “Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources” (COM (2013) 654), which aims to set out a European agenda for stimulating high-quality, innovative ways of learning and teaching through new technologies and digital content. It specifically aims at stimulating innovative teaching and learning for all, modernising education and fostering Open Educational Resources (OER), interoperability, quality, licensing, certification, etc. Multiple specific activities have been initiated with a co-funding of Erasmus+ and Horizon 2020.

Examples of relevant initiatives by the European Commission include (the list is of illustrative nature and does aim to be exhaustive):

- **SME e-Learning Portal**[^133]: the portal has been developed to ensure that innovative training practices are shared and made accessible to SME employees and Managers throughout Europe and to emphasise the importance of e-learning and blended learning as accessible and economically viable alternatives to traditional and often costly training practices, and to ensure that e-learning training materials are accessible and fit for purpose.

- **HOME (Higher Education Online)**[^134]: it is a European funded project, initiated and coordinated by EADTU. Launched in 2014, it aims is to develop and strengthen an open network for European cooperation on open education, in general, and MOOCs, in particular.

- **Policy Forum on European MOOCs**[^135]: it was organised in Brussels on 28 June 2016 by the European Association of Distance Teaching Universities (EADTU). The forum brings together policy makers from national governments and intergovernmental organisations, as well as higher educational institutions, MOOC platform- and service providers and other key stakeholders.

- **Biz-MOOC (MOOCs for the world of business)**[^136]: launched on 1 January 2016, focuses on work force & HEI-training and the acquisition of labour market key competences through applying new methodologies for online teaching & learning. This will be achieved by creating common standards & frameworks on MOOCs by integrating the experiences from Higher Education and the business world.

- **Learning Layers (Scaling up Technologies for Informal Learning in SME Clusters)**[^137]: the project develops technologies that support informal learning in the workplace. Its key focus is on SMEs within Regional Innovation Clusters. It aims to develop mobile and social technologies that unlock and enable peer production within and across SMEs.

[^133]: http://www.sme-elearning.eu/
[^134]: http://home.eadtu.eu/
[^135]: https://ec.europa.eu/epale/en/content/policy-forum-european-moocs
[^136]: http://bizmooc.eu/project/
[^137]: http://learning-layers.eu/
• **TELL ME (Bring innovative learning methods to manufacturers)**: it is a European-funded research project to improve training in the manufacturing domain, with a particular focus on SMEs.\(^{138}\)

• **“Certified European E-Tutor”**: the project defined a comprehensive quality standard for the further education of VET teachers and trainers to becoming “e-tutors” and introduced a certification procedure which supports the validation and recognition of e-learning qualifications in a transparent way at European level.\(^{139}\)

• **eLene4work**: it strives to help students and new entrepreneurs develop soft skills often required by companies of all sizes and will help companies exploit the digital talents of young employees. The project proposes a strategic partnership with a goal to test and monitor the possibility offered by MOOCs and OER to address the demand for digital soft skills formally not taught at universities but desirable by most employers on the labour market.

• **t-MAIL**: it aims to develop and test a mobile application supporting teachers, teacher educators and educational decision makers in implementing classroom practices that stimulate students self-regulated learning (SRL). The project aims to address the needs of these different target groups by designing activities to support the development and testing of a mobile app. Materials will be available in English, German, French, Spanish, Dutch, and Macedonian.

• **Opening up Education: A Support Framework for Higher Education Institutions**: the framework can be used as a tool by higher education staff to help them think through strategic decisions: pedagogical approaches, collaboration between individuals and institutions, recognition of non-formal learning and different ways of making content available;

• **OpenCases: Case Studies on Openness in Education**: a review of literature on open education and nine in-depth case studies of higher education institutions;

• **OpenEducationEuropa.eu**: web platform run by the Commission, with an aim to share best practices on innovative education; a community for stakeholders involved or interested in digital, open and innovative education;

• **COMPASS (“Open Knowledge Technologies: Mapping and validating knowledge "Digital up-skilling platform for European young unemployed”)**: a digital learning platform to improve the digital skills of young unemployed Europeans. The goal of this project is to create a project-based learning platform to bridge the gap between the requirements of employers and the insufficient digital skills of young unemployed in order to increase their employability. The project was launched in December 2016, and has a duration

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\(^{138}\) www.tellme-ip.eu/
\(^{139}\) http://www.cetutor.eu/
\(^{140}\) http://www.eden-online.org/eden_project/learning-to-learn-for-new-digital-soft-skills-for-employability-elene4work/
\(^{141}\) http://www.eden-online.org/eden_project/teacher-mobile-application-for-innovative-learning-t-mail/tmailproject.eu
\(^{144}\) https://www.openeducationeuropa.eu/
of 2 years. The project is coordinated by DG CNECT of the European Commission.

- **Europass**: a European Union (Directorate General for Education and Culture) initiative to increase transparency of qualification and mobility of citizens in Europe.\(^\text{145}\) It aims to make a person's skills and qualifications clearly understood throughout Europe (including the European Union, European Economic Area and EU candidate countries). The five Europass documents are the *Curriculum Vitae*, Language Passport, Europass Mobility, Certificate Supplement, and Diploma Supplement, sharing a common brand name and logo.\(^\text{146}\) Since 2012, individuals have been able to assemble all Europass documents in the European Skills Passport.\(^\text{147}\)

- **EXTRA\(^\text{sup148}\)** is an Erasmus+ project supporting the implementation of policy reforms linked to the European Higher Education Area. It is led by the French ministry for higher education, research and innovation (MESRI) and the international center for pedagogical studies (CIEP). EXTRA\(^\text{sup}\) aims at gathering higher education stakeholders in France together with European experts to produce a methodological toolkit. The toolkit is meant for the higher education institutions, the teaching staff and the students willing to take steps towards the recognition and validation of the learning outcomes and competences developed by students in the framework of citizenship activities or personal involvement within their training programs.

Examples of EU initiatives related specifically to the recognition aspect of online training include:

- **EUROPORTFOLIO\(^\text{149}\)**: it is a not-for-profit association developed with the support of European Commission as a central part of EPNET\(^\text{150}\) project, dedicated to exploring how ePortfolios and ePortfolio related technologies and practices can help empower individuals, organisations and wider society. Europortfolio provides a network for those doing ePortfolio and related work across Europe; to build the use of e-portfolios across communities, and to provide opportunities for future partnership working.

- **Badgcraft\(^\text{151}\)**: a European platform which helps learners to organise all their achievements online and organisations to recognise learning by using Open Badges.

- **Open Badge Network (OBN)\(^\text{152}\)**: it brings together organisations from across Europe to support the development of an Open Badge ecosystem, promoting the use of Open Badges to recognise non-formal and informal learning (Erasmus+ project, 2014-2017).

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\(^{145}\) Decision 2241/2004/EC, Article 1
\(^{146}\) Decision 2241/2004/EC, Article 2
\(^{149}\) http://www.eportfolio.eu/about-us
\(^{150}\) https://epnet.europarl.europa.eu/
\(^{151}\) https://www.badgcraft.eu/
\(^{152}\) http://www.openbadgenetwork.com/
• Tailor-made badge recognition systems have also been designed for individual mobility activities within the Erasmus+: Youth in Action initiative\(^\text{153}\).

• **MyLK My Lifelong Learning Management\(^\text{154}\):** it aims to create Dashboard for the automatic tracking of digital learning episodes of the individuals: learners, employees, professionals, whether the context of that learning is formal, non-formal, or informal. The main purpose is to help learners recognise what they have learnt; to facilitate gathering evidence of their learning and to present these in ways that are meaningful to the employers and other audiences.

• **ReOPEN – Recognition of Valid and Open Learning\(^\text{155}\):** the project (2016-2018) addresses the issues of recognition and validation of non-formal open learning. The project will create innovative non-formal open learning examples and cases, as well as valid non-formal learning infrastructures to design and create open and innovative education for C-VET, lifelong learning and higher education organizations, as well as companies who will be consortium partners and also members of international networks;

• **Open Recognition Alliance\(^\text{156}\):** a not-for profit association developed with the support of the European Commission as a key outcome of the Erasmus+ MIRVA project, of the French Badgeons la Normandie initiative and of the Bologna Open Recognition Declaration aiming at promoting more open approaches to recognition of skills and individuals, communities and territories. The Open Recognition Alliance is at the origin of the international #OpenRecognition Week.

**The European Institute of Innovation and Technology (EIT) Digital\(^\text{157}\) launched several online courses on the online learning platform Coursera.**

Special attention needs to be paid to building synergies with the New Skills Agenda\(^\text{158}\), especially the **sectoral pilots foreseen in the Blueprint for sectoral cooperation on skills and the Digital Skills and Jobs Coalition.** Multiple (3) waves of sectoral pilots are foreseen in the coming period. The first kick-off meetings took place in December 2017 – January 2018. The activities of this initiative also need to be aligned with the new **Strategy on digital technologies and education** and with the **new Industrial Policy Strategy.**

Furthermore, the **Working Group on Digital Innovation Hubs (DIHs)\(^\text{159}\)** was launched after the High-level governance meeting of the European platform of national initiatives on digitising industry to support the implementation of the Digitising European Industry initiative. The working group aims to bring together Digital Innovation Hubs representatives and other interested stakeholders to discuss experience with digital skills training for employees of SMEs; as well as learning content, catalogue of training materials and possible ways of sharing; and the next EU budget and future investments in Digital.

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\(^{154}\) [http://mylk-project.info/about/](http://mylk-project.info/about/)
\(^{155}\) [http://reopen.eu/](http://reopen.eu/)
\(^{156}\) [https://www.openrecognition.org/](https://www.openrecognition.org/)
\(^{157}\) [https://www.coursera.org/eitdigital](https://www.coursera.org/eitdigital)
Finally, the Commission proposed to create a dedicated “Digital Europe” programme and invest 9.2 billion EUR to align the next long-term EU budget 2021-2027 with increasing digital challenges. The programme among others aims to ensure that the current and future workforce will have the opportunity to easily acquire advanced digital skills through long- and short-term training courses and on-the-job traineeships, regardless of their Member State of residence. In the Digital Europe programme, the abovementioned Digital Innovation Hubs will carry out targeted programmes to help SMEs and public administrations to equip their personnel with the needed advanced skills to be able access the new opportunities offered by supercomputing, artificial intelligence and cybersecurity.

3.2. Overview of the main adaptation and localisation strategies

The current section aims to address the main strategies for adaptation and localisation of online training for SMEs. The adaptation and localisation here refer to the process of adapting an online training product to a particular language, culture, and a desired local “look-and-feel”. It goes beyond language translation and implies overall adaptation for the geographic region/context in which the product will be used.

Localisation of an online training course in its essence implies making a course local. Rather than purely translating information from one language to another, it needs to be adapted to the local context to more effectively convey the same meaning in the target group. The end goal of localisation is therefore to make content feel as if it was exclusively created for the specific target user group. Creating and delivering localised learning content expands the number of languages an organisation speaks and enables being in multiple places at the same time. It also goes beyond language to address different market nuances.

SMEs become increasingly internationalised. In order to be effective, it is important for SMEs to localise their online learning content to create an interconnected workforce that is not bound by geographic and cultural obstacles. The topic of adaptation and localisation strategies in the context of SMEs can be addressed from two perspectives, namely from the perspective of SMEs establishing their operations abroad and from the perspective of SMEs localised in one geographic area and having employees with different nationalities and ethnic backgrounds. The applicable adaptation and localisation strategies for each perspective depend on the possibilities of an SME in terms of available resources.

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The following localisation strategies are suggested to be effective for ensuring a world-class online training. In their essence, these strategies imply customising the existing bespoke training course even further, to better match it with the background of the target audience.

**Incorporating cultural and associated contextual nuances**

Besides text, the online training course contains numerous other elements that need to be considered when adapting it for another language and context. Elements such as colours, gestures, symbols, and humour invoke a particular idea or feeling in people, depending on their country of origin and context. Since each of these elements has a connotation that is tailored to the local context, it is essential for it to be adequately modified to suit the target group.

**Using Appropriate graphics**

Images have to be culturally appropriate and acceptable to the target audience. To enable this, the images used in the original course must be interchangeable. It is recommended to avoid using symbolic images and gestures as those might mean something entirely different in other countries. The images must be neutral by excluding religious symbols, and any other region-specific references.

**Adding local flavours**

While keeping the original content neutral, it is recommended to add locale flavours and culture-specific subtleties while localising the online training course. A possible option could be adding a region-specific scenario or using local names and places that can amplify interest of the local audience. These allow foreign learners to connect with the learning program, often resulting in better transfer of knowledge.

**Using international formats**

It is also recommended to use internationally accepted formats for units of time, currency, and measurements. It allows avoiding confusion for the new learners and assures they gain accurate knowledge. It is vital to maintain consistency across all geographies to create a flawless understanding among global users. The latter is particularly relevant for companies having their workforce located in different countries.

**Hiring professionals**

Making online training ready for another country/context is an extensive and time-consuming process. To this end, it is recommended to hire professionals. Professional native translators (who also need to be subject matter experts) possess the skills required to incorporate appropriate cultural variations and terminology into the translated version. At the same time, they also possess the necessary technical skills to make sure that the meaning of the course is not lost in translation.

The abovementioned strategies, however, are associated with additional costs that many SMEs cannot afford (lacking resources to develop the initial bespoke online training course in the first place, let alone the localised version(s) of it, has been...
reported as one of the key barriers for SMEs not to use online training)\textsuperscript{168}. To this end, there is a need to look for alternative (more affordable) strategies that would still ensure a better interconnectedness of the workforce with different geographical and cultural backgrounds.

One of such alternative strategies here could refer to the use of \textit{social learning}, through active interaction of the workforce with peers, teammates and managers while following a “non-localised” course. Rather than aiming to adapt and localise the course explicitly, the adaptation and localisation would be performed in a tacit form by the employees themselves through exchanges of feedback and experiences with others. No specific resources would need to be additionally allocated for this approach except the need to provide the employees with an opportunity to have such an exchange of feedback and experiences regarding the course. This exchange can occur via already existing online tools (e.g. company chats, fora and similar) or in a physical setting, if the employees are geographically located in one place.

3.3. Overview of the latest scientific, policy and business publications

The current section provides an overview of the latest scientific, policy and business publications.

3.3.1. Relevant scientific publications

An extensive screening of scientific publications was performed based on their relevance to the topic of online training in companies, with a particular focus on SMEs. The topic of online training was addressed in a broader sense and included a wide range of solutions for technology-enhanced learning (including bespoke and off-the-shelf e-learning, video content, mobile learning, MOOCs, virtual reality, gamification etc.). We aimed at selecting the most recent publications on the topic (not older than 2013), with focus on the opportunities, challenges and solutions in the context of online training in companies and particularly SMEs. After an extensive search, we developed a sample of scientific publications having a high relevance to the issue in question. The sampling was performed following a pragmatic approach and identifying publications that explicitly address the topic in question. The current overview by no means aimed to represent a comprehensive analysis of the scientific literature in the field, and was rather meant to illustrate the key insights from the latest publications. Stakeholders are invited to indicate other relevant publications that need to be included in this list.

Table 3-2 provides an overview of results. The selected publications are presented in the chronological order (starting from the most recent one). Annex A of the report provides an overview of key messages per publication.

<table>
<thead>
<tr>
<th>Nr</th>
<th>Publication</th>
</tr>
</thead>
</table>

3.3.2. Relevant policy and business publications

Additionally, an extensive screening of business and policy publications was performed. The identification of the relevant sources was done by means of expert consultation and targeted desk-research. Also here, we aimed at selecting the most recent publications on the topic (not older than 2013), with focus on the opportunities, challenges and solutions in the context of online training in companies. After an extensive search, we selected a sample of business and policy publications having a high relevance to the issue in question. The sampling was again performed following a pragmatic approach and identifying publications that explicitly address the topic in question. Stakeholders are invited to indicate other relevant publications that need to be included in this list.

Table 3-3 provides an overview of results. The selected publications are presented in the chronological order (starting from the most recent one). The table also contains key messages per publication. Annex A of the report provides an overview of key messages per publication.

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Publication</th>
</tr>
</thead>
</table>
3.4. Development costs and funding models

The current section addresses the topic of development costs and funding models for online training.

3.4.1. Development costs

Key factors influencing the development costs of online training include the following:

- Instructional and outline design;
- Size of the application;
- Degree of templating (self-similarity within application);
- Media complexity;
- Data reporting and performance support functions;
- Embedding environment (including access control; authentication; central reporting and marking of assessments; status tracking; community support (e.g. forums); link to tutor via email);
- Degree of navigation and user interactivity;
- Standards compliance; and

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170 https://www.trainingzone.co.uk/develop/business/the-cost-of-developing-e-learning-feature
• Usability testing.

Some additional costs that need to be taken into account when developing online training include the cost of refining an online training solution and the cost of technology\(^ {171}\). The cost of refining an online training solution implies the need for continuous iterations, feedback rounds and maintenance along the way, which requires extra time and investments. The cost of technology, in turn, refers to the fact that besides the initial signup costs of the LMS and authoring tools, fees for upgrades, licensing, storage, and support need to be taken into account.

The data of 2018 suggest that 1 hour of ready e-learning content takes 100-160 hours to produce\(^ {172}\). 1 hour of ready e-learning content costs 7580 – 24,449 EUR (16,015 EUR on average)\(^ {173}\) to produce (if performed by skilled contractors, the costs can be lowered by up to 30%)\(^ {174}\). A detailed overview of the online course development costs is provided in Table 3-4. Creating an online course is now approximately 12% cheaper than in June 2017\(^ {175}\).

The hour-based methodology, however, represents only a rough estimation tool for online training consumers. While it allows assigning budget to content development, it still does not guarantee that this content will address any of the business or learning objectives. It also does not take into consideration the complex reasoning behind why one type of training costs more than another, and it is based on the following assumptions\(^ {176}\):

- All learners will take the same path through the content;
- The content has a pre-determined instructional density;
- The content aims to achieve the same kind of outcome for all learners.

TABLE 3-4: Online course development costs: team involvement estimates\(^ {177}\)

<table>
<thead>
<tr>
<th>Nr</th>
<th>Team role</th>
<th>Involvement stage</th>
<th>Time (hours)/1 course video hour</th>
<th>Hourly rate, EUR(^ {178})</th>
<th>Total, EUR(^ {179})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course owner</td>
<td>All</td>
<td>Individual</td>
<td>Individual</td>
<td>Individual</td>
</tr>
<tr>
<td>2</td>
<td>Subject matter expert</td>
<td>Design</td>
<td>10-15</td>
<td>Individual</td>
<td>Individual</td>
</tr>
<tr>
<td>3</td>
<td>Project manager</td>
<td>All</td>
<td>40-55</td>
<td>26-43</td>
<td>1024-2347</td>
</tr>
<tr>
<td>4</td>
<td>Instructional designer</td>
<td>Design, Development</td>
<td>50-79</td>
<td>26-51</td>
<td>1280-4046</td>
</tr>
<tr>
<td>5</td>
<td>Marketer</td>
<td>Analysis</td>
<td>30-40</td>
<td>26-60</td>
<td>768-2390</td>
</tr>
<tr>
<td>6</td>
<td>Lecturer</td>
<td>Design</td>
<td>53-84</td>
<td>17-43</td>
<td>905-3584</td>
</tr>
</tbody>
</table>


\(^{172}\) https://raccoongang.com/blog/how-much-does-it-cost-create-online-course/

\(^{173}\) Converted from USD based on the conversion rate of 26 July 2018

\(^{174}\) Converted from USD based on the conversion rate of 26 July 2018

\(^{175}\) A study by Karl Kapp and Robyn Defelice also demonstrated the timeframes for producing one hour of distance learning materials and showed that it takes 90-240 hours on average. Another research by Chapman Alliance conducted back in 2010 stated that an hour of eLearning costs ~8,552 EUR to produce. More information available at: https://raccoongang.com/blog/how-much-does-it-cost-create-online-course/

\(^{176}\) https://www.trainingzone.co.uk/develop/business/the-cost-of-developing-e-learning-feature

\(^{177}\) From https://raccoongang.com/blog/how-much-does-it-cost-create-online-course/

\(^{178}\) Converted from USD based on the conversion rate of 26 July 2018

\(^{179}\) From https://raccoongang.com/blog/how-much-does-it-cost-create-online-course/
Table 3-4 refers to video-based online courses. However, SMEs generally do not develop video-based courses for their internal training purposes. At the same time, they may reuse and/or recombine existing video materials. Video production in SMEs is suggested to be relevant for customer training through, for example, YouTube (e.g. showing how the product is used, installed, or repaired). The cost structure for such uses is likely to be considerably different from the one presented in Table 3-4.

When developing an online training solution, the critical first step is to **fully understand the associated development costs and the decisions that will control those costs** in order to achieve the key training objectives, within budget.180

### 3.4.2. Funding models

One of the key factors to any successful technology purchase and implementation is that the selected **funding model is sustainable**. Therefore, to achieve the goal of moving employee training to a new paradigm of learning, **investment in technology-enhanced learning cannot be a one-time effort**. There is a need to identify and prioritise the factors that make some technology implementations perform dramatically better than others, including the underlying funding models.

Examples of relevant **funding models** include the following:

- Government-backed loans;
- Bundled service agreements;
- Seed funding and micro-financing;
- Technology grants;
- Bonds and leasing;
- Bring Your Own Device Programs (BYOD);
- User fees etc.

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Table 3-5 provides an analysis of the advantages and disadvantages of each of the relevant funding models, accompanied with the identified examples.

**TABLE 3-5: Funding models for online training**

<table>
<thead>
<tr>
<th>Nr</th>
<th>Funding model</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Public funding and public-private partnerships\textsuperscript{181}</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>National/EU upskilling/reskilling initiatives</td>
<td>Broad programmes on improving productivity, qualifications, skills, employability Ideal for long-term cross-sector workforce development</td>
<td>Hard to measure granular success metrics for systematic improvement Requires large-scale funding Limitations on long-term forecasting certainty</td>
<td>The Digital Single Market includes an ICT innovation voucher scheme specifically targeted at SMEs, which provides a small credit line for these enterprises to innovate their existing business through ICT uptake\textsuperscript{182}. Similarly, there is a new strategy to launch Digital Innovation Hubs in every EU region (especially Central and Eastern Europe) to minimise the digital divide in industries\textsuperscript{183}. These DIHs act as a one-stop-shop - for technical universities, research institutes, large and small companies, and technology solution providers – to provide access to technology-testing, financing advice, market intelligence and networking opportunities.</td>
</tr>
<tr>
<td>1.2</td>
<td>Government-backed loans</td>
<td>low interest rates accessible criteria for eligibility flexible repayment schedule suitable for large technology purchases</td>
<td>Limited availability Dependent of existing policy frameworks and budgets</td>
<td>EU Funds like InnovFin Programme, Creative Europe etc.\textsuperscript{184} Eurostars Programme for R&amp;D performing SMEs to scale-up new products, processes, services\textsuperscript{185}</td>
</tr>
<tr>
<td>1.3</td>
<td>Bundled service agreements</td>
<td>Competitive rates Involves a value chain of collaborative businesses suitable for first-time technology initiatives and individual/household</td>
<td>Possible lock-in with bundle providers Not suitable/flexible enough for organisations with existing infrastructure</td>
<td>For example, the eSchool programme in Portugal made notebooks available to almost 700000 students and teachers by financing them by weaving them into licensing contracts</td>
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<tr>
<th>Nr</th>
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|    |                                | device programmes                                                         | or alternative solutions                                                        | between the state and 3G telecom operators.  
Onyx One is a platform designed by Onyx Online Learning (BE); it provides not only an LMS for manufacturing companies, but also a contract management system for contractors and suppliers.  
European Investment Fund by the European Investment Fund.  
The European Angels Fund organised by the EIF for seed, early or growth stage innovative companies. |
| 1.4| Seed funding and micro-financing| Low/no interest loans for affordable technology financing                  | Funding amounts are usually small                                              | European Progress Microfinance Facility by the European Investment Fund.  
The European Angels Fund organised by the EIF for seed, early or growth stage innovative companies. |
| 2.  | Technology grants              | Supported by legislative institutions                                      | Need for extensive accountability                                              | In France, almost a third of the funding for the FUN (France Université Numérique) platform was allocated to financing filming equipment at the disposal of institutions to create MOOC content. |
| 2.1 | Public grants                  | Suitable for substantial technology improvements                          | Requires research and business case with demonstrable gains Political will and commitment may not be reliable Variable requirements throughout the year | BNP Paribas as part of the EIB Group has executed the first synthetic securitisation deal for supporting French SMEs (almost 25-basis-point reduction in interest rates). |
| 2.2 | Private grants                 | Simple eligibility requirements                                           | Limited regulation and documentation Application process might be lengthy but without guaranteed success | Luxembourg offers a Fit4Digital program (worth 5000 euros) to help SMEs assess their ICT needs and most promising areas for digitisation. |
| 3.  | Bonds and leasing              | Long-term financing option                                                | Requires a large publicity campaign to secure support Unsuitable for parties with little/no political influence | Companies like PEAC Finance providing end-to-end financing. |
| 3.1 | Technology bonds               | Ideal for large initial expenditures Fosters community buy-in and participation |                                                                             |                                                                                                                                           |
| 3.2 | Leasing                        | Long-term tax-exempt financing solution                                   |                                                                             |                                                                                                                                           |

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<tbody>
<tr>
<td>6.1</td>
<td>Open Educational Resources</td>
<td>In combination with BYOD policies, OERs</td>
<td>Not guaranteed to find exact match of</td>
<td>Die Informationsstelle OER (OERinfo), Germany</td>
</tr>
<tr>
<td>4.1</td>
<td>Bring Your Own Device Programs (BYOD)</td>
<td>Allows for immediate technology integration Funding sources required for infrastructure and professional service offerings only</td>
<td>Requires accessibility across range of devices and connection varieties Not ideal for low-income households as the pressure to obtain suitable technology is transferred to them</td>
<td>European Association of ERASMUS Coordinators offers training programmes for educators and HR in companies to develop BYOD implementation as an eligibility requirement in Key Action 1 of European Development Plan</td>
</tr>
<tr>
<td>4.2</td>
<td>User fees</td>
<td>Shared responsibility between organisation and individuals Ideal for 1:1 technology initiatives</td>
<td>Limited to affluent organisations Not ideal for low-income regions/ households</td>
<td>Alison Edgar is a training provider with online training specifically for SMEs (individuals and teams)</td>
</tr>
<tr>
<td>5.1</td>
<td>Hours/learning costs compensation</td>
<td>Giving employees the initiative to pick training offers that suit their interest and needs Minimises administrative effort to recompense workers Usually concurrent with a BYOD scheme</td>
<td>Hard to track employee engagement Hard to gauge trust in credentials of learning offers</td>
<td>Personal Activity Account, France</td>
</tr>
<tr>
<td>5.2</td>
<td>Corporate tax relief</td>
<td>Tax relief on employer expenditure on employee training Covers both cost of provision and opportunity (wage) costs Covers both corporates and self-employed</td>
<td>Administrative complexity and lengthy eligibility verification High rate of failure or non-completion More likely to benefit white collar workers than blue collar workers</td>
<td>Training Tax Allowance (Bildungsfreibetrag), Austria The Crédit Impôt Recherche (CIR) scheme in France</td>
</tr>
<tr>
<td>3.3</td>
<td>Universal Service Funds</td>
<td>Suitable for developing regions/nations Suitable for building general infrastructure and resources for boosting economic activity (e.g. affordable broadband, reducing Digital Divide)</td>
<td>Geographic scale becomes a challenge Lack of appropriate education and other infrastructure affects time/impact of programme</td>
<td>A 2016 European Parliament briefing makes a case for broadband (internet) as a universal service</td>
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<tr>
<td>6.2</td>
<td>Sharing/pooling training materials across companies</td>
<td>Companies can benefit from sharing training materials across ecosystem – thus increasing available options but minimizing costs. It allows bigger companies and SMEs to form stronger ecosystems, especially within the same value chain. Communities of practice can share best practices across companies.</td>
<td>Companies are often reluctant to share resources due to fear of giving away “too much” to competitors.</td>
<td>Could not find European examples. SABMiller’s 4e Camino al Progreso Program (2012) (Latin America)</td>
</tr>
<tr>
<td>6.3</td>
<td>Payback clauses</td>
<td>When an employer pays for employee training, a (partial or full) payback clause in the contract can be triggered if that employee terminates employment within the contractual retention period. Additional clauses may also require employees to share insights and learnings with team members or document them for future use.</td>
<td>In case of unforeseen but valid cases of exemption from payback clause, companies may suffer a loss.</td>
<td>Payback clauses are regulated at different levels across EU member states – existing in most countries as nationally regulated or as collective agreements among social partners.</td>
</tr>
<tr>
<td>6.4</td>
<td>Free trainings offered by digital platform providers</td>
<td>Digital platform providers (such as Google Adwords, Asana, JIRA) may offer free trainings based around their products or services with the goal of recruiting new customers on their platforms.</td>
<td>The non-zero risk of “lock-in” to certain platforms and inability to transfer data at a later time.</td>
<td>Grow with Google, (EU-wide)</td>
</tr>
<tr>
<td>6.5</td>
<td>Performance-based financing (PBF)</td>
<td>Innovative, results-oriented approach that incentivizes providers to ensure their trainings result in positive outcomes in terms of bottomline (or other metrics). Contracts can include a baseline and a variable incentive scheme depending on size and duration of impact.</td>
<td>Hard for providers to guarantee outcomes since it may involve many external factors as well.</td>
<td>Unable to find SME examples but PBF has been recognised as a valid model by the World Bank in some sectors like healthcare.</td>
</tr>
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201 OERinfo (2018), Uber die Informationsstelle OER, available at: https://open-educational-resources.de/ueber-oerinfo/ueber-die-informationsstelle-oer/  
### 3.5. Latest innovations in pedagogies

The current section aims to summarise the latest innovations in pedagogies. The following emerging pedagogies were identified in the field online training:

- **Learning through social media**[^207]: social media platforms such as Twitter and Facebook offer a wide range of learning opportunities, to access expert advice, encounter challenges, defend opinions and amend ideas. An associated risk refers to the fact that these sites may present learners with inaccurate information, biased comments and hostile responses. Some organisations have set up social media specifically to offer learning opportunities. Learners are helped to share experiences, make connections, and link these with learning resources. Such projects typically need a skilled facilitator who takes on the tasks of filtering resources and engaging people. With such facilitators, social media projects can be running for many years.

- **Learning from the crowd**[^208]: mobilising the crowd offers access to valuable sources of knowledge and opinion. Experts and amateurs exchange ideas, generate and discuss content, solve problems, vote for the best solutions, and raise funds. An example of the crowd in action is Wikipedia, the online encyclopaedia co-created and continually updated by the public. Possible applications of crowdsourcing in learning include collecting and curating learning resources, letting learners share and discuss their work online, and providing opinions and data for use in projects and research assignments. However, these approaches need to consider the quality and validity of the contributions that are made by the public.

- **Learning through games**[^209]: the current pedagogy implies the use of serious games, gamification and game-infused learning. The focus can be on games designed for education, the use of game elements in workplace training, simulations such as flight trainers, or on social benefit. Learners can try out

[^207]: This and other advantages and disadvantages of crowdfunding from: https://www.nibusinessinfo.co.uk/content/advantages-and-disadvantages-crowdfunding
unfamiliar roles and contexts and make consequential decisions. This approach implies close collaboration between professional game designers, software engineers, and learning experts. Together, these groups could develop game engines based on effective pedagogy, employing learning analytics to adapt game experiences to players’ educational goals and actions.

- **Formative analytics**\(^{210}\): most of the current applications of learning analytics track time spent on online learning, or performance on an assessment. By identifying who may be at risk of failing a test, summative learning analytics provide insight into performance of learners and who needs support. Formative analytics, in turn, support learners to reflect on what they have learned, what can be improved, which goals can be achieved, and how they should move forward. By providing *analytics for learning* rather than analytics of learning, formative analytics have the potential to empower each learner through timely, personalised, and automated feedback, including visualisations of potential learning paths.

- **Open textbooks**\(^{211}\): open textbooks refer to freely shareable and editable resources designed to operate in place of a specified textbook. Representing open educational resources (OER), they do not have copyright restrictions but operate with an open licence that enables everyone to reuse, remix, revise, redistribute and retain them. Open textbooks represent a dynamic resource that can be edited and amended by learners as part of their learning process. Open textbooks can be seen as part of a broader move towards ‘open pedagogy’, which emphasises open content and open practices.

- **Immersive learning**\(^{212}\): immersive learning can enable learners to experience a situation as if they were there, deploying their knowledge and resources to solve a problem or practise a skill. It implies integrating vision, sound, movement, spatial awareness, and even touch. Traditionally, immersion requires learners to act out scenarios or take part in simulated reality. By using technologies such as virtual and augmented reality, 3D screens or handheld devices, learners can experience immersive learning in a classroom, at home, or outdoors. This enables them to explore possibilities that would be difficult, dangerous, or impossible to simulate in real life.

- **Learner-led analytics**\(^{213}\): learning analytics make use of the data generated during learning activity in order to enhance learning and teaching. They often focus on how educators and training providers can help learners to pass a test, a module, or earn a degree. Learner-led analytics, in turn, not only invite learners to reflect on the feedback they receive but also encourage them to set their own learning goals. Learner-led analytics put learners in the driving seat. Learners can decide which goals and ambitions they want to achieve, and which types and forms of learning analytic they want to use to achieve those targets. The analytics then support learners with reaching their goals.

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\(^{210}\) Ibid.


\(^{212}\) Ibid.

In addition, blockchain for learning\textsuperscript{214} explores how blockchain technology could be applied to education, shifting from central records of learner’s performance held by educators and training providers to a more decentralised model in which achievements are recorded by a wider range of participants. A blockchain could be used as a permanent shared record of intellectual achievement. While blockchain technology opens new possibilities for trading educational reputation as a currency, it also poses significant risks of treating learning as a commodity and is associated with negative environmental impact. Alternative approaches offering similar solutions with higher flexibility refer to Open Badges, Verifiable Claims, Public Key Infrastructures (PKI), distributed databases, as well as DID (Decentralised Identifier) resolver methods.

3.6. Criteria for good online training for SMEs

In order to identify the criteria that would form the base for good online training experience, SMEs first need to perform an analysis of specific needs and objectives of learning. It is a continuous and iterative process that is likely to require revisions of the initially set needs and objectives in the course of the development of online training. Based on the research conducted within SMEELEARN project\textsuperscript{215}, the key criteria of a good online training course for SMEs generally include the following:

- Detailed analysis;
- Structured content;
- Interactive content;
- Assessment opportunities;
- Enjoyable and fun activities;
- Achievable milestones;
- Visually stimulating;
- 24/7 accessibility;
- Real-life case studies;
- Blended learning;
- Audio input;
- Training room based;
- Reporting facilities;
- Time to think – low pressure learning environment;
- Certification; and
- Accreditation.

\textsuperscript{214} Ibid.
\textsuperscript{215} EU15 Ltd (2016) "SMEs & e-learning (SMEELEARN) – e-learning Best Practice Guide", Erasmus+ project nr. 2014-1-UK01-KA202-001610 (SMEELEARN project)
More information on specific criteria and the overall online training design process can be found in the “E-learning best practice guide”\textsuperscript{216} that was developed specifically for SMEs.

In order to maximise the impact of online training within SMEs, the following aspects need to be taken into account\textsuperscript{217}:

- Setting clear goals for how learning solutions should impact key target audiences in terms of learning results\textsuperscript{218};
- Establishing clear company’s talent management processes and aligning online training with these processes;
- Outlining a proactive strategy and the tactics that show how the company’s learning infrastructure and learning ecosystem enable onboarding, talent development, performance management, and career planning;
- Prioritising learning activities including new systems, new products, new processes, organisation change and audiences with tangible performance goals;
- Organising an independent review of the learning approach and solutions to get a fresh perspective on where the company can make the most significant improvements.

3.7. Main conditions to be fulfilled for a massive take-up of online training by SMEs

The current sub-section addresses the main conditions to be fulfilled for a massive take-up of online training by SMEs in Europe. Based on desk-research, in-depth interviews with the representatives of different MS and two expert workshops, the following conditions were identified:

- **Raising awareness among SMEs** about the opportunities offered by online training and specific benefits of it for both employers and employees (AT, CY, ES, FI, IT, LV, PL, PT, SI). SMEs also need to be informed that there is plenty of off-the-shelf material directly available for use (e.g. MOOCs). As a result, there is often no need to develop tailor-made courses (bespoke e-learning), for which SMEs may not have sufficient resources.
  
  - There is a need for combining different channels, such as local mass media and social media, conferences (where HR managers of larger companies and CEOs of small companies would be invited to hear about the opportunities and benefits of online training), direct meetings with companies, roadshows etc.
  - It should be coordinated at different levels, by government in combination with industry associations and education & training providers.

\textsuperscript{216} EU15 Ltd (2016) “SMEs & e-learning (SMEELEARN) – e-learning Best Practice Guide”, Erasmus+ project nr. 2014-1-UK01-KA202-001610 (SMEELEARN project)
\textsuperscript{218} There is also a need to define how the transfer of learning will be measured
There is a need to share real-life examples of companies that already successfully use online training.

- **Providing SMEs with knowledge and skills to implement online training for business needs** (ES, FI, FR, IT, PL, PT). The key target audience refers to HR professionals and managers that carry responsibility for training in their own operations (e.g. safety managers, sales managers/directors, product managers or CEOs of small companies)\(^{219}\).

- An important way to promote the use of online training and to improve its quality is the targeted and systematic training of teachers and trainers according to uniform quality standards\(^ {220}\).

- “Online training on online training” needs to be developed and actively disseminated among companies. This training needs to be available in the local language to ensure a better reach of the audience. The European Commission could play a role in it by coordinating the development of such trainings for each MS in a local language.

- There is a need for **practical guides with real-life examples** of online training implementation from all over Europe. It needs to be an ‘agile’ material that is regularly updated with new examples. This would allow sharing good practices among companies.

- There is a need for **personalised platforms** that would take into account specific needs of companies and their employees. The European Commission could be an initiator of such platforms, which, in turn, could be shared by multiple companies across Europe. Such platforms could be organised as ‘brokers of knowledge’, with content being supplied by a wide range of providers under a common umbrella (similar to amazon.com or YouTube model). The quality of the content could be controlled by users themselves based on its popularity and user ratings.

- **Developing understanding of learning economics** (FI, PL). Companies, particularly SMEs, need to be convinced of the economic benefits of (online) training. It allows companies to see online training as an investment that generates increase in human and financial capital when implemented in a right way.

- **Creating networks among SMEs and developing joint Human Resource Development programmes** (AT, FI, PT, SE). There is a need to bring together companies with a shared interest in developing online learning solutions. This field is too broad for a single company, and companies need to join forces. There

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\(^{219}\) ChangeLearning Alliance has established a Corporate Digital Learning Design program which addresses these issues and targets European companies. The program was designed in cooperation with some of the world’s leading corporations that have utilised online training successfully. It applies a practical approach to online training development and management with the objective to improve the skills and capabilities of participating companies in online training provision.

\(^{220}\) This is the main goal of the project “Certified European E-Tutor” (CET) funded by the European Commission. The project defines a comprehensive quality standard for the further education of VET teachers and trainers to becoming “e-tutors” and introduces a certification procedure which supports the validation and recognition of e-learning qualifications in a transparent way at European level.
is a need for collaborative networks with an explicit focus on companies (in contrast to academic networks).

- These networks should operate at both national and international levels, as well as clustered around specific industries.

- These networks need to be based on the community of practice framework which implies bringing knowledge workers together around a shared domain and providing them with an opportunity to share and create knowledge. The community members learn from each other both via organised and informal interactions as well as through their shared expertise. The community of practice helps the members to keep up with the advanced technology through knowledge sharing and learning processes. These areas are brought into practice by adapting and developing social, collaborative and informal learning.

- The key benefits of such networks would be sharing experiences and establishing partnerships between companies.

- Policy makers could help with facilitating the activities around setting up and coordinating the network.

- Shared procurement of online training by companies is not common in Europe. It is more often procured by professional associations. Public authorities could do pre-commercial procurement of course catalogues and creation of shareable resources on popular topics and competences.

- Developing schemes for the assessment and recognition of online training in the academic and business sectors (FR, HR, RO). Multiple MS emphasise the importance of making visible and valuing learning that takes place outside formal education and training institutions.

- Despite a number of initiatives and recommendations on the recognition of informal learning (e.g. European guidelines for validating non-formal and informal learning, CEDEFOP, 2015), there is a wide gap between the recognition of formal and informal or non-formal learning.

- There is a need for formal training organisations and policy makers to understand the importance of informal training for SMEs and the potential that exists to develop a pathway for informal skills development to be recognised by qualifications. Policy makers need to be aware of the local/regional SME context and the need for tailored skills development policies. There is a need for more policy dialogue with public, private and industry organisations.

- Access to the recognition of informal learning is sporadic, and the outcome of recognition process is too often treated with suspicion.

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221 Since 2012, ChangeLearning Alliance has worked closely with leading European companies to bring together online training professionals and experts to share knowledge and to foster cooperation between them. The ChangeLearning Corporate Network is already active in multiple EU regions (particularly in Finland and Ireland).


223 OECD (2013) "Skills Development and Training in SMEs", OECD publishing

224 http://www.eportfolio.eu/community/projects/badge-europe
Several EU initiatives have been launched to tackle this challenge (see sub-section 2.3).

- **Encouraging the development and use of micro-credentials** through active collaboration between the academic sector and business (AT, MT). This concept refers to specialised mini-degrees offered by universities/spin-offs together with companies, which allow employees to earn a degree without a need to leave a workplace. Learners can create their own curriculum by combining different micro-credentials to a full degree.

- **Encouraging pan-European, cross-sectoral collaboration between universities, companies, policy makers and supporting structures**, to allow more transferability, flexibility and permeability in the EU educational & training systems (AT, EL, IT, MT).
  
  - Without acting now there is a high risk that the relevance of European education & training providers will significantly decrease in the near future.
  
  - Some large US providers (e.g. Amazon, Google, LinkedIn) already start offering their own credit systems in combination with high-quality online learning. These emerging education & training offers are likely to become strong competitors of the more traditional offer of the European providers.
  
  - At the moment, most companies are still not aware of these new options and trends. However, once companies start to accept emerging online degrees, a paradigm shift is likely to take place.

- **Developing measures aiming at quality assurance of the online training offer** (HR, PT, RO). Special attention needs to be paid to making sure that the available online training offer satisfies specific quality requirements. To this end, there is a need for a common agreement and framework for (pan-European) quality standards for online training solutions.
  
  - When it comes to developing an online training course, each company has its own process and courseware designers and developers around the world design courses in their own style and use their own standards. This may affect the quality of the online training course.
  
  - There are certain industry standards that can be used to maintain the consistency and quality of online training courses. These standards include Interface Standards, Compatibility and Interoperability Standards, Production Quality Standards and Instructional Design Standards\(^\text{225}\).
  
  - Following the industry standards helps ensure the optimisation of production development time and thus results in the optimisation of cost. Without these standards, the online training course might lose its aesthetic sense and functionality\(^\text{226}\).

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226 Ibid.
• **Maximising pedagogical and learning relevance of online training**: it is a general misconception that online training courses offer no support for their learners. In fact, this belief prevents many individuals from enrolling, even if they are highly motivated to learn and have the time to do so.

  o To overcome this online training challenge, there is a need to have a solid **support system** in place for the learners. They can be offered a FAQ that can help them remedy any common issues, and email or instant message support for more complicated questions or concerns. Another effective solution implies encouraging peer collaboration (e.g. via a forum)

  o For learners to become truly engaged in the overall online training process, they have to be aware of how the content is going to **translate in real world settings**. To tackle this online training challenge, it is possible to integrate simulations or online training scenarios that help the learner to see how they can apply the information they have learned in real life. The learners can also be offered real-world examples, or group collaboration projects that are based around problems or issues they might encounter regularly outside of the virtual classroom.

• **Introducing specific incentives for SMEs to use online training** (IT, LT, UK). Some of the consulted stakeholders emphasised that rather than making online training compulsory for companies, it would be more effective to make sure that companies truly desire to advance the skills of their employees and sincerely embrace the opportunities of online training. At the same time, it is also possible to incentivise SMEs to do so by offering compensation for SMEs to upskill their workers.

  o For example, an effective way to stimulate the uptake of e-learning could be to offer tax reduction to companies for using online training.

  o Another effective way could be to make reaccreditation compulsory (in the context of continuous professional development), with a prominent role for online training in it.

Additionally, the online training aspect could be embedded as a key requirement into existing and future EU and national funding programmes related to training. In essence, it would require part of the training to be conducted in an online form.

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4. **DRAFT PROPOSAL FOR A COMMON VISION**

The current chapter presents systemised inputs for the draft proposal for a common vision. The draft common vision aims to include concrete measures, roles and priorities at the EU and national levels for implementation in the **period of 2021-2027**. The development process implies active engagement of all relevant stakeholder groups.

4.1. **Objectives and overall approach**

The resulting common vision and related supporting actions aim at increasing the capacity of industry, social partners, education and training providers and policy makers at all levels to **successfully shape the workforce transformation in Europe**.

4.1.1. **Key requirements for the common vision**

The common vision and the corresponding supporting actions need to be developed keeping the following principles in mind:

- **Shared**: the vision has to be driven and supported by all key stakeholder groups including industry, social partners, education and training providers, policy makers at all levels, and last but not least, learners themselves.
  
  o Rather than a product of the top-down approach, it needs to be the result of **stakeholder co-creation efforts** in order to ensure its maximum practical relevance and acceptance by the relevant publics.

- **Coherent and consistent**: the vision has to offer a common integrated approach towards with a view to promote successful approaches to deliver new skills related to high technologies, based on online education and training tools, and to foster the uptake of best practices. The approach would allow for the shift from sporadic fragmented activities towards a synergetic mix of directed actions at various levels (EU and MS), with a shared goal in mind.

- **Efficient**: the vision has to build on economically attractive solutions allowing for the optimal use of time, effort and cost.

- **International**: online training, industrial modernisation and digital transformation imply intensive cross-border cooperation. The ability to work in an international environment is one of the key required skills. The vision therefore has to be applicable to diverse cultural and geographical contexts and foster international cooperation.

- **Multi-level**: in order to tackle the identified skills challenges, actions need to be taken at various levels including the EU and MS (and if relevant, local multi-stakeholder initiatives). The vision therefore has to offer a strategic platform that can be further operationalised into specific action points at each of the abovementioned levels.

- **Covering various sectors and technologies**: the vision has to acknowledge the multidisciplinary nature of online training, smart industrial specialisation and digital transformation, spreading across various sectors and technologies, embedded in an even broader palette of application areas. The vision has to pay special attention to the skills
for KETs and ICT areas, and address the link with two specific pilot application sectors (automotive and smart textiles; as was presented above).

- **Long-term oriented**: the vision has to be primarily of mid-term orientation and cover the period 2021-2027 (but also beyond). The period of 5-10 years can still be viewed as a relatively short time period for the technology development trajectories in the KETs and ICT domains, and the associated skills that need to be available.

  - The total length of the innovation cycle depends on the sector and the type of innovation, but for highly complex technologies such as KETs, it often is 15 to 20 years long. Hence such technologies require a **consistent multi-year programmatic approach**.

  - Therefore, the year 2027 should not be seen as the final destination point, but rather as an intermediate milestone in a much longer trajectory of the smart industrial specialisation and digital transformation and the upskilling of the workforce in Europe, the process that is likely to continue for decades to come.

- **Clarifying the current reality and justification for change**: the vision report has to provide an evidence-based explanation for the need to take action, i.e., it has to build on the empirical analysis of the current situation.

- **Ability to survive the changes of scope and timescales**: the vision has to set the general strategic orientation; however, it has to be flexible enough and allow for adjustments and future revisions.

  - One of the key characteristics of the technology-based learning landscape is its high pace of change. Consequently, developing a solid ‘set-in-stone’ vision would contradict the very nature of it. Instead, we will aim at capturing the key directions for development in the coming years, and operationalising them into a set of specific action points/support measures, with the scope and timescales that could be relatively easily adjusted, if necessary.

- **Offering an opportunity to develop a detailed action plan from it**: as mentioned above, the vision has to be suitable for the operationalisation into a set of specific action points for various relevant stakeholder groups at multiple levels (EC, MS). It will serve as a platform for an action plan which, in turn, would represent a strategic platform for the upskilling of the European workforce through online training for years to come.

Finally, the common vision should not position online training as the only possible way to have training. In some cases, traditional training can still be needed or appropriate as part of a blended learning format. Online training should rather be viewed as one of the ways to organise the learning process, which may be most effective when combined with other forms of learning.

### 4.1.2. Approach for developing the common vision

The **key steps** in developing a common vision include the following:

- Developing a clear and unambiguous understanding of the current state (based on the extensive “state-of-play” analysis);

- Defining the desired end state;
• Conducting gap analysis (identifying the differences between the current state and the desired state and developing gap closure strategies);

• Prioritising (identifying the feasibility of proposed options and assessing their impact);

• Developing an optimal timescale for the identified actions;

• Based on the inputs from points 1-5, developing a roadmap (consolidating actions, priorities, timescale and desired end results).

While developing the common vision, we will aim at taking into consideration the parallel ongoing efforts at the EU and MS levels, as well as the activities of other relevant prominent organisations including UNESCO\textsuperscript{229}, OECD, and WEF.

The current draft of the common vision was developed in close consultation with the relevant stakeholder groups, and included the following sources:

• Extensive desk-research (policy reports, business publications, scientific papers, blogs etc.);

• In-depth interviews with online training experts and representatives of different Member States;

• First two expert workshops (20 March 2018 in Brussels, and 18 June 2018 in Genova);

• Online survey (disseminated among practitioners, industry professionals, high-tech SMEs in the period of April – June 2018) with an objective to obtain stakeholder validation of the identified measures and to set priorities.

Specifically, in the context of the state-of-play analysis, based on desk-research, in-depth interviews with representatives of different Member States, multiple email and phone consultations with key experts in the field and the first two expert validation workshops, the project team has accumulated an extensive knowledge base. This knowledge base was then systemised, clustered and translated into a wide range of possible solutions/measures aiming to stimulate the uptake of online training by companies (particularly high-tech SMEs) in Europe.

The first online survey aimed to obtain broader stakeholder validation of the identified measures. The online survey specifically aimed to detect the key priorities among the identified measures, which would then need to be further developed and incorporated into a common vision for the EU policymaking.

The identified measures (offered for stakeholder validation) were structured around the key barriers that are reported\textsuperscript{230} to inhibit the adoption of online training by the workforce in Europe. These barriers include the following:

• Lack of motivation of employees to use online training;

• Reluctance of employees to use technologies for training;


\textsuperscript{230} Based on the inputs from desk-research, in-depth interviews and first expert workshop
- Insufficient technical infrastructure;
- Lack of knowledge of employees about the opportunities offered by online training;
- Lack of knowledge of employers about the opportunities offered by online training;
- Lack of commitment from management;
- Lack of company’s learning strategy;
- Lack of good quality courses relevant to company needs;
- High development costs for bespoke learning.

This barrier-based approach was deliberately chosen in order to preserve the link between the solutions that need to be introduced and the actual problems that need to be tackled. Structuring the identified measures around the barriers allows for assessing the relevance and the anticipated impact of these measures on solving a specific barrier.

A detailed overview of the online survey questions is available in Annex C.

### 4.2. Key elements of the blueprint

In the current sub-section, we present an overview of the top 3 measures that were selected by stakeholders as key priorities with regard to each specific barrier hindering the adoption of online training by SMEs in Europe. The outcome of this stakeholder consultation is presented in Table 4-1.

These measures should form the key elements of the blueprint for the common vision.

**TABLE 4-1: Top 3 measures per barrier (based on the outcomes of the online survey)**

<table>
<thead>
<tr>
<th>Nr</th>
<th>Category</th>
<th>Top 3 Measures</th>
</tr>
</thead>
</table>
| 1  | Measures to tackle lack of motivation of employees to use online training | • Adopting policies for online training accreditation, applied for recruiting, but also for recognition of employees’ continuous development and for career advancement opportunities  
• Encouraging employees to come up with their own learning initiatives in a bottom-up way  
• Raising awareness among employees of good learning resources |
| 2  | Measures to tackle reluctance of employees to use technologies for training | • Whenever appropriate, mixing online learning with more traditional forms of learning (blended learning)  
• Introducing measures aimed at increasing the overall digital literacy of a company and its employees  
• Making use of employees personal equipment, like smartphones, tablets, personal computers |
<table>
<thead>
<tr>
<th>Nr</th>
<th>Category</th>
<th>Top 3 Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Measures to tackle insufficient technical infrastructure</td>
<td>• Making training resources <strong>mobile-friendly</strong> (i.e. capable of running on an average smartphone/tablet)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Offering guidance to companies</strong> regarding infrastructure requirements for online training implementation and delivery (e.g. helpdesk services, manuals)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Raising awareness among companies of online training based on <strong>cloud computing</strong></td>
</tr>
<tr>
<td>4</td>
<td>Measures to tackle lack of knowledge of employees about the opportunities offered by online training</td>
<td>• Developing an <strong>online platform offering centralised information</strong> on the opportunities and benefits of online training for SMEs, good practice examples, opportunity to share experiences with peers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Disseminating among companies “online training on online training”, available in the local language and demonstrating the opportunities and benefits offered by online training solutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Organising a massive <strong>awareness raising campaign</strong> of online training for companies and their employees, and mobilising multiple channels including radio, TV and social media</td>
</tr>
<tr>
<td>5</td>
<td>Measures to tackle lack of knowledge of employers about the opportunities offered by online training</td>
<td>• Establishing <strong>communities of practice for companies</strong> engaged (or considering to get engaged) in online training, where good practices and experiences can be exchanged by companies themselves</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Organising dedicated <strong>conferences and meetings with companies</strong> to inform them about the opportunities and benefits of online training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Developing <strong>online platforms</strong> offering centralised information on the opportunities and benefits of online training for SMEs, good practice examples and guidelines for implementation</td>
</tr>
<tr>
<td>6</td>
<td>Measures to tackle lack of commitment from management</td>
<td>• Offering <strong>external support and guidance</strong> for companies regarding the development and implementation of online training (setting up local help desks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Offering <strong>tax reduction</strong> to companies that stimulate learning culture and adopt online training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Developing and disseminating <strong>practical guidelines</strong> with real examples from all over Europe of how other companies successfully adopt online training <strong>and</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Disseminating among companies overall <strong>information on the economic benefits of online training</strong>, based on ROI calculations, offering</td>
</tr>
<tr>
<td>Nr</td>
<td>Category</td>
<td>Top 3 Measures</td>
</tr>
<tr>
<td>----</td>
<td>----------</td>
<td>---------------</td>
</tr>
</tbody>
</table>
| 7  | Measures to tackle lack of company’s learning strategy | • Developing tools for employees to have their **personal learning environment** centred around the learning needs of each particular employee  
• Developing and disseminating **online training** for companies, **addressing the development and implementation of learning strategies**  
• **Disseminating among companies information** showing how the organisation’s learning infrastructure and learning ecosystem enable onboarding, talent development, performance management, career planning |
| 8  | Measures to tackle lack of good quality courses relevant to company needs | • **Online training providers need to collect and use target employees’ input**, not only employers’ specifications  
• Online training providers need to establish **partnerships with employers** to regularly collect their inputs and feedback, and adjust their offer  
• Online training providers and employers need to **put central the creation of engaging learning experience** (e.g. through the use of the newest technological advancements) |
| 9  | Measured to tackle high development costs for bespoke learning | • **Procurement** of specific online learning materials for companies from a certain sector by industrial associations and other professional bodies  
• Training companies to develop bespoke online courses themselves by means of accessible **DIY (Do it yourself) strategies**  
• Offering **on-demand bespoke course development through government-funded initiatives** |

Additionally, the top three measures to be tackled at the EU level were identified. These measures include the following:

1. **Facilitating the exchange of strategies and good practices among the MS governments** in relation to promotion of online training among companies;

2. **Raising awareness among the MS governments** of the opportunities and benefits of online training for companies, and particularly SMEs;

3. **Initiating and supporting multi-stakeholder knowledge alliances and thematic networks** aiming to share experience and expertise on online training, and creating a
4 Draft common vision
framework for structural collaboration on the joint development, delivery and use of online training for the EU labour market.

4.3. Priority measures

When asked to select the top three priority categories of measures that should form the focus of the common vision, the following categories were selected by stakeholders:

- **Measures to tackle lack of company’s learning strategy (A):** in most cases, SMEs do not have a human resources department. The main person in charge of human resources is the entrepreneur/owner. In most cases, this person does not possess the necessary knowledge and tools to set up and implement strategies for skills development. Therefore, if the owner is not convinced about the relevance of further investments in human resources for business productivity and competitiveness, he/she will not be ready to stimulate and support the upskilling process. To this end, there is a clear role for policy makers, business organisations, chambers and professional bodies to develop tools for a tailor-made analysis and comprehensive learning strategies for SMEs231. Several examples already exist in different MS where SME owners are the target group for setting-up human resources strategies (e.g. APCMA232 with COMAFOA in France, or Elbcampus233 in Germany). These initiatives do not explicitly focus on online training, and approach company learning from a comprehensive perspective. Stakeholders suggest that this holistic approach is most appropriate for tackling the skills-related challenges of SMEs.

- **Measures to tackle lack of knowledge of employers about the opportunities offered by online training (B):** SME employers are reported to be generally lacking awareness of the opportunities and benefits offered by digital learning solutions, including lack of understanding of learning economics. SMEs need to be convinced of the economic/business benefits of (online) training, which would allow them to see online training as an investment that generates increase in human and financial capital when implemented in a right way. Even if companies are aware of existing opportunities, often they still do not dare to use them because of missing experience. There is lack of centralised resources for finding information about online training methodologies, different solutions available and how to apply them appropriately, and learn and share experiences with peers.

- **Measures to tackle lack of knowledge of employees about the opportunities offered by online training (C).** Online training is still a relatively new concept, although it exists already for many years. It may be a matter of a cultural barrier since many people still do not trust it as a form of training and prefer human interaction. In the end, employees themselves should be responsible for their own development both at and outside the workplace. Their own employability cannot be entirely delegated to others. At the same time, employers still need to support them with developing competences needed to meet new customer requirements and/or market developments, as well as new work processes and changes in work organisation aimed at increasing competitiveness234.

231 UEAPME (2011) " Learning while working – How skills development in SMEs can be supported", UEAPME Background Note, available at: https://ueapme.com/IMG/pdf/UEAPME_background_note_learning_while_working_SME_needs_041111.pdf
232 https://apcma.fr/
233 https://www.elbcampus.de/
234 UEAPME (2011) " Learning while working – How skills development in SMEs can be supported", UEAPME Background Note, available at: https://ueapme.com/IMG/pdf/UEAPME_background_note_learning_while_working_SME_needs_041111.pdf
Policy makers and professional associations have a facilitator role in this respect, including the awareness raising activities, and the provision of necessary tools and platforms.

Within each of the abovementioned categories, top 3 specific measures have been identified (see Table 5-1). We will also pay special attention to the measures that explicitly need to be tackled at the EU level, with the involvement of the European Commission. These measures will be grouped into category D. **All these measures will be further explored and developed during the second phase of the current initiative.**

A detailed proposal of the common vision will contain a structured overview of the key directions for action, as well as a list of specific measures, accompanied by the identified fruitful examples of good practices. The proposed draft structure is as follows:

- Acknowledgments;
- Executive summary;
- Overall cross-sectoral vision and key directions for action;
- Specific chapters on each direction for action containing an overview of specific support measures accompanied with illustrative examples of good practices;
- Sectoral insights for automotive and smart textiles sectors;
- Roadmap (indicating key milestones and key types of action per level (EU/MS) and stakeholder group);
- Supporting annexes.

For each specific measure, a detailed description will be developed including the following elements:

- Title;
- Category;
- Short description;
- Target group;
- Leading stakeholder group;
- Other relevant stakeholder groups;
- Activities requiring dedicated budget;
- Timeline;
- Good practice examples;
- Additional remarks.

A detailed common vision will be developed in close collaboration with the relevant stakeholder groups (including key practitioners and industry professionals, policy makers and researchers with a shared interest in technology-enhanced learning).
5. IDENTIFIED CHALLENGES, MITIGATION MEASURES AND NEXT STEPS

The current chapter addresses the identified challenges and applied mitigation measures. It also provides an overview of the next steps.

5.1. Key challenges and mitigation measures

During the implementation of the activities of the first phase of this initiative (under WP1), several challenges were encountered and had to be mitigated. These challenges and the applied mitigation measures are presented in Table 5-1.

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Description</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of omitting certain relevant policy initiatives and partnerships</td>
<td>A risk exists of omitting certain policy initiatives that prove hard to find, especially when national policy initiatives or planned policy initiatives are concerned.</td>
<td>A methodical and rigorous search per MS with the extensive stakeholder consultation involved in the project was used to mitigate this risk.</td>
</tr>
<tr>
<td>Absence or weakness of information sought</td>
<td>The information sought may be absent from existing sources and respondents may be unable to provide the required information. Also, obtained information might be unreliable, incomplete or weak in other aspects. This may hamper data collection efforts and may negatively influence the robustness of performed analyses.</td>
<td>We mitigated this risk by extrapolating missing data and cross-check with other sources. Also, we monitored information sources that could be proven unreliable. When data is proven unreliable, we aimed to understand the biases and collect similar information through other sources.</td>
</tr>
<tr>
<td>Limited access to respondents</td>
<td>For both the online survey, as well as for the interviews, good access to informants is required. Limited access to these informants can hamper data collection efforts.</td>
<td>We mitigated this risk by approaching the potential informants at an early stage of the project, and by clearly underlining the nature and background of the project. Furthermore, we reached out to the stakeholders through the established channels (including social media) of existing major communities of online training academics, professionals and practitioners, including EDEN and Europortfolio.</td>
</tr>
<tr>
<td>Informants’ unwillingness to cooperate</td>
<td>Besides access to informants, their willingness to cooperate with the research team is crucial for the data collection efforts.</td>
<td>We mitigated this risk by means of clear and effective communication with potential informants through the established communication channels (see above). Also, we mitigated this risk by the quality and relevance of the questionnaire used in the online survey and the interviews. Moreover, we guaranteed impartiality in the analysis, as well as anonymity and security of data.</td>
</tr>
<tr>
<td>Language Bias</td>
<td>Given that the current initiative aims to analyse inputs from various countries of the EU, we had to work with stakeholders speaking different languages. Language issues thus represented</td>
<td>The official language of data collection for this project is English. However, our PwC Innovation Network professionals have the capacity to communicate in all EU languages. If necessary, PwC can mobilise and coordinate those</td>
</tr>
</tbody>
</table>
## 5 Challenges and mitigation measures

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Description</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>a potential challenge, particularly for interviews.</td>
<td>professionals and their involvement in interviews where the use of other language is necessary. By this we can implement the research activities in an efficient and cost-effective manner. However, in the course of the current initiative, there was no need to mobilise special resources, as all interviews were successfully conducted in English. All reports for the Commission are prepared in English.</td>
<td></td>
</tr>
<tr>
<td>Unrepresentative sample of good practices</td>
<td>It is important to acknowledge that capturing all existing policies and initiatives is a utopian task (although we aimed at making the analysis as complete as possible). Therefore, the cases analysed in this initiative should be seen as examples rather than a thorough representation of the whole population of policies and initiatives. We are convinced that rather than trying to capture all existing initiatives, the primary added value of this Task comes from spotting the best practices that are suitable for upscaling to the European level (i.e., transferable to other contexts) and then translating those into specific policy recommendations and action points.</td>
<td></td>
</tr>
<tr>
<td>Risk of developing a top-down vision that is not supported by the stakeholders</td>
<td>The vision has to be driven and supported by all key stakeholder groups including industry, educators and policy makers. Only a shared vision can be effectively translated into specific action points and successfully implemented in practice since its actual implementation implies joint stakeholder efforts. Rather than a product of the top-down approach, the vision needs to be the result of stakeholder co-creation efforts in order to ensure its maximum practical relevance and acceptance by the relevant publics. Therefore we aimed to maximise the engagement of stakeholders in the development of the vision by means of interactive workshops, online surveys, interviews, and direct email and phone contact.</td>
<td></td>
</tr>
<tr>
<td>Risk of developing an inconsistent vision setting contradictory directions</td>
<td>There is a risk of developing a long list of action points that to a certain extent may contradict/neutralise each other and do not work in one direction. When developing the common vision, we try to keep in mind that it has to offer a common integrated approach towards upskilling of the European workforce via online training. The approach needs to facilitate the shift from sporadic fragmented activities towards a synergetic mix of directed actions at various levels (EU, MS) with a shared goal in mind.</td>
<td></td>
</tr>
<tr>
<td>Risk of developing a vision with too ambitious financial demands</td>
<td>There is a risk of developing a vision, action plan and roadmap that are economically unfeasible to realise. When developing the vision, we try to keep in mind that the vision, action plan and roadmap have to build on economically attractive solutions allowing for the optimal use of time, effort and cost.</td>
<td></td>
</tr>
<tr>
<td>Risk of developing a vision that is not applicable to some cultural backgrounds</td>
<td>The technology-enabled learning implies intensive cross-border cooperation. The ability to be applicable to multi-cultural environment is one of the key success factors. When developing the vision, we try to keep in mind that it has to be applicable to diverse cultural and geographical contexts and foster international cooperation.</td>
<td></td>
</tr>
<tr>
<td>Risk of developing a vision that is not applicable to all relevant sectors and technologies</td>
<td>The vision has to acknowledge the multidisciplinary nature of KETs and ICT spreading across various sectors and technologies, and embedded in an even broader palette of application areas. We aim at developing a cross-sectoral vision containing key directions for action and support measures that would be applicable to diverse sectors. At the same time, we aim at identifying sectoral specifics for two pilot sectors,</td>
<td></td>
</tr>
<tr>
<td>Challenge</td>
<td>Description</td>
<td>Mitigation measures</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Risk of developing a rigid vision not allowing for future change</td>
<td>One of the key characteristics of the technology-enabled learning domain is its tremendous pace of change. Developing a solid ‘set-in-stone’ vision would contradict the very nature of it.</td>
<td>The vision has to set the general strategic orientation; however, it has to be flexible enough and allow for adjustments and future revisions. We aim at capturing the direction for development in the coming years, and operationalising it into a set of specific action points, with the scope and timescales that could be relatively easily changed, if necessary.</td>
</tr>
<tr>
<td>Risk of developing a vision that is not suitable for translation into specific actions</td>
<td>There is a risk of developing a vision that is too conceptual for its practical implementation. The vision has to be suitable for the operationalisation into a set of specific action points for various relevant stakeholder groups at multiple levels (EC, MS, regions, educators and private stakeholders).</td>
<td>We aim to make sure the vision serves as a platform for a detailed action plan which, in turn, would represent a blueprint for the upskilling of the European workforce through online training for years to come.</td>
</tr>
</tbody>
</table>

We have also performed a risk analysis for the remaining two work packages. Tables 5-2 and 5-3 present the outcomes of this analysis.

**TABLE 5-2: Anticipated risks and proposed mitigation measures for WP2**

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Description</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying ‘usual suspects’ (best practices)</td>
<td>There is a risk of identifying not the most relevant best practices, but initiatives that are most promoted.</td>
<td>To mitigate this risk, we aim to diversify the sources of identification of good practices, and besides desk research, to mobilise different stakeholder groups to nominate relevant examples. Additionally, we aim at applying a targeted ranking system in order to shortlist the pre-selected initiatives based on defined criteria.</td>
</tr>
<tr>
<td>Risk of a low attendance rate of the workshops</td>
<td>There is a risk that the workshops will not be attended by a sufficient number of respondents.</td>
<td>In order to ensure active mobilisation of stakeholders, we have taken on board of the project team the coordinators/facilitators of the key EU communities and networks related to online training, namely EDEN, Open Recognition Alliance community, e-learning Industry Group, and Europortfolio community. The workshops will be actively promoted among these communities; specific workshop participants will also be nominated by the abovementioned coordinators/facilitators.</td>
</tr>
<tr>
<td>Risk of not detecting incorrect results even after validation</td>
<td>There is a risk that the validation process will overlook certain imperfections in the data sourcing and its outputs.</td>
<td>To minimise this risk, we propose to apply a multi-level validation process consisting of three levels: the internal validation by the project team; the internal validation by the Commission, and external validation by the key external experts (via online survey, etc.).</td>
</tr>
</tbody>
</table>
### 5 Challenges and mitigation measures

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Description</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk of developing analytical descriptions of best practices with a limited policy relevance</strong></td>
<td>There is a risk of having descriptions ‘for the sake of descriptions’, without a clear added value.</td>
<td>Our key objective when drafting the analytical descriptions of 10 best practices, will be to maximise their relevance for the future EU policy making. This principle defines the proposed structure of the analytical descriptions. We will pay special attention to the information collected ‘from the field’ on the suggestions for future EU policy making in the context of each best practice.</td>
</tr>
<tr>
<td><strong>Risk of overlooking important conclusions</strong></td>
<td>Given a high amount of data and a high complexity of analysed topics, it will be a challenge to take into account all relevant trends and areas of attention</td>
<td>Our approach is designed to extract the key priorities and to derive the support measures aiming to tackle the key challenges. We thus do not aim at developing a comprehensive picture of all possible support measures that could be introduced.</td>
</tr>
</tbody>
</table>

**TABLE 5-3: Identified risks and proposed mitigation measures for WP3**

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Description</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identifying ‘usual suspects’ (best practices)</strong></td>
<td>There is a risk of identifying not the most relevant best practices, but initiatives that are most promoted.</td>
<td>To mitigate this risk, we aim to diversify the sources of identification of good practices, and besides desk research, to mobilise different stakeholder groups to nominate relevant examples. Additionally, we aim at applying a targeted ranking system in order to shortlist the pre-selected initiatives based on defined criteria.</td>
</tr>
<tr>
<td><strong>Risk of developing a final report that does not effectively convey the key messages</strong></td>
<td>Given the complex nature of the contract, developing a straightforward and easy-to-read final report may prove to be a challenge.</td>
<td>For the optimal result, we plan to employ Pyramid Thinking methodology, i.e., a process for the efficient organisation of ideas to write compelling policy documents. The methodology implies structuring the report and the text in the report in the way that the most important answers come first. Then the supporting arguments are grouped and summarised. Finally, the supporting ideas for the arguments are grouped logically and presented afterwards.</td>
</tr>
<tr>
<td><strong>Risk of facing challenges when preparing the final conference</strong></td>
<td>Organising a conference for 200 participants is a complex activity requiring rigorous project management.</td>
<td>We will develop a detailed plan for the conference programme activities, including critical milestones, roles and responsibilities of the various Project Team members, dates and deliverables for the event. As part of the standard internal processes for the successful conference management, we will constantly monitor the accomplished tasks against the plan. PwC, EDEN and EMF have extensive successful track record of organising high-level conferences. EDEN specialises in organising international events/conferences on online learning</td>
</tr>
<tr>
<td>Challenge</td>
<td>Description</td>
<td>Mitigation measures</td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Risk of failure of suppliers</td>
<td>An important success factor is the selection of reliable and experienced suppliers to provide the various services required: conference venue, catering, hostesses, suppliers of material (ICT equipment, badges, photocopiers, etc.).</td>
<td>We will follow a standard four-phase procedure for selecting suppliers: first selection criteria, quality control, liability, and risk assessment.</td>
</tr>
<tr>
<td>Risk of selecting inappropriate venue</td>
<td>There is a risk of selecting a venue that does not meet the requirements of the event.</td>
<td>We will plan on-site visits before selecting an appropriate venue in order to check its compliance with the conference programme's requirements, and to meet the suppliers and discuss various issues with them, which could affect the success of the event.</td>
</tr>
<tr>
<td>Risk of developing a brochure that does not effectively convey the key messages</td>
<td>Given the complex and broad nature of the contract, developing a straightforward and easy-to-read concise brochure may prove to be a challenge.</td>
<td>Similar to the final report, for the optimal result, we plan to employ Pyramid Thinking methodology, i.e., a process for the efficient organisation of ideas to write compelling policy documents.</td>
</tr>
<tr>
<td>Limited communication and dissemination impact</td>
<td>There is a risk that insufficient nr of stakeholders will be reached by the communication &amp; dissemination activities</td>
<td>Stakeholder awareness will be ensured thanks to our extensive and thoroughly planned promotional and dissemination work, as well as thanks to our established networks with distinguished sub-contractors.</td>
</tr>
<tr>
<td>Risk of a low attendance rate of the conference</td>
<td>There is a risk that the conference will not be attended by a sufficient number of respondents.</td>
<td>In order to ensure active mobilisation of stakeholders, we have taken on board of the project team the coordinators/facilitators of the key EU communities and networks related to online training, namely EDEN, Open Recognition Alliance community, e-learning Industry Group, and Europortfolio community. The conference will be actively promoted among these communities; specific speakers and participants will also be nominated by the abovementioned coordinators/facilitators. PwC, EDEN and EMF have extensive successful track record of organising high-level conferences. EDEN specialises in organising international events/conferences on online learning and training.</td>
</tr>
</tbody>
</table>

### 5.2. Next steps

The second phase of this initiative (scheduled for October 2018 – October 2019) will concentrate on engaging a broader ecosystem of stakeholders, elaborating on recommendations and draft vision, and proposing concrete supporting measures. The final report will be released at the end of this phase.

Table 5-4 provides an overview of the key project milestones and their status.
TABLE 5-4: Key milestones and status

<table>
<thead>
<tr>
<th>Actions/deliverables/meetings</th>
<th>Deadlines</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP1: Structured collection of latest data and analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kick-off meeting</td>
<td>24 October 2017</td>
<td>Completed</td>
</tr>
<tr>
<td>Draft minutes of the Kick-off meeting</td>
<td>30 October 2017</td>
<td>Completed</td>
</tr>
<tr>
<td>Inception report</td>
<td>17 November 2017</td>
<td>Completed</td>
</tr>
<tr>
<td>Organising first expert workshop</td>
<td>20 March 2018</td>
<td>Completed</td>
</tr>
<tr>
<td>Organising second expert workshop</td>
<td>18 June 2018</td>
<td>Completed</td>
</tr>
<tr>
<td>Draft Interim Report</td>
<td>10 September 2018</td>
<td>Completed</td>
</tr>
<tr>
<td>First SC meeting</td>
<td>25 September 2018</td>
<td>Completed</td>
</tr>
<tr>
<td>Organising third expert workshop</td>
<td>2 October 2018</td>
<td>Completed</td>
</tr>
<tr>
<td>Finalised Interim Report</td>
<td>10 October 2018</td>
<td>Completed</td>
</tr>
<tr>
<td>WP2: Best practices, detailed elaboration of the curriculum guidelines and quality labels</td>
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<tr>
<td>Organising fourth expert workshop</td>
<td>5 December 2018</td>
<td>In progress</td>
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<tr>
<td>Organising fifth expert workshop</td>
<td>12 February 2019</td>
<td>Not started yet</td>
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<tr>
<td>WP3: Validation, finalisation and dissemination</td>
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<tr>
<td>Organising sixth expert workshop</td>
<td>9 April 2019</td>
<td>Not started yet</td>
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<tr>
<td>Draft Final Report</td>
<td>30 May 2019</td>
<td>Not started yet</td>
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<tr>
<td>Final conference</td>
<td>4 June 2019</td>
<td>Not started yet</td>
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<tr>
<td>Final SC meeting</td>
<td>Mid-June 2019</td>
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<tr>
<td>Finalised Final Report</td>
<td>30 June 2019</td>
<td>Not started yet</td>
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<tr>
<td>Draft brochure</td>
<td>30 June 2019</td>
<td>Not started yet</td>
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<tr>
<td>Finalised brochure</td>
<td>1 September 2019</td>
<td>Not started yet</td>
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ANNEX A: OVERVIEW OF KEY MESSAGES FROM RELEVANT SCIENTIFIC, POLICY AND BUSINESS PUBLICATIONS

A.1 Relevant scientific publications

TABLE A-1: Overview of key scientific publications and key messages per publication

<table>
<thead>
<tr>
<th>Nr</th>
<th>Publication</th>
<th>Key messages</th>
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<tbody>
<tr>
<td>1</td>
<td>Bogdan, R., Holotescu, C., Andone, D., &amp; Grosseck, G. (2017) “How MOOCs are being used for corporate training?”, eLearning &amp; Software for Education 2</td>
<td>• More and more companies are interested in integrating MOOCs into their strategy, culture and training structure.</td>
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<td>• Different strategies can be adopted in order to tailor MOOC paradigm to meet company learning and training needs, namely:</td>
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<td>• expanding corporate training options (including training new employees);</td>
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<td>• innovative recruiting techniques;</td>
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<td>• marketing and branding strategies.</td>
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<td>• Companies start encouraging employees to enroll in (external) MOOCs and follow a certain specialisation or a specific course (e.g. Delloitte, Yahoo, Google, Boeing etc.).</td>
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<td>• MOOCs can also be used in blended learning or integrated in in-house training.</td>
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<td>• Key challenges associated with the use of MOOCs by companies include the following:</td>
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<td>• This solution can be adopted for personnel already having sufficient digital skills; the company should determine and increase its digital readiness.</td>
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<td>• The HR department and the trainers need digital skills to curate MOOCs, to assess MOOC quality and to use learning analytics.</td>
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<td>• A direct interaction with MOOCs creators and providers is needed, in order for personalised and adapted micro-courses or micro-training programs to fit the exact skill shortage in the company.</td>
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<td>• Policies for MOOC accreditation should be adopted, applied for recruiting, but also for recognition of employees’ continuous development and for career advancement opportunities.</td>
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<td>2</td>
<td>Bogdan, R. (2016) “Guidelines for developing educational environments in the automotive industry”, 1st International Conference on Smart Learning Ecosystems and Regional Developments, Timisoara, Romania</td>
<td>• Guidelines from the management point of view:</td>
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<td>• The management should have a clear view on the concept of the desired e-learning project, regarding the goal and final usage of such a project.</td>
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<td>• Clear requirements of the project should be offered to the development team. A lack of such requirements will lead to unnecessary modules implementation or even facing some unsolvable issues.</td>
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<td>• After taking the decision that a certain training or task could be transferred in an e-learning content, specific requirements should be formulated regarding the e-learning content. Examples of such mandatory requirements are: should the solution track the participants, is it necessary to use a Learning Management System, should the assignments be implemented for all learners etc.</td>
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<td>• The management team should aim for implementing an educational environment. This means that in the beginning a clear understanding of trainees’ way of perception should take place. In this way, the content of the e-learning ca be adopted accordingly.</td>
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<td>• Only after a rigorous study of trainee’s ways of</td>
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| 3.  | Hamburg, I. (2015) "Improving e-Learning in SMEs through cloud computing and scenarios", E-learning-instructional design, organizational strategy and management, InTech | - SMEs are often reluctant to pay for staff training. In difficult times training budgets are often the first to be reduced or removed. This is often because owners/managers of SMEs do not have enough knowledge about the long-term value of training in sustaining competitive advantage and about suitable, efficient, and cheap learning solutions.  
- The most popular form of learning in SMEs among staff is the informal learning, which accounts for over 75% of the learning taking place in organisations today.  
- Informal learning is the unofficial, unscheduled, impromptu way people learn to do their jobs.  
- Most companies, however, focus on and recognise only formal learning programs, losing valuable opportunities and outcomes.  
- SMEs are restricted in the efficient use of different forms of learning and technology for learning and in adequate management learning approaches.  
- Some important aspects of blended learning for SMEs could be Self-Paced Learning, Mix of Methods and Media, Quality, Time Flexibility, Learner-Centred, Motivation, Flexibility, Accessibility, and Workplace-Related Learning.  
- Managers of SMEs need to be aware of the importance of mixing E-Learning with other forms of learning like mobile learning, webinars, access to on-demand learning resources, and social learning supported by social media for up-to-date skills and information. |
- There is a need for a responsible and responsive TEL implying that it is learner-(employee-) centered and personalised.  
- Top management should be responsive to bottom-up initiatives, and there should be a plan for continuous revision of staff learning plans. |
| 5.  | Roy, A. (2015) “Barriers to e-Learning in SMEs—Are they Still There?”, E-Learning-Instructional Design, Organizational Strategy and Management, InTech | - It is important to know the barriers faced by SMEs regarding training, more specifically e-Learning, in order to be in a position to help them ensure their growth and their sustainability.  
- The main barriers include:  
  - Lack of motivation of learners (the necessity for them to be self-motivated and self-disciplined);  
  - Reluctance of employees to use the technologies (incl. reluctance to use chat rooms and discussion groups by the learners);  
  - Insufficient technical infrastructure (i.e. bandwidth, access to Internet; the lack of investment on the part of companies in technology);  
  - Lack of knowledge about the opportunities offered by e-Learning;  
  - Lack of commitment from senior management;  
  - Lack of a good HR development policy towards learning;  
  - Lack of quality courses (lack of university-level courses
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• E-learning creates a virtuous circle where investment in digital technologies feeds an advanced and innovative use of such technologies, which in turn leads to value added per worker and feeds the probability of a company investing in worker training. |
| 7. | Brien, E. O., and Hamburg, I. (2014) “Supporting sustainable strategies for SMEs through training, cooperation and mentoring”, Higher education studies, 4(2) | • SMEs often do not have a dedicated human resources person or even an employee that can be charged with the responsibility of searching for relevant learning resource.  
• Key directions for action include:  
• Improving the framework conditions of training and skill development, i.e., through overcoming organisational barriers and obstacles of training, investing more in supporting training activities, developing a future-oriented sustainable human resource and competence development policy;  
• Developing suitable methods of training by using technical media like social media and Web 2.0 and 3.0 facilities which are based on specific needs of SMEs; |

235 i.e. an e-Learning culture where managers and employees are truly committed and motivated to lifelong learning using e-Learning because they believe it is essential to their individual development and their firm’s growth. This requires greater awareness and promotion of learning and e-Learning’s value through the dissemination of knowledge among SMEs as to the nature, possibilities and advantages of e-Learning for workplace training. It also requires a better awareness and promotion of the supply and appropriateness of e-Learning services and products available.

236 Users connect their devices (computers, tablets, smart phones, etc.) to the server where applications have been installed and use them to train themselves. There is no burden of maintenance. Software and hardware updates are done by the providers. Users can also receive external computing support from the cloud supplier, which is an important aspect for smaller firms. Nevertheless, top management commitment and support is still a requirement for cloud e-Learning.
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<td>• Addressing current and structural challenges of skill development, i.e., new qualification profile taking also into consideration demographic changes.</td>
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<td>• Examples of technology-enhanced learning solutions for SMEs include:</td>
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<td>• Social learning: social media allows companies to access up to date information as is needed, collaborate with external expertise and widen their skills base.</td>
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<td>• Mobile learning can allow just in time learning allowing SMEs to be responsive and flexible to emerging needs.</td>
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<td>• The success of formal learning is largely reliant on collaboration and sufficient guidance from a mentor. For SMEs this expertise may not always be in-house and they may need to leverage from external experts.</td>
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<td>• Mentors can help to carry out a SWOT analysis including existing knowledge gaps and staff skills needs.</td>
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<td>• Some barriers to training and e-Learning have been identified for SMEs:</td>
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<td>• Lack of deep analysis to identify skill shortage and learning needs of staff to achieve business objectives;</td>
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<td>• Existing learning culture;</td>
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<td>• Lack of manager knowledge of the effectiveness of new forms of learning;</td>
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<td>• Insufficient financial possibilities to develop/train for new forms of learning and technologies;</td>
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<td>• Lack of attractive training offers supporting specific business needs;</td>
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<td>• Lack of knowledge or understanding of policies of communication and cooperation in research and production;</td>
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<td>• Inefficient use of new methods and technologies for sharing and creating knowledge and for development (updating) of innovative skills.</td>
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<td>• Social media supports social learning; it allows employees to learn by connecting with each other in a wider circle than would be possible without technology.</td>
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<td>• Communities of Practice (CoPs) have benefits for the companies helping them be able to effectively and efficiently complete their daily tasks. Employees often seek knowledge and advice from individuals or teams rather than spending a lot of time searching for this information in explicit form.</td>
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<td>• Two characteristics of on-line COPs are the following:</td>
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<td>• Group members can access the information wherever, whenever;</td>
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<td>• Exchanges can be captured and reused.</td>
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<td>• Online CoPs allow more than just chat and on-line forums. Today collaboration applications provide a variety of tools that enable management and tagging of documents, building of individual profiles, and online ratings along with discussion boards and chat functionality.</td>
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<td>• Some features of CoPs can be classified as follows:</td>
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<td>• Networking;</td>
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<td>• Seeking advice and requesting information;</td>
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<tr>
<td></td>
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<td>• Seeking expert advice;</td>
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<td>• Creating knowledge repositories by capturing tacit knowledge;</td>
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<td>• Problem-solving.</td>
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<td>• Some advantages of online CoPs are the following:</td>
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<td>• Saves time: The information is structured and tagged in such a way as to allow members to quickly search documents, links, and posts to answer their questions;</td>
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<td>• Reduces rework: By sharing knowledge in a public setting, content is reused without having to be recreated;</td>
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<td>• Due to the use of flexitime or telecommuting, members can experience the benefits of their CoP whenever the need arises, regardless of the day or night;</td>
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<td>• Shortens learning curve for new employees: When an organisation takes the time to collect resources in a single location, new employee induction time is reduced;</td>
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<td></td>
<td></td>
<td>• Motivates members.</td>
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<td>9</td>
<td>Mellett, S., and O’Brien, E. (2014) “Irish SMEs and e-learning implementation: The strategic innovative approach”, British Journal of Educational Technology”, 45(6), pp. 1001-1013</td>
<td>• Many SMEs have limited resources and find it difficult to send staff on training courses and continuous competency development initiatives.</td>
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<td>• e-Learning has the ability to provide SMEs with a cost-effective, flexible and convenient solution.</td>
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<td>• With such companies coming from diverse backgrounds, a “one-size-fits-all” approach is often not suitable.</td>
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<td>10</td>
<td>Hamburg, I., Brien, E. O., &amp; Engert, S. (2013) &quot;Engaging SMEs in cooperation and new forms of learning&quot;, Computer and information science, 7(1), 1.</td>
<td>• Because of the constraints on their ability to invest in learning – such as sending people off to seminars and employing expensive trainers – learning needs to be integrated into the SMEs working environment directly as much as possible to reduce the time resources spent away from work thus affecting their productivity.</td>
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<td>• ICT-based learning offers the answer to SME needs.</td>
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<td>• E-Learning through its flexibility and ease of access is seen as an enabler of lifelong learning with its potential to transform how and when employees learn, and to act as a catalyst of change and integration.</td>
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<td>• The use of social media, such as blogging, social networks, web services, and new generation e-learning further improves the ability of learners to socially interact with the technology used and learn through its use.</td>
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<td>• The need for SMEs to find new ways of cooperation through networking is assisted by these technologies and technologically enabled cooperation forms, for example technology-enabled Communities of Practice (CoP).</td>
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<td>• In ReadISME and in previous European projects like Ariel, SIMPEL and Net Knowing 2.0 (<a href="http://www.netknowing.com">www.netknowing.com</a>), barriers to training and e-learning were identified:</td>
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<td>• Lack of deep analysis to identify skill shortages and learning needs of staff to achieve business objectives;</td>
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<td>• Existing learning culture does not support cooperative or social learning;</td>
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<td>• Lack of manager knowledge or awareness about the effectiveness of new forms of learning;</td>
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<td>• Shortage of skilled staff and so a lack of time and motivation to test new learning methods;</td>
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<td>• Insufficient financial possibilities to develop/train for new</td>
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<td>forms of learning and technologies;</td>
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<td>• Reliance on quick informal methods of &quot;learning by doing&quot;, when the need arises;</td>
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<td>• Lack of suitable electronic content and appropriate modes of training;</td>
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<td>• Lack of attractive training offers supporting specific business needs;</td>
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<td>• Lack of understanding of training as a top managerial concern, delegation to departmental level or external training provider;</td>
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<td>• Problems with management of missing knowledge; low level of knowledge-transfer to improve the effectiveness of their work tasks;</td>
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<td>• Lack of knowledge or understanding of policies of communication and cooperation in research and production;</td>
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<td>• Inefficient use of new methods and technologies for sharing and creating knowledge and for development (updating) of innovative skills.</td>
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### Additional publications


• Key advantages of e-Learning (Horton, 2000; Chang 2015):
  - E-learning saves costs:
    - Saves 40-60% of the expense of training by traditional means. Savings include (1) travel expenses; (2) facilities and supplies costs; (3) administrative costs; (4) salaries and (5) lost opportunity costs.
  - E-learning improves learning:
    - E-learning uses learning technologies that assist students and trainees towards learning.
    - The interactions between peers and instructors can 'activate learners'
  - E-learning exposes learners to real-world data, which saves learners time in searching information and also assists learners with analysing large collections of data.
    - E-learning provides a more in-depth learning experience.
  - Extra advantages for learners:
    - Learners can get the best instruction available.
    - Training occurs "just in time".
    - Learners set the pace and schedule.
    - Learners can have better access to instructors.
    - Training adapts to the learning styles.
    - E-learning produces positive effects.
  - Extra advantages for instructors:
    - Instructors can teach from different locations.
    - Instructors travel less.
    - Course content can be dynamic.
  - Extra advantages for organisations:
    - E-learning delivers high-quality training, including training around the globe without travel.
    - E-learning creates valuable learning resources.
  - Key disadvantages of e-learning (Horton, 2000; Chang 2015):
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<td>• More instructor effort required: instructors need more preparations, so that they can answer learners’ questions and clear their doubts.</td>
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<td>• More effort required by learners: online courses take 20 to 40% more time and effort than traditional courses.</td>
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<td>• Conversion efforts take longer than expected: converting existing classrooms to online courses has proven harder than many designers expected.</td>
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<td>• Distance learning is impersonal: E-learning is often used as a type of distance learning and distance learning is “impersonal” due to the lack of face-to-face contact.</td>
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<td>• Fear of the technology: many people feel technical problems are the main barrier for e-learning.</td>
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<td>• Learning activities for interactive learning (Horton, 2000; Chang 2015) include:</td>
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<td>• Webcasts: Many distributed learners participate fully in a conventional training event transmitted by a network. To teach material best taught by traditional classroom activities, especially ones that require extensive interaction between the instructor and learners.</td>
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<td>• Presentation sequences: Learners read, listen to, and watch carefully crafted explanations in a Web browser. To provide a consistent high-quality explanation to all learners.</td>
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<td>• Drilled-and-practice activities: Learners repeatedly practice applying specific knowledge or a well-defined skill. To help learners memorise facts that they must be able to recall without hesitation.</td>
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<td>• Scavenger hunts: Learners find reliable sources of information on the Internet or their corporate intranet. To make learners more self-reliant by having them locate reliable sources of information on the subject they are studying.</td>
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<td>• Guided research: Learners gather, analyse, and report on information. To teach learners to conduct informal research on a subject. This activity is especially valuable for learners who will have to conduct informal research as part of their job.</td>
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<td>• Guided analysis: Learners analyse data to evaluate its validity, spot trends, and infer principles. To teach a formal analysis technique or to guide learners to discover trends and principles themselves.</td>
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<td>• Team design: Learners work as co-ordinated teams to produce a single design or to solve a complex problem. To teach design skills that are applied as part of a team or to teach basic teamwork skills.</td>
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<td>• Brainstorming: Distributed learners work together to generate creative solutions to a problem or to accomplish some other goals. To teach brainstorming in its own right or as part of a course involving problem solving, creative thinking, or team design.</td>
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|    |             |   • Case studies: Learners study a meaningful, detailed example of a real-world event, process or system to abstract full concepts and principles. To teach complex knowledge that cannot be reduced to a simple formula. To use specific, concrete particulars to teach abstract,
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<td>general principles.</td>
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<td>• Role-playing scenarios: Learners adopt assigned roles in simulations involving complex interpersonal interaction. To teach subtle interpersonal skills and to reveal the complexity of many human endeavours.</td>
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<td>• Group critiques: Learners receive and react to the criticisms from their peers. To teach learners how to use critical comments of others to improve their own work and how to offer helpful criticism of the work of others.</td>
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<td>• Virtual laboratories: Learners conduct experiments with simulated laboratory equipment. To prepare learners to operate real laboratory equipment or to guide them to discover principles and trends on their own.</td>
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<td>• Hands-on activities: Learners perform a real task outside the lesson. To teach hands-on tasks and to show learners how to apply abstract knowledge gained in other activities.</td>
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<td>• Learning games: People learn by playing. Learning games are computer simulations that let learners practice a highly interactive task. To give learners experience performing a task without the risk or cost of the real activity.</td>
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<td>12.</td>
<td>Sanchez-Gordon, S., and Luján-Mora, S. (2015) “An ecosystem for corporate training with accessible MOOCs and OERs”, MOOCs, Innovation and Technology in Education (MITE), 2015 IEEE 3rd International Conference, pp. 123-128</td>
<td>• Besides employee training, other uses of corporate MOOCs have recently appeared, e.g. using MOOCs for training partners, customers and providers of a company (e.g. SAP, World Bank).</td>
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<td>• Much of this learning is informal through network events, mentoring or coaching.</td>
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<td>• SMEs that are innovative are significantly more committed to learning than those which are less innovative, seeing employee learning as an investment.</td>
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<td>• SME owners need opportunities and time for reflection as a means of stimulating personal learning.</td>
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<td>• Access to mentors (often outside the business) can be important here, as are informal networks.</td>
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### A.2 Relevant policy and business publications

**TABLE A-2: Overview of key business and policy publications and key messages per publication**

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| 1. | Bogdan, R., Holotescu, C., Andone, D., & Grosseck, G. (2017) “How MOOCs are being used for corporate training?”, eLearning & Software for Education 2 | • More and more companies are interested in integrating MOOCs into their strategy, culture and training structure.  
• Different strategies can be adopted in order to tailor MOOC paradigm to meet company learning and training needs, namely:  
  - expanding corporate training options (including training new employees);  
  - innovative recruiting techniques;  
  - marketing and branding strategies.  
• Companies start encouraging employees to enroll in (external) MOOCs and follow a certain specialisation or a specific course (e.g. Delloitte, Yahoo, Google, Boeing etc.).  
• MOOCs can also be used in blended learning or integrated in in-house training.  
• Key challenges associated with the use of MOOCs by companies include the following:  
  - This solution can be adopted for personnel already having sufficient digital skills; the company should determine and increase its digital readiness.  
  - The HR department and the trainers need digital skills to curate MOOCs, to assess MOOC quality and to use learning analytics.  
  - A direct interaction with MOOCs creators and providers is needed, in order for personalised and adapted micro-courses or micro-training programs to fit the exact skill shortage in the company.  
  - Policies for MOOC accreditation should be adopted, applied for recruiting, but also for recognition of employees’ continuous development and for career advancement opportunities. |
• The new-age customers are exposed to smart chatbots and other intelligent systems on their personalised mobile devices including tablets and smartphones.  
• A few areas where chatbot features and AI are used to deliver efficient e-learning courses:  
  - In a simulated learning environment, bots play the role of a guide and interact with the learner, instructing them throughout the learning program.  
  - Bots reinforce learning experience by imparting relevant information at certain intervals, in response to various triggers.  
  - AI leverages a complete overview of data analytics in e-learning and uses it to predict the training outcomes. So, organisations can provide their employees with ample training opportunities. Intelligent bots can also be used to initiate effective peer-to-peer interactions, thereby boosting employee collaboration and workplace productivity.  
• Chatbots deliver data-oriented results, helping the customers solve problems quicker, thereby saving time and resources. |
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|    |             | • AI provides efficient solutions for industries with dynamic learning needs. Organisations which need to update their eCourses on a continuous basis can benefit from machine learning with the capability to accurately predict how content needs to be improved.  
• The application of bots and AI to e-learning is not just a cost-saving solution, but also provides a new way of looking at personalised learning experiences.  
• Modern workforce learns at their own pace, this is where the significance of adaptive learning environment using AI comes into place. |
| 2. | Fosway Group (2017) "Digital Learning Realities 2017: Part 1 - Organisation, Headcount, Budget and Investment", in association with learning technologies, May 2017 | • When looking across all organisations, there is a strong indication that digital learning is more often a patchwork of technologies rather than a tightly controlled ecosystem.  
• The digital learning market remains relatively immature, and no providers have ever taken a lead in supporting the entire learning solutions portfolio. Most tend to be specialist providers, so it is difficult to purchase the strongest solutions for all eventualities from one provider.  
• Learning solutions are often transactional rather than strategic, and frequently have a short shelf life – so the speed at which organisations are revisiting their learning technologies can be high.  
• The overwhelming trend is more towards preferred partnering between providers, rather than seeing them rush to provide a whole branded suite for digital learning. This trend varies by organisation size, however, and smaller organisations can benefit significantly from combined suites, which are purchased and run through a single provider.  
• The preferred option is to source best of breed solutions to fit specific needs and contexts – which can be particularly complex and diverse in learning.  
• More than 90% of consulted companies expect their investment in Platforms & Content to increase or stay the same over 2017.  
• Most expansion in digital learning courses comes at the price of decreasing investment in traditional instructor-led training approaches. The pressure on L&D overall is often to reduce costs or deliver more with the same budget.  
• Despite the positive momentum in investment, however, the overall budgets for digital learning tend to be relatively low. |
| 3. | Fosway Group (2017) "Digital Learning Realities 2017: Part 2 – Trends, Drivers and Measures of success", in association with learning technologies, July 2017 | • The critical drivers behind why organisations adopt digital learning include:  
• Employee value proposition, brand or culture;  
• Responding to the changing demands of modern learners and modern work;  
• Increased learning impact and ROI;  
• Better measurement and reporting of learning;  
• Cost efficiently of learning delivery;  
• Reducing costs;  
• Increased learning availability.  
• The least critical driver for organisations adopting digital learning is learner engagement (1).  
• Although overall, 83% of companies see it as one of their drivers, only 5% think it is a critical one.  
• At the same time, learner engagement – or increasing the desire of learners to learn and increasing their |
### Key messages

- **access to learning** – is at the heart of being able to create great learning experiences.
- If learning engagement is not a key driver behind an organisation’s adoption of digital learning, then it is unlikely it will feature high in the overall strategy when selecting technology solutions. If digital learning does not inspire learner’s engagement, it will hardly make learners feel their demands for modern learning are being responded to.
- With the growing skills gaps, organisations need to think differently about the importance of learning engagement as a critical driver of digital learning and the role it has to play in transforming the learning function.
- Showing the impact of learning is set to become increasingly important within organisations, and L&D needs to look at new ways of measuring the real business results of what it does.
- With 85% of respondents using an LMS, it remains a platform that dominates the digital learning market. This trend is expected to continue for some time to come.
- Authoring systems are on the second place after LMS.
- Virtual classrooms are used by just over 50%.
- There is a possibility that the growth of other virtual communication tools (e.g. Skype, Zoom, Google Hangouts) has superseded the adoption of more specialist training tools.
- The use of social and collaborative solutions also appears to be part of the learning platforms used by the majority.
- The use of MOOC style solutions is still a minority approach, with only around a third of companies using these platforms.
- Mobile learning is featured at the top of the ratings for demand for learning platforms.
- Almost 75% expect to use mobile learning features from learning platforms during 2017 and beyond.
- The whole field is moving into the direction of creating “Learning Engagement Systems”, i.e. solutions that use profile data about learners, their personalities, their habits, goals and feedback from others to drive personalised learning and provide nudges, coaching and connections to help keep distracted and overwhelmed workers connected with their ambitions and their personal development priorities (chatbots/AI).
- Traditional approaches are still the mainstay of the learning content market. Top of the list is off-the-shelf content (for 81%, it is the most commonly used approach).
- Video is the rising star of learning content and cuts across all forms (user generated, bespoke or off-the-shelf). In many instances, YouTube has become the reference model for organisation’s performance support learning. It lends itself well to the growing momentum around mobile learning and micro-learning.
- When it comes to future trends, 27% expect to use off-the-shelf content less or stop using it over the year.

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<td>84% expect their demand for mobile learning to increase, together with an increasing demand for user generated learning.</td>
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<td>The trio of video, mobile and user generated learning forms a combined movement that is shifting the learning landscape to capture real organisational learning rather than that which is solely provided by the learning department.</td>
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<td>For most e-learning providers, it is all about the graphics, personal, interactivity, and on-screen design – rather than the complete learning experience that supports people in building proficiency and flawless execution.</td>
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<td>“Great performance comes from people who can do great things...not those who can look things up – just in time – because they do not know how to do it.”</td>
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<td>L&amp;D buyers need to look beyond traditional e-learning providers. L&amp;D needs to rediscover approaches like inquiry-based learning and action learning, but with the opportunity that digital provides for a technology-enhanced twist.</td>
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<td>Key shifts in the field of digital learning include the following:</td>
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<td>We are moving away from a focus on content and the virtualisation of learning to the focus on learners and their business context.</td>
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<td>We are moving from an era of massification (the volume dumping of learning on the vast multitude regardless of their individual needs) to personalisation;</td>
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<td>There is a shift from traditional content-led e-learning to digital and social learning.</td>
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<td>All of these shifts are going to enhance learner’s experience and move us from delivering solitary instances of learning to achieving the full learning cycle, which implies moving beyond simply learning, to actually applying and sustaining behaviours.</td>
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<td>Fosway Group (2017) &quot;Digital Learning Realities 2017: Part 3 – Impact and Satisfaction”, in association with learning technologies, July 2017</td>
<td>For customers, the challenge remains how to create a competitive ecosystem of suppliers around their digital learning projects that stimulates to provide better levels of service and solution. There is a trend for some buyers to look for unconventional suppliers.</td>
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<td>The risks around selecting the right suppliers appear to be greatest when it comes to learning content.</td>
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<td>In areas such as gamification, business systems solutions, user generated content, serious games, MOOCs, off-the-shelf performance support and virtual reality, customers are 60% likely to get merely an acceptable or poor quality solution.</td>
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<td>Blended learning and mobile learning do not score much better.</td>
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<td>Only in video content and bespoke content, the balance is in buyer’s favour.</td>
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<td>Social learning and analytics are also associated with a high risk of low quality.</td>
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<td>Only 10-15% of digital learning platforms are rated “very good”.</td>
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<td>Without choosing wisely, digital learning is between 50-70% likely to have a mediocre impact on an organisation.</td>
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<td>Key points of an organisation’s action plan (to maximise the impact of digital learning):</td>
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|    |             | - Setting clear goals for how learning solutions will impact key audiences both in terms of employee advocacy and learning results;  
|    |             | - Creating strong ties to HR and the organisation’s talent management processes;  
|    |             | - Outlining a proactive strategy and the tactics that show how the organisation’s learning infrastructure and learning ecosystem enable onboarding, talent development, performance management, career planning.  
|    |             | - Prioritising learning activities on the predictable drivers for training in the organisation including new systems, new starters, new products, new processes, organisation change and audiences with tangible performance goals.  
|    |             | - Organising an independent review of the learning approach and solutions to get a fresh perspective on where the organisation can make the most dramatic improvements. |

- The main barriers that can prevent open education policies from succeeding include:  
- Low ICT-readiness, low policy priority assigned to open education, fragmentation of initiatives, lack of institutional support, resistance to cultural change, lack of awareness about open education, low open education capacity within the teaching population, and the absence of an open licenses national recognition scheme.  
- The main enablers of open education are:  
- A clear policy priority assigned to open education, both at Member State and EU level; awareness-raising on open education, targeting leaders and educators; capacity-building on open education for educators and other stakeholders; measures to empower educators; online platforms and advocacy communities.  
- Further dissemination of the European Commission’s policies and investment in open education was described as an essential action to be taken. This would motivate MS representatives to make more visible their activities on open education.  
- Most MS have implemented some kind of initiative with regard to open education, but there is still a long way to go. In most MS, the vision of open education is rather broad, going beyond OER and open content.  
- A large number of MS had not looked at such issues for many years. A more systematic approach, such as a kind of regular “open education census”, would be needed, preferably carried out in some kind of MS EU partnership.

- Today, it would be difficult to find a modern organisation that does not see technology as integral to business strategy as well as operations.  
- Yet despite these notable advances, in some ways company leaders are no better equipped to handle the changes coming their way than they were in 2007 (in fact, their Digital IQ has declined).  
- How can company leaders be expected to consistently unlock value from digital investments in a rapidly advancing world? Focus on the human experience.  
- That entails rethinking how companies define and
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<td>deliver digital initiatives, considering employee and customer interactions at every step of the way, investing in creating a culture of technology innovation and adoption, and much more.</td>
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<td>• People have been the missing variable in the digital transformation equation.</td>
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<td>• Data mining and analysis, search technologies, service-oriented architecture, and virtual collaboration were top-of-mind technologies in 2007.</td>
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<td>• Attention shifted to mobile technologies, data security, and cloud.</td>
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<td>• Today, emerging technologies like the internet of things and artificial intelligence are seen as the next big things, and other next-generation tools are at their heels.</td>
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<td>• Most organisations have not done enough to keep up with the digital revolution. While technology has become a CEO-level concern and the CIO has attained strategic stature, many other senior executives and the functional areas they lead are not yet fully engaged in the project of digital transformation.</td>
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<td>• Most tasks related to digital—including digital investment prioritisation, innovation, and the development of new products and services—rest with either the CIO or CEO.</td>
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<td>• Very few functions outside of IT and operations have a leading role in emerging technology exploration.</td>
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<td>• Fewer companies today have a team dedicated to exploring emerging technology than in years past. The rest rely on ad hoc teams or outsourcing.</td>
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<td>• Many (49%) still determine their adoption of new technologies by evaluating the latest available tools, rather than proactively exploring new innovations with specific business needs in mind (40%).</td>
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<td>TeachOnline (2017) &quot;Five Key Questions About the State of Online Learning&quot;, published on 15 March 2017</td>
<td>• Online learning is so much a part of what we all do that we should actually stop seeing it is a distinctive and separate way of working, but rather see it as part of new approach to teaching and learning.</td>
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<td>• The biggest gains in online learning since 2010 include:</td>
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<td>• Wider acceptance of online learning as being not significantly different in terms of learning outcomes than face-to-face learning;</td>
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<td>• A deeper understanding of the importance of instructional design and the ways in which course design can better engage learners;</td>
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<td>• A strong investment in the professional development of faculty and instructors – more focused engagement in how best to leverage online environments for learning;</td>
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<td>• A renewed focus on learning outcomes and, more recently, competency- and capability-based learning. Online learning design demands to be explicit about what it is learners need to focus on.</td>
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<td>• Increasing uses of simulation and gaming.</td>
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<td>• The ways to improve quality of online learning include the following:</td>
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<td>• A need to see the work of creating online courses as requiring a team of people (e.g. a faculty member or instructor as a subject matter expert, an instructional designer, a learner who has studied the subject and knows where learners struggle, a technology advisor</td>
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- A need to make much more use of available open educational resources with proven track records of effective deployment in design – stop creating everything from “scratch”.  
- A need to align learning processes with the capabilities of technologies and the work of instructional design.  
- A need to rethink our understanding of quality – moving away from a mechanistic, tick-box approach to quality assurance practices and towards an approach which gives greater emphasis to learning processes, engagement, analytics and outcomes.  
- People drive learning, not technology. Technology just makes more of this possible.  
- The following technologies can be identified as being “in the race” to have an impact on learning:  
  - Artificial intelligence and machine intelligence will generate new ways of assessing and supporting learners, using adaptive learning systems and automated assessment. Such developments may also lead to a growing use of robotic technologies to support learning services.  
  - Enhanced simulations and games using augmented virtual reality to permit life-like laboratories in engineering and other disciplines but also make remediation for struggling learners more manageable when combined with adaptive learning technologies.  
  - More visual and aural learning than text and graphics – with the growth of voice and gesture recognition and an increase in computing power, learners may make more use of audio, video, graphics, gesture and 3D imaging in their assignment activities.  
  - More personalised and differentiated use of adaptive learning and analytics – as the technology becomes more ubiquitous, learning can shift from batch-processing (classes with an instructor) to a more individualised and self-paced experience.  
  - Far more extensive use of open educational resources by both learners and their instructors, both because of the ease of access and cost but also because of quality assurance now being attached to such resources.  
  - Next transformative revolution in learning will be focused on assessment, for example, the online assessment of competencies for vocational skills that is now occurring globally or the development of transferable standards and assessments for a range of engineering professions.  
- Millennials entering the job market bring a new set of expectations on how to learn and collaborate.  
- They are teaching leaders of training organisations that learning is best achieved in small ongoing increments, over time, accessed on-demand, using multiple devices, over multiple forms of media.  
- Investment in Educational Technologies Continues to Increase: Tools for content development and delivery, digital readers, virtual delivery, reinforcement, content libraries, gaming and cloud-based administration systems, all are bringing a level of innovation that is at an all-time high for corporate training. |
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| 9. | EU15 Ltd et al. (2015) “European-wide e-Learning Recognition Review Report”, Erasmus+ project nr. 2014-1-UK01-KA202-001610 (SMEELEARN project)                                                                 | • For SMEs generally, the most frequent services required are e-learning training courses with tutorials and evaluation services.  
• As the investment required in order to develop personalised platforms and courses is too high for many SMEs (especially the ones with less than 10 employees), the most common solution adopted is the purchase of e-learning courses. The content is standardised and the employees are treated individually, like the other participants of the course.  
• One of the most widespread problems in relation to distance education is the difficulty of tutoring courses. To do this, some centres are incorporating in the virtual campuses intelligent tracking systems. These systems simulate real tutors and monitor the learners throughout the virtual space to give each other information required.  
• E-learning systems in Europe need to have a coherent strategy that foresees the definition of some parameters to plan e-learning courses, common evaluation guidelines and repositories to share good practices and common standards to manage the processes.  
• The most popular learning in SMEs is informal one and the predominant training method is workplace training for daily tasks as it is viewed as "low cost" (Admiraal and Lockhorst, 2009). The integration with formal strategic training is often not planned. Also the blending of face-to-face training with self-paced e-learning is not efficiently used (O’Brien and Hamburg, 2014).  
• Popular reasons for not using online training among SMEs include fear of losing personal contact between trainers and participants of the course, the lack of learner motivation and lack of information on the use of the system.  
• There is a need to recognise the role of accessibility to e-learning by emphasising multiple ways in which e-learning can be accessed using latest technologies. |
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| 10. | OECD (2013) “Skills Development and Training in SMEs”, OECD publishing | - Data across OECD countries show that SMEs participate 50% less in training activities than large firms.
- Reasons for these lower levels include a lack of critical mass within the firm enabling them to afford (both financial costs and the cost of employee’s time) and access formal training opportunities.
- High cost/too expensive to provide training - associated with the costs of hiring external training providers; universities typically do not offer short courses and are more suited for larger companies; courses offered by public institutions are often too broad/basic, teachers lack industrial experience.
- Impossible to interrupt production time/lack of time – due to company size, employees are constantly needed to maintain production and service; in order to allow an employee time off work to carry out training, there is an increase in the workload of other employees or there is a reduction in product output.
- Too difficult to identify suitable training providers or lack of training providers/programmes – it is often difficult for SMEs to assess the quality of the available training programmes, or, in some cases, there is a lack of awareness that training opportunities exist. Some SMEs are highly specialised and in their case, there is a lack of training programmes that suits their needs.
- SMEs are more inclined to participate in knowledge-intensive activities as a way of learning new techniques or new ways to operate. This includes learning by interacting with consultants, suppliers or clients; or attending conferences, meetings or internal activities such as quality control activities.
- These activities, however, do not carry formal qualifications or standard training certificates and tend to benefit managers, business owners and the higher educated staff members.
- SMEs could benefit from a network approach, utilising members of their skill ecosystem to generate similar economies of scale for training activities available to larger firms (e.g. several SMEs may join forces to organise learning circles or exchanges of personnel within an industry cluster or value chain).
- Recruitment is the main process for introducing and updating skills in the firm.
- Assessment of both current and future skills needs appear to be more spontaneous in SMEs than in large firms (where it happens with regular frequency).
- High-skilled workers appear to have more complex knowledge sourcing and skill development activities than low-skilled workers, and the training activities that they complete provide mediate inputs into the productivity of the firm.
- SMEs’ skills and training development is an untapped niche for private training operators. In this respect, online training offers promising opportunities.
- There is a need for formal training organisations and providers to understand the importance of informal training for SMEs and the potential that exists to develop a pathway for informal skills development to
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<tr>
<td></td>
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<td>be recognised by qualifications.</td>
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<td></td>
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<td>• Policy makers need to be aware of the local/regional SME context and the need for tailored skills development policies.</td>
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<td></td>
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<td>• There is a need for more policy dialogue with public, private and industry organisations.</td>
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<td>• There is a need to incorporate the value of skill ecosystems to regional/local government systems for better matching skill supply and demand.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The establishment of regionally-based networks and partnerships organised around workforce development is vitally important for creating a skill ecosystem environment.</td>
</tr>
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<td></td>
<td>Additional publications</td>
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<td></td>
<td></td>
<td>• Due to the immersive and experiential nature of Augmented Reality, it can allow online learners to experience difficult emotions like fear, stress, anxiety, anger, conflict and confusion. This opens up a world of new possibilities for immersive online training.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• AR offers all the opportunities of real-life, hands-on training without any of the risks involved.</td>
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<td></td>
<td></td>
<td>• AR-immersion training can provide a highly personalised and learner-centric open experience which is customisable.</td>
</tr>
<tr>
<td>12.</td>
<td>Shank P. (2018) “Microlearning, Macrolearning. What Does Research Tell Us?”, eLearning Industry, published on 19 February 2018</td>
<td>• Microlearning (or learning from content accessed in short bursts, content which is relevant to the individual, and repeated over time to ensure retention and build conceptual understanding) is not the solution to all workplace learning needs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Macrolearning focuses on larger and more complete skill areas and should include the knowledge, practice, and feedback to achieve needed skills.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Both are essential for the workforce and should complement each other.</td>
</tr>
<tr>
<td>13.</td>
<td>Beutner, M., &amp; Rüscher, F. A. (2017) “Acceptance of Mobile Learning at SMEs of the Service Sector”, International Association for Development of the Information Society</td>
<td>• A lot of SMEs already use mobile devices in their companies which are mostly smartphones, laptops and tablets. This indicates that there already exists the technical basis to use Mobile Learning.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A lot of SMEs still prefer the traditional learning methods; m-learning is still new and unknown to them.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SMEs are afraid of losing control over the learning process and development of their staff members when implementing m-learning. SMEs prefer personal interaction. These arguments indicate that there is a resistance in changing a running system to a new unknown approach.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Most of the approached SMEs think that m-learning will play some part in the future of the company, but are not sure on how to integrate or implement it in their company which indicates the need for further guidance for SMEs regarding the implementation of m-learning.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• m-learning is meant as an addition to further education and is not supposed to replace all other approaches.</td>
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<td>Key messages</td>
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</table>
| 14. | Pappas C. (2017) “8 Corporate eLearning Trends For 2017”, eLearning Industry, published on 21 May 2017 | - (1) Microlearning Online Training Libraries: Employees need information to be delivered quickly and efficiently. Microlearning online training libraries can be accessed through multiple devices. This offers employees numerous opportunities to learn what, when, and how they want. Many corporations are now using microlearning online training repositories as a “moment of need” online training resource.  
- (2) Personalised Online Training Paths: There are a multitude of ways people can absorb and assimilate the information they need. Some employees need to be hands on, and others need to simply hear or see the information to retain it. Personalised online training paths cater to specific performance gaps and experience levels. They may involve clickable e-learning course maps, individual training contracts, and course catalogues that allow employees to pick-and-choose.  
- (3) Coaching/Mentoring: Mentoring benefits all parties involved. Mentees can learn from the insights of more experienced employees, while online training mentors improve knowledge retention and reinforce key skills as they put their knowledge base into practice. However, there is a need for communication guidelines to clarify expectations and define roles. Everyone should know the overall learning objectives and what online training resources are available to get the most from the online training program.  
- (4) Gamification/Serious Games: e-learning games give employees the rare opportunity to learn information without even realising it. They are able to compete with peers and level up while absorbing the key takeaways.  
- Rewards are a powerful motivator for corporate learners. Earning e-learning badges, points, or progressing through levels can be enough to pique learners’ interest.  
- (5) Responsive Design: Modern employees are looking for mobile-friendly resources to help them build skills and knowledge. Responsive design tools allow organisations to develop and deploy online training courses that are accessible anytime, anywhere. More importantly, on any device. Companies can create a master version of their online training content that adjusts to fit any screen size or resolution.  
- (6) Social & Collaborative Learning: Social media groups, online discussions, corporate e-learning blogs, and video sharing platforms are just a few of the social learning tools to consider. Companies can also encourage employees to use Project Management software to facilitate online collaboration. This is particularly useful in team settings where employees must delegate tasks and provide e-learning feedback.  
- (7) Real-World Activities: Online training must translate into real-world application in order to be truly effective. Real-world activities include online training simulations, branching scenarios, and examples that stress the benefits and uses of the subject matter.  
- (8) Online Training Webinars: An increasing number of organisations are now using webinars in creative and... |
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| 15. | EU15 Ltd (2016) “SMEs & e-learning (SMEELearn) – e-learning Best Practice Guide”, Erasmus+ project nr. 2014-1-UK01-KA202-001610 (SMEELearn project) | • There is reluctance from the SME side and their employees to engage in this form of learning, despite many advantages.  
• SMEs need to be aware of the e-learning opportunities available to them, and how these can be used to best advantage to ensure acceptance by managers and workforce.  
• Key characteristics of a good e-learning course include:  
  - Detailed analysis;  
  - Structured content;  
  - Interactive content;  
  - Assessment opportunities;  
  - Enjoyable and fun activities;  
  - Achievable milestones;  
  - Visually stimulating;  
  - 24/7 accessibility;  
  - Real-life case studies;  
  - Blended learning;  
  - Audio input;  
  - Training room based;  
  - Reporting facilities;  
  - Time to think – low pressure learning environment;  
  - Certification;  
  - Accreditation. |
| 16. | SAP (2016) "A New Model for Corporate Learning", SAP Service & Support Thought Leadership Inquiry Nr. 191238 | • The main drivers for learning transformation within companies include:  
  - Creating competitive advantage: many companies considered highly disruptive in their markets today achieved innovation and market share by looking ahead and taking advantage of new technologies faster than competitors or in novel ways. Digital learning enables companies to stay ahead of the curve. Companies need to understand the new technologies before they are even available, so that they can understand the impact on the business and even invent new business models.  
  - Closing the skills gap: for example, a financial analyst today needs to know how to work with Big Data, including how to ask the right questions and how to use the related information systems. The same holds for a typical auto dealer or the person manufacturing a car, as the knowledge they need to do their job today is infinitely more complex than it was even 5 or 10 years ago.  
  - Retaining and motivating new workforce: By 2025, Millennials will make up 75% of the workforce, according to the Brookings Institution. Various studies have shown that Millennials crave learning and collaboration and will do whatever it takes to get the |
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<tr>
<td></td>
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<td>information they need expediently. Companies will need to adapt or suffer the consequence of a disengaged and unprepared workforce.</td>
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<td></td>
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<td>• To modernise its learning environment, SAP deployed a cloud-based learning management system and a social collaboration tool. Today, more than 74,000 employees can create personalised training through a combination of online self-study that incorporates video and documentation, social learning tools for exchanging ideas with other employees, and hands-on practice using SAP applications in a sandbox environment.</td>
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<tr>
<td></td>
<td></td>
<td>• There are several characteristics of digital learning transformation:</td>
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<tr>
<td></td>
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<td>• Micro-learning. The concept of breaking lessons into smaller bites minimises productivity disruptions and mirrors consumer behavior of watching three-minute videos and reading social media to get information on anything under the sun. Micro-learning is perfect for learning how to write a business plan, develop code in Ruby on Rails, or learn about a manufacturer’s latest appliance before a service call, for example. It can mean segmenting a longer course into small lessons, which the employee could view over lunch or in the evening from home through mobile learning apps. These apps work best when integrated with the LMS and HR systems and push relevant material to users based on their learning profile.</td>
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<td>• Self-serve learning. Just-in-time learning is critical when learning needs to accelerate. Companies can help by providing continually updated tools and content that can be accessed from any device, at the moment of need. It helps learning departments keep up with employees’ needs.</td>
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<tr>
<td></td>
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<td>• Learning as entertainment. Gamification is a viable tool for corporate learning.</td>
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<td></td>
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<td>• Virtual reality. Adding an element of fun and recognition for reaching milestones is important for capturing the attention of younger workers who have grown up on games and apps.</td>
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<td>• Social learning. Learning is an emotional experience and most people do not want to be alone when they learn. In that regard, social media models can be profoundly valuable because they foster sharing and collaboration, which helps employees retain the knowledge they gain through formal training programs. That is why social collaboration platforms have become as important to the overall learning strategy as the specific types of training delivery methods themselves.</td>
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<td>• User-generated content. What learners value the most today is the raw, user-created content over the highly polished corporate-created content. This trend is creating a town-square model where learners are ripe to learn from others.</td>
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<tr>
<td></td>
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<td>• Video. Almost anyone can produce a training video, and it is technically more convenient than ever before.</td>
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|    |             | • MOOCs are playing a growing role in companies. Getting access to real business experts is especially valuable for a small or midsize business that could not
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<td></td>
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<td>afford to hire that individual otherwise.</td>
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<td>• In moving toward accelerated, continuous learning, chief learning officers (CLOs) will need to help foster a culture of accountability and excitement around learning, as follows:</td>
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<td>• Develop a close alignment between learning departments and senior business leaders to understand skill gaps, customer needs, and employee shortfalls;</td>
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<td>• Become a content curator and take on a customer service role in the business;</td>
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<td>• Ensure that learning is specific to the individual and relates to specific business and career goals;</td>
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<td>• Have managers help by motivating and guiding employees through the tools, helping them develop personalized plans, and monitoring their progress.</td>
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<td></td>
<td>• In most cases, companies should be relatively hands-off when it comes to employee learning. It is the responsibility of the workers to learn and acquire the needed skills and competencies for their jobs and it is important to monitor the outcomes and not micromanage the process they use for getting there.</td>
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<td>• It is important that leaders motivate employees to learn by setting a good example. A company could view corporate learning not as curriculum but as a set of experiences, including classroom courses, online training, coaching, mentoring, and informal collaboration.</td>
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<td></td>
<td></td>
<td>• The direct impact of learning could be measured through surveys of both employees and their managers (e.g. a metric on the learning tools that are most effective for acquiring different types of knowledge; a metric on return on performance from a specific learning program).</td>
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<td>• Measuring learning effectiveness is a difficult key performance indicator, yet digital learning platforms often have built-in analytics to create a starting point.</td>
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<td>• The analytics allows companies to run reports on usage to see what is most effective and to retire those assets that are not being used. Ultimately, companies should work toward connecting the dots between learning outcomes and business outcomes, such as attrition, employee engagement, and sales growth.</td>
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<td>• Blending formal and informal training, as well as offline and online training, is a historical trend that will continue.</td>
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<td>• Incorporating multiple modes of learning is critically important for gaining knowledge that sticks.</td>
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<td>• To close the loop, managers and learning departments need to develop a process that includes practice, feedback, and on-the-job experience.</td>
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<tr>
<td></td>
<td></td>
<td>• Introducing innovative learning tools and programs that allow employees to study independently and experiment with new ideas is also motivating, which can lead to higher engagement, productivity gains, and even bottom-line benefits.</td>
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|    | massive open online courses”, IGI Global | and applications;  
• New portable devices and the possibilities they offer in learning;  
• New ways of acquiring knowledge;  
• New sources of knowledge such as MOOCs;  
• Emerging learning theories trying to describe new ways of acquiring knowledge. |
## Annex B: Overview of consulted stakeholders (workshops and interviews)

TABLE A-1: Overview of consulted stakeholders (expert workshops, in-depth interviews and individual expert consultation)

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<tr>
<th>Nr</th>
<th>Name</th>
<th>Organisation</th>
<th>Country</th>
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<tbody>
<tr>
<td>1.</td>
<td>Ádám Bodor</td>
<td>Webuni</td>
<td>Hungary</td>
</tr>
<tr>
<td>2.</td>
<td>Alan Bruce</td>
<td>ULS Dublin</td>
<td>Ireland</td>
</tr>
<tr>
<td>3.</td>
<td>Alex Grech</td>
<td>National Skills Council</td>
<td>Malta</td>
</tr>
<tr>
<td>4.</td>
<td>Alfredo Soeiro</td>
<td>University of Porto</td>
<td>Portugal</td>
</tr>
<tr>
<td>5.</td>
<td>Ana Augusta Saraiva de Menezes da Silva Dias</td>
<td>University of Minho</td>
<td>Portugal</td>
</tr>
<tr>
<td>6.</td>
<td>Anna Grabowska</td>
<td>Gdansk University of Technology, PRO-MED SME</td>
<td>Poland</td>
</tr>
<tr>
<td>7.</td>
<td>Anne Aubert</td>
<td>Ministry of Higher Education and Research</td>
<td>France</td>
</tr>
<tr>
<td>8.</td>
<td>Andras Szucs</td>
<td>EDEN (European Distance and E-Learning Network)</td>
<td>Hungary</td>
</tr>
<tr>
<td>10.</td>
<td>Carlos Ripoll Soler</td>
<td>Universitat Politècnica de València</td>
<td>Spain</td>
</tr>
<tr>
<td>11.</td>
<td>Catherine Mongenet</td>
<td>FUN-MOOC</td>
<td>France</td>
</tr>
<tr>
<td>12.</td>
<td>Christian Friedl</td>
<td>FH JOANNEUM</td>
<td>Austria</td>
</tr>
<tr>
<td>13.</td>
<td>Claudio Dondi</td>
<td>Independent Expert on Education Quality, Innovation and Equity</td>
<td>Belgium</td>
</tr>
<tr>
<td>14.</td>
<td>Darco Jansen</td>
<td>EADTU (European Association of Distance Teaching Universities)</td>
<td>Netherlands</td>
</tr>
<tr>
<td>15.</td>
<td>Deborah Arnold</td>
<td>AUNEGE</td>
<td>France</td>
</tr>
<tr>
<td>16.</td>
<td>Dènes Zarka</td>
<td>Centre for Learning Innovation and Adult Learning</td>
<td>Hungary</td>
</tr>
<tr>
<td>17.</td>
<td>Diana Andone</td>
<td>Politehnica University of Timisoara</td>
<td>Romania</td>
</tr>
<tr>
<td>18.</td>
<td>Donatella Persico</td>
<td>ITD-CNR: Istituto per le Tecnologie Didattiche (ITD) of the Italian National Research Council</td>
<td>Italy</td>
</tr>
<tr>
<td>19.</td>
<td>Ebba Ossiannilsson</td>
<td>Vice-President of the Swedish Association for Distance Education (SADE), and CEO, Ossiannilsson Quality in Open Online Learning (QOOL), Consultancy</td>
<td>Sweden</td>
</tr>
<tr>
<td>20.</td>
<td>Fabrizio Cardinali</td>
<td>knowhedge Consulting</td>
<td>Italy</td>
</tr>
<tr>
<td>21.</td>
<td>Giles Pepler</td>
<td>Sero Consulting Ltd.</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>22.</td>
<td>Igor Curcio</td>
<td>Nokia</td>
<td>Finland</td>
</tr>
<tr>
<td>23.</td>
<td>Jelena Revzina</td>
<td>Runway</td>
<td>Latvia</td>
</tr>
<tr>
<td>24.</td>
<td>Joseph Vancell</td>
<td>University of Hull</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>25.</td>
<td>Juliette Denny</td>
<td>Managing Director Growth Engineering Ltd</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>26.</td>
<td>Kristoffer Hedram</td>
<td>Lin Education</td>
<td>Sweden</td>
</tr>
<tr>
<td>27.</td>
<td>Lutz Michel</td>
<td>mmB Institut for media and competence research</td>
<td>Germany</td>
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<tr>
<td>28</td>
<td>Marjolein van Eck</td>
<td>IBM Global Markets</td>
<td>Netherlands</td>
</tr>
<tr>
<td>29</td>
<td>Marta Jacyniuk-Lloyd</td>
<td>Cambridge Professional Development</td>
<td>United Kingdom</td>
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<tr>
<td>30</td>
<td>Märt Aro</td>
<td>DreamApply/Nordic EdTech Forum “N8”</td>
<td>Estonia</td>
</tr>
<tr>
<td>31</td>
<td>Mathy Vanbuel</td>
<td>ATIT</td>
<td>Belgium</td>
</tr>
<tr>
<td>32</td>
<td>Monika Simaškaitė</td>
<td>INFOBALT</td>
<td>Lithuania</td>
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<tr>
<td>33</td>
<td>Natasja Mol</td>
<td>IBM Global Markets</td>
<td>Netherlands</td>
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<tr>
<td>34</td>
<td>Nils Carlberg</td>
<td>Triglyf AB</td>
<td>Sweden</td>
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<tr>
<td>35</td>
<td>Nigel Lloyd</td>
<td>Cambridge Professional Development</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>36</td>
<td>Nikitas Kastis</td>
<td>Chief Consultant &amp; Director, Mind2Innovate</td>
<td>Greece</td>
</tr>
<tr>
<td>37</td>
<td>Paula Peres</td>
<td>Instituto Politécnico do Porto</td>
<td>Portugal</td>
</tr>
<tr>
<td>38</td>
<td>Peter Mazohl</td>
<td>EFQBL (European Foundation for Quality in Blended Learning)</td>
<td>Austria</td>
</tr>
<tr>
<td>39</td>
<td>Piet Henderikx</td>
<td>EADTU (European Association of Distance Teaching Universities)</td>
<td>Netherlands</td>
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<tr>
<td>40</td>
<td>Rebecca Stromeyer</td>
<td>ICWE</td>
<td>Germany</td>
</tr>
<tr>
<td>41</td>
<td>Sandra Kucina Softic</td>
<td>University of Zagreb, University Computing Centre</td>
<td>Croatia</td>
</tr>
<tr>
<td>42</td>
<td>Sarah Cherif</td>
<td>CUTESolutions</td>
<td>Belgium</td>
</tr>
<tr>
<td>43</td>
<td>Serge Ravet</td>
<td>Espace Mendes France</td>
<td>France</td>
</tr>
<tr>
<td>44</td>
<td>Teemu Patala</td>
<td>Context Learning Finland Ltd.</td>
<td>Finland</td>
</tr>
<tr>
<td>45</td>
<td>Wendy Chowne</td>
<td>The London Institute of Banking and Finance</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>46</td>
<td>Yangos Hadjiyanis</td>
<td>Cyprus Institute of Marketing, Cyprus Business School</td>
<td>Cyprus</td>
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**ANNEX C: ONLINE SURVEY QUESTIONNAIRE**

**C.1 Introduction**

The current online survey is carried out in the context of “Promoting Online Training Opportunities for the Workforce in Europe” initiative (contract nr. EASME/COSME/2017/001) for the Executive Agency for Small and Medium-sized Enterprises (EASME) and the Directorate General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) of the European Commission (the Commission), that is coordinated by PwC EU Services (PwC) in cooperation with European Distance and E-Learning Network (EDEN) and Espace Mendes France (EMF).

The survey aims to obtain stakeholder validation of the identified measures that could stimulate the uptake of online training by companies (particularly high-tech SMEs) in Europe.

The survey specifically aims to detect the key priorities among the identified measures, which would then need to be further developed and incorporated into a common vision for the EU policy making. The common vision will include specific measures, roles and priorities at the EU and national levels for implementation in the period of 2021-2027.

The measures included into this survey have been identified based on extensive desk-research, in-depth interviews with the representatives of specific Member States, as well as expert inputs during an expert workshop on “Key challenges and solutions for promoting online training among SMEs in Europe”, held in Brussels on 20 March 2018.

The identified measures are structured around the key barriers that are reported to inhibit the adoption of online training by the workforce in Europe.

Your contribution to this survey will help us develop a blueprint for the common vision for the EU policy making in this field. The common vision will include specific measures, roles and priorities at the EU and national levels.

Your inputs to this survey will be processed in an anonymous way.

**C.2 Prioritisation of barriers**

1. Please select **three** key barriers that would need to be tackled in the first place, in order to stimulate widespread adoption of online training by the workforce in Europe, with a particular attention to SMEs. [**multiple choice question, limited to three options in total**]

   - Lack of motivation of employees to use online training [1.1]
   - Reluctance of employees to use technologies for training [1.2]
   - Insufficient technical infrastructure [1.3]
   - Lack of knowledge of employees about the opportunities offered by online training [1.4]
   - Lack of knowledge of employers about the opportunities offered by online training [1.5]
   - Lack of commitment from management [1.6]
   - Lack of company’s learning strategy [1.7]
   - Lack of good quality courses relevant to company needs [1.8]
   - High development costs for bespoke learning [1.9]

The following questions focus on the measures aiming to tackle each of the abovementioned barriers.
C.3 Barrier 1: Lack of motivation of employees to use online training

2. Please select three measures that would be the most effective in tackling the abovementioned barrier. [multiple choice question, limited to three options in total]

- Raising awareness among employees of good learning resources [2.1]
- Developing tools for employees to have their personal learning environment centred around the learning needs of each particular employee [2.2]
- Encouraging employees to become part of a community of practice [2.3]
- Making learning more engaging by adopting the latest advancements in technology, including artificial intelligence, gamification, virtual reality etc. [2.4]
- Introducing learning contracts that would need to be signed by both the employer and the employee, and that would set objectives for the professional development of that certain employee [2.5]
- Encouraging employees to come up with their own learning initiatives in a bottom-up way [2.6]
- Rewarding employees for learning in a monetary way (e.g. increase in remuneration) [2.7]
- Rewarding employees for learning in a nonmonetary way (e.g. celebrating learning, praising learning champions through awards or similar) [2.8]
- Adopting policies for online training accreditation, applied for recruiting, but also for recognition of employees’ continuous development and for career advancement opportunities [2.9]
- Making reaccreditation compulsory in the context of continuous professional development, with a prominent role for online training in it [2.10]
- Adopting policies for the recognition of informal learning (e.g. open endorsement) [2.11]
- Raising awareness among the employees of the importance of lifelong learning for their careers [2.12]
- Providing personalised recommendations of courses to employees [2.13]
- Other (please specify): [2.14]

C.4 Barrier 2: Reluctance of employees to use technologies for training

3. Please select two measures that would be the most effective in tackling the abovementioned barrier. [multiple choice question, limited to two options in total]

- Introducing measures aimed at increasing the overall digital literacy of a company and its employees [3.1]
- Whenever appropriate, mixing online learning with more traditional forms of learning (blended learning) [3.2]
- Offering employees a habit changing training aiming to alter their views regarding technology and learning [3.3]
- Assigning an “online training champion” within an organisation with an aim to promote online training solutions among employees and demonstrate its user-friendliness [3.4]
- Making use of employees personal equipment, like smartphones, tablets, personal computers [3.5]
- Other (please specify): [3.6]
C.5 Barrier 3: Insufficient technical infrastructure

4. Please select two measures that would be the most effective in tackling the abovementioned barrier. [multiple choice question, limited to one option in total]

- Raising awareness among companies of online training based on cloud computing [4.1]
- Keep advancing Internet infrastructure in the country (a measure for public authorities) [4.2]
- Offering guidance to companies regarding infrastructure requirements for online training implementation and delivery (e.g. helpdesk services, manuals) [4.3]
- Making training resources mobile-friendly (i.e. capable of running on an average smartphone/tablet) [4.4]
- Providing offline options for training (e.g. thumb drives with videos and training) [4.5]
- Other (please specify): [4.6]

C.6 Barrier 4: Lack of knowledge of employees about the opportunities offered by online training

5. Please select two measures that would be the most effective in tackling the abovementioned barrier. [multiple choice question, limited to two options in total]

- Assigning an internal “online training champion” (within an organisation) with an aim to promote online training solutions among employees [5.1]
- Appointing an external “online training champion” (e.g. from economic development agencies) with an aim to promote online training solutions among companies and their employees [5.2]
- Disseminating among companies “online training on online training”, available in the local language and demonstrating the opportunities and benefits offered by online training solutions [5.3]
- Organising a massive awareness raising campaign of online training for companies and their employees, and mobilising multiple channels including radio, TV and social media [5.4]
- Developing an online platform offering centralised information on the opportunities and benefits of online training for SMEs, good practice examples, opportunity to share experiences with peers [5.5]
- Other (please specify): [5.6]

C.7 Barrier 5: Lack of knowledge of employers about the opportunities offered by online training

6. Please select three measures that would be the most effective in tackling the abovementioned barrier. [multiple choice question, limited to three options in total]

- Appointing an external “online training champion” (e.g. from economic development agencies) with an aim to promote online training solutions among employers [6.1]
- Disseminating among companies “online training on online training”, available in the local language and demonstrating the opportunities and benefits offered by online training solutions [6.2]
- Organising a massive awareness raising campaign of online training for companies and their employees, and mobilising multiple channels including radio, TV and social media [6.3]
• Developing **online platforms** offering centralised information on the opportunities and benefits of online training for SMEs, good practice examples and guidelines for implementation [6.4]

• Organising dedicated **conferences and meetings** with companies to inform them about the opportunities and benefits of online training [6.5]

• Establishing **communities of practice** for companies engaged (or considering to get engaged) in online training, where good practices and experiences can be exchanged by companies themselves [6.6]

• Other (please specify): [6.7]

### C.8 Barrier 6: Lack of commitment from management

7. Please select **three** measures that would be the most effective in tackling the abovementioned barrier. *[multiple choice question, limited to three options in total]*

   • Developing and disseminating **practical guidelines with real examples** from all over Europe of how other companies successfully adopt online training [7.1]

   • Offering **external support and guidance** for companies regarding the development and implementation of online training (setting up local help desks) [7.2]

   • Offering **tax reduction** to companies that stimulate learning culture and adopt online training [7.3]

   • Making **reaccreditation compulsory** in the context of continuous professional development, with a prominent role for online training [7.4]

   • Disseminating among companies overall information on the **economic benefits** of online training, based on ROI calculations, offering guidelines and examples for their own calculations [7.5]

   • Developing **strategies to address the fears of employers** regarding “employees leaving the company after the training” [7.6]

   • Other (please specify): [7.7]

### C.9 Barrier 7: Lack of company’s learning strategy

8. Please select **three** measures that would be the most effective in tackling the abovementioned barrier. *[multiple choice question, limited to three options in total]*

   • Introducing **learning contracts** that would need to be signed by both the employer and the employee, and that would set objectives for the professional development of that certain employee [8.1]

   • Encouraging employees to come up with their own learning initiatives in a **bottom-up** way [8.2]

   • Developing tools for employees to have their **personal learning environment** centred around the learning needs of each particular employee [8.3]

   • Setting up local help desks offering **support and guidance** for companies regarding the development and implementation of learning strategies [8.4]

   • Developing and disseminating **online training** for companies addressing the development and implementation of learning strategies [8.5]

   • Disseminating among companies information showing how the **organisation’s learning infrastructure and learning ecosystem** enable onboarding, talent development, performance management, career planning [8.6]

   • Other (please specify): [8.7]
C.10 Barrier 8: Lack of good quality courses relevant to company needs

9. Please select two measures that would be the most effective in tackling the abovementioned barrier. [multiple choice question, limited to two options in total]

- Online training providers need to establish partnerships with employers to regularly collect their inputs and feedback, and adjust their offer [9.1]
- Online training providers need to collect and use target employees’ input, not only employers’ specifications [9.2]
- Online training providers and employers need to put central the creation of engaging learning experience (e.g. through the use of the newest technological advancements) [9.3]
- Developing libraries of courses pertinent to SMEs to train their employees in local language using online training tailored to the local context (a measure for economic development agencies or similar) [9.4]
- Other (please specify): [9.5]

C.11 Barrier 9: High development costs for bespoke learning

10. Please select one measure that would be the most effective in tackling the abovementioned barrier. [multiple choice question, limited to one option in total]

- Offering on-demand bespoke course development through government-funded initiatives [10.1]
- Procurement of specific online learning materials for companies from a certain sector by industrial associations and other professional bodies [10.2]
- Training companies to develop bespoke online courses themselves by means of accessible DIY strategies [10.3]
- Other (please specify): [10.4]

C.12 Role of the EU in tackling the abovementioned barriers

11. Please select three measures that would be the most effective in tackling the abovementioned barriers at the EU level. [multiple choice question, limited to three options in total]

- Raising awareness among the Member State (MS) governments of the opportunities and benefits of online training for companies, and particularly SMEs [11.1]
- Providing guidelines to the MS governments for the development of targeted strategies, including templates and good practice examples [11.2]
- Facilitating the exchange of strategies and good practices among the MS governments in relation to promotion of online training among companies [11.3]
- Providing funds to initiate discussions and promote exploratory projects in the MS where promoting online training for SMEs has not yet been considered [11.4]
- Procuring “online training on online training”, available in the local languages (for all MS) and demonstrating the opportunities and benefits offered to companies by online training solutions [11.5]
- Providing spaces for experimentation and innovation at a collaborative level, i.e. an online collaborative space for online training developers and practitioners, in which they can experiment and share good practices [11.6]
- Initiating and supporting multi-stakeholder knowledge alliances and thematic networks aiming to share experience and expertise on online training,
and creating a framework for structural collaboration on the joint development, delivery and use of online training for the EU labour market [11.7]

- Focussing on increasing the demand for (online) training rather than subsidising the supply of training [11.8]
- Other (please specify): [11.9]

**C.13 Additional remarks**

12. Please provide any additional remarks in the field below.

[open question]

**C.14 Your profile**

*Please fill in the details below to help us better understand your profile.*

13. Name [open question; optional]

14. Organisation [open question; optional]

15. Email address (please provide your email address if you would like to be informed about the outcome of this analysis) [open question; optional]

16. Country [multiple choice; compulsory]

Austria
Belgium
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Latvia
Lithuania
Luxembourg
Malta
Netherlands
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
United Kingdom

17. **Stakeholder type** [single choice question; optional]
   - Academia
   - Large company
   - SME [<250 employees]
   - Policy maker
   - Industry association/professional body/sectoral organisation or similar
   - Other (please specify): [open question]

18. **Role in the value chain** [single choice question; optional]
   - Content developer
   - Tools developer
   - Delivery, distribution and overall support
   - User
   - Consultant, facilitator or similar
   - Other (please specify): [open question]

*You have reached the end of the survey. Thank you very much for your inputs!*
ANNEX D: OVERVIEW OF DIGITAL LEARNING TECHNOLOGIES AND THEIR MATURITY

The current Annex aims to provide an overview of the current and emerging digital learning technologies. “Digital Learning” in itself is a broad term that covers a spectrum of technology-mediated educational experiences. The following glossary is collected from a variety of sources and arranged by tentative timeline of mainstream applicability.

Mature technologies (already available and deployable):

- **Traditional e-learning**: training content delivered via a website or application on a digital device.
- **Learning portal**: a digital hub with an aggregation of courses and materials; it may also serve other functions such as event calendar, discussion forum, FAQs etc.
- **Learning Management System (LMS)**: a software application for administering, documenting, tracking, reporting and delivering e-learning courses and trainings.
- **Authoring tools**: a software package to create and package e-learning content for end-users.
- **Courseware**: digital content to support a training programme.
- **Interactive PDF**: a dynamic PDF document whose content cannot be changed but can be viewed as an interactive non-linear slideshow.
- **HTML5/web-enabled**: content and applications accessible via (modern) browsers.

241 S. Briggs (2017), 6 emerging educational technologies and how they are being used across the globe, published at InformED, available at: https://www.opencolleges.edu.au/informed/features/6-emerging-educational-technologies-used-across-globe/
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252 CoppellISD (n.d.), What is a digital learning coach?, available at: https://www.coppellisd.com/Page/13472
- **Apps**: a self-contained program or software designed to deliver learning/training content or access to a learning portal.
- **Blended learning**: a combination of face-to-face and digital learning experiences to deliver course content.
- **Synchronous instruction**: simultaneous (real-time) participation of instructors and learners in a digital setting, such as via chat rooms, web conferencing and limited virtual worlds.
- **Asynchronous learning**: self-paced learning on-demand; also referred to as location independent learning.
- **Voice over Internet Protocol (VoIP)**: internet-based telephony to connect 2 or more parties.
- **Videoconferencing/Web-conferencing/Webinar**: conferencing between 2 or more parties with a live video feed for each participant; additional features may include real-time chat, presentation capabilities and live polling.
- **Cloud-based platforms**: cloud computing will enhance learning by allowing learners 24/7/365 access to content on any device anywhere they have an internet connection. Furthermore, cloud environments are suitable for collaborative learning experiences which require active sharing of media among participants over a period of time.
- **MOOC**: an online-only course that is aimed at unlimited participation and open access via the web; in addition to documents, text and video, MOOCs also feature interactive quizzes and assignments which are used to assess successful transmission of learning content.
- **Psychometrics**: measurement and analysis of a candidate’s quantitative or qualitative strengths and weaknesses to various degrees of granularity; usually used to assess employee suitability and cognitive competences.

**Maturing technologies (1-3 years from mainstream adoption)**

- **Bite-size learning**: high impact short training courses typically lasting between 30-90 minutes and addressing one aspect of a topic.
- **Microlearning**: Short learning engagements ranging between a few seconds up to 20 minutes; not to be used as a primary replacement for other forms of learning, but can be complementary in pre- and post-learning conditions.
- **Video-based learning**: learning programs where majority of content is transmitted via video instead of reading material.
- **Interactive video**: digital video that supports user interaction via gestures, clicks, voice commands etc; users can thus follow multiple paths in a game-like experience.
- **Mobile/tablet learning**: learning content that recognizes and caters learning content to the form factor and common usage patterns of mobiles and tablets.
- **Livestreaming**: mobile or desktop broadcasting of a live video feed over the internet; this allows both in-person and online viewers to participate in real-time.
- **xAPI (or Tin Can API)**: a digital learning specification that standardizes data transfer across learning content and platforms so that all types of learning experiences can be tracked, measured and stored in a centralised way.
- **Online 360**: a web-based service to provide 360-degree feedback on an employee with automated collation, scoring and reporting.
- **Shareable Content Object Reference Model (SCORM)**: standards and specifications for e-learning that allow LMSs to tracking learner activity.
- **Social learning**: theory that posits that learning is a cognitive process that best occurs in a social context which could be through observation or direct instruction.
- **Social learning platform**: the systems and technology that enables social learning to take place within a controlled (web) environment.

- **Virtual Instructor Led Training**: training that is delivered in a virtual or simulated environment that resembles classroom experiences; especially if instructor(s) and learner(s) are not co-situated physically.

- **Virtual classroom**: an online classroom that allows participants to communicate, view presentations, interact with learning resources and work in groups.

- **Gamification**: learning content that is associated with activities and scores to provide feedback and motivate users to improve or continue their activities; typically used to promote behavioural changes.

**Novel technologies (3-5 years from mainstream adoption)**

- **Personal learning**: a humanistic addendum to overly-technocratic approaches to personalised learning, emphasizing meaningful transferable learning principles; in other words, personalisation not as an end in itself but as a means to an end, and the goal being learning as a fundamentally social activity that strengthens human connection.

- **Tailored programs**: an educational model where the student's learning style and personality type – beyond competence level – is used to shape the educational environment; maybe delivered with active sensors, detailed psychometrics etc.

- **Adaptive Learning**: learning systems where students benefit from customised learning content and immediate feedback based on individual strengths and weaknesses.

- **Continuous evaluation** (near real-time learning analytics): While previous generations of analytics have been done post-hoc and using aggregate data, future learning analytics will optimise learning outcomes for individuals with near real-time detection and feedback.

- **Next-gen LMS**: the next-generation of learning environments will be interconnected, collaborative and learner-centric; moreover, they may even enable user-contributed content for two-way learning models and tacit-knowledge sharing/management.

- **Open Content**: prepared content that are released under open source licenses for the broader public to use as they see fit. In the area of corporate training, it is not unthinkable to envision that MNCs and larger organisations may release some of their internal learning content (with some modifications) as open educational resources (OERs) for SMEs.

- **Open badges**: open badges are verifiable digital awards issued to individuals for learning/demonstrating specific skills or knowledge. Badges may be awarded by accredited institutions or nominated by peers in (digital) communities of practice.

- **Digital (learning) certificates**: providing trusted verified proof of completion of an online learning program, optimised for motivating engagement, sharing on social media and on-demand accessibility.

- **Serious gaming**: open-ended scenario-based learning experiences that allows learners to apply theory in mock situations; may be supported by interactive videos or round-based simulations.

- **Internet of Things (IoT)**: The IoT refers to the network of connected sensors, actuators and other devices specifically with the goal of enabling intelligent outcomes like remote monitoring, real-time optimisation etc.; integrated in education, IoT devices could enable digital training experiences for physical activities using connected “props” that can record learner’s positions/movements and provide real-time feedback.

- **Wearable electronics**: physical-fitness and mental-state trackers, haptic feedback devices can help learners by better aligning their learning progress with
their present biological state. Moreover, wearable devices may also capture data and provide near real-time haptic feedback in real-world conditions to track and embed new behaviours.

- **3D printing**: 3D printing of replicas could help learners take apart and understand complex machinery more intuitively; moreover rapid prototyping allows learners to learn by designing and testing their own prototypes in physical models.

**Emerging technologies (at least 5-10 years from mainstream adoption)**

- **Natural user interface**: systems that allow the use of real-world gestures and interactions in the context of learning and training; for example hospitality training using facial expression recognition to optimise for better control and response.

- **Natural language processing (spoken/written)**: AI techniques that can "understand" and "respond" to everyday human language; may be used in scoring open-ended essays, assessing competence via in-depth spoken interviews, retrieving just-in-time just-for-me information on-demand, and providing real-time support and feedback during assignments.

- **Digital learning coach**: as learning content is increasingly delivered by digital resources such as interactive videos and adaptive learning management platforms, the role of a teacher shifts from transmission to transformation. A digital learning coach is able to use metrics and signals from the learning management system to listen/mentor/guide individual learners on their individual learning journey. Some aspects of this function may be digitized and embedded into the digital learning management system itself – for example a chatbot that encourages you to reflect on learnt concepts and refresh older concepts at regular intervals.

- **Blockchain**: a distributed database that is transparent yet tamper-proof; it could be used by training providers, governments, employers and learners to manage certifications in a credible and secure way.

- **Integrated life-long learning**: systems that support lifelong learning in individuals from childhood through adulthood – both formal and informal learning achievements – across schools, higher education, career trajectory and skills upgrades/upskilling/reskilling programs. Likely will include digital technologies to record and access certification details securely.

- **Learner passport/e-Portfolios**: as digital learning and lifelong learning become more ubiquitous, learner passports could be vital tools to record, store and access an individual’s learning history. A unified system could even integrate the individuals formal and informal certifications, skills and competencies in a single system. An aggregate database of skills and competences for an entire population would enable governments and employers to visualise and manage expertise in a more fluid manner – for example, on-demand expertise “gigs” could be possible instead of full-time employment. Moreover, the visualised “map” of skills and competences of an entire population could help individuals chart their own learning and career trajectories based on comparative information.

- **Augmented reality (AR), virtual reality (VR) and mixed reality (MR)**: the use of headsets and visually-immersive content to simulate presence of a learner in a virtual learning environment and/or augment situational awareness of a learner in a real-world environment.

- **Storytelling**: the use of enacted skits, cartoons, images or otherwise evocative text to deliver engaging e-Learning content. While this may be more effort-intensive than delivering standard content, it is well-suited for topics that are of a more humane or ethical nature. Digital toolkits like cartoon-creation software, conversational path management, and (immersive) 3D worlds and assets can help trainers prepare such content.
• **Quantified Self & biometrics**: advanced wearables and real-time biometrics using IoT can record learner(s) conditions and respond in near real-time. For example, assessing the energy level of the audience to schedule the best time for coffee breaks, or using brainwave signals to optimise and personal pedagogy.

• **Simulations and digital twins**: the use of interactive simulations and digital recreations of real-world systems to train learners on patterns in how complex systems operate or fast-forward through crisis scenarios to see feedback loops and ripple effects.
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