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102

Pedagogic Manual

eLead - enhancing VET professionals skills for e-leadership education and training

ELEAD PEDAGOGI MANUAL

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Summary

Introduction & Context	5
Definition of the High-tech Leader target group	6
Section 1: Resources and tools for high-tech leaders	7
I- End users' requirements.....	7
I-1 Understanding the e-leaders needs	8
I-2 Case studies and hands on	8
I-3 Strong communication skills	8
I-4 Effective use of the educational technologies	8
I-5 Technical skills and big picture	8
II- Up to date with Technologies and Competences	9
II-1 6 th Wave of Innovation	10
II-2 4 th Industrial Revolution	10
II-3 Sustainability and Technology.....	11
II-4 Hyper-digital transformation and Digital Technologies	11
III- Tools and strategies for eLeadership Vocational Training Coordination	13
III-1 Evaluation of participants's needs	13
III-2 6 th Wave.....	14
III-3 Training Design for eLeadership courses.....	14
III-4 Educational tools for VET trainers.....	16
IV- Didactics: Learning and Training Systems for the acquisition of e-leadership skills	18
IV-1 Brief presentation of the actual online learning and training systems.....	18
IV-2 Objectives and competences of the eLeadership Vocational Training.....	20
IV-3 eLeadership Vocational Training modules	21
IV-4 Practical guide to conduct a successful eLeadership training.....	39
Repository of ressources and contents about high-tech leadership	42
V-1 Educational ICT Tools	42
V-2 Resources and Contents about high-tech leadership	46

..... 46

NATIONAL AND EUROPEAN STRATEGIES 46

TRAINING INITIATIVES 48

RELEVANT PUBLICATION 51

LINKS OF INTEREST 51

Real Cases & Benefits to implement eleadership 53

Conclusion..... 55



Introduction & Context

Executive summary of the eLead project

To boost the development of digital transformations through Europe, it is vital to address the current shortage of talents capable of leading the innovation needed to capitalize on advances in new digital and key enabling technologies.

This calls for a specific set of skills, which the European Commission defines as e-leadership skills. E-leaders are not simply leaders with digital skills – they combine business knowledge (for example, business models and strategies) with understanding of technology (upcoming technologies and the risks and opportunities of new technology) and classic leadership skills (conviction, mentoring and mediation).

Nowadays, the supply of e-leadership skills in Europe is below demand. The eLead project intends to fill this gap by creating educational material for VET professionals involved in training processes for workers and managers in the high-tech/digital sector, to implement and promote training paths for the acquisition of e-leadership skills.

The e-Lead project activities aim at providing VET trainers, in-company trainers, experts in high-tech sector, trainers working with SME's and start-ups, incubators, and accelerators (primary target group) with specific knowledge, skills and competences necessary to promote, guide, assist, facilitate and assess the acquisition of e-leadership skills. The final beneficiaries of the project are people working in the high-tech

sector, in particular in SMEs or start-ups (workers, Managers, Company leaders, Key roles in high-tech companies). This aims at promoting innovative practices to reduce e-skills shortage in Europe.

The project, co-funded by the Erasmus + Program of the European Union, officially started in October 2019 and will last for 28 months.

The first phase of the project focused on the investigation, analysis and design of a competence map which includes a detailed description of the High-tech Leader professional profile in terms of units of learning outcomes using the European Credit system for Vocational Education and Training (ECVET) and European Qualifications Framework (EQF) standards. Based on this work, the present **eLead Pedagogic Handbook**, dedicated to VET professionals, set up the founding principles to support the implementation of a training course for high-tech leaders and includes efficient resources (training modules, methodologies, and tools).

Definition of the High-tech Leader target group

eLead project focuses on e-leadership skills considered as the capabilities needed to exploit opportunities provided by ICT, notably the Internet, to ensure more efficient and effective performance of different types of organisations, to explore possibilities for new ways of conducting business and organisational processes, and to establish new businesses.

The term “e-skills” encompasses a wide range of capabilities (knowledge, skills, and competences) and issues with an e-skills dimension span over a number of economic and social dimensions. The ways individuals interact with ICT vary considerably, depending on the work organisation and context of a particular employer, or home environment.

e-Leadership skills are the skills required by an individual in the modern economy to initiate and achieve digital innovation. Based on the “European Guidelines for Curriculum Development For E-Leadership Skills” (2016), e-leadership is the result of three different dimensions:

- Strategic Leadership: Lead inter-disciplinary staff, and influence stakeholders across boundaries (functional, geographical)
- Business Savvy: Innovate business and operating models, delivering value to their organisations
- Digital Savvy: Envision and drive change for business performance, exploiting digital technologies trends as innovation opportunities.

As organizations rely more on ICT, they are demanding a new type of leader: leaders who are both business and ICT savvy; they are demanding ICT leaders to be more business-savvy and business leaders to be more ICT-savvy.

In many medium and large organizations, it is not enough to have a single e-leader who is responsible for all related activities and e-leadership can be distributed across more than one person.

The e-leader is a person who recognizes new business opportunities or renew existing business operations by making use of new digital technologies. The new digital technologies provide opportunities for new service products, new ways of working in organizations and can influence the business model and new forms of revenue streams. For instance, new sensor technologies provide new services in predictive maintenance and products are not a one-time sale but become service offerings using a more intense customer relationship and recurring revenue streams. The e-leader can translate new technology development into new business opportunities: to use and apply new digital solutions in fields where it was not implemented before and is able to renew or transform business models within existing or traditional industries.

Section 1: Resources and tools for high-tech leaders

I- End users' requirements

Digital transformation opens new chances for industry to become more efficient, to improve processes and to develop innovative products and services. Several studies estimate that digitisation of products and services can add more than EUR110 billion of revenue in Europe in the next five years (EC, Digital Single Market,2017).

Companies, in particular SMEs, have often not realised the importance of digital transformation for their businesses. For European enterprises to compete, grow and create jobs, EU Member States must ensure that they have access to a large pool of people who can lead the high-tech innovation and transformation of their industry (Strategic Policy Forum on Digital Entrepreneurship 2016). This scenario will require Europe to generate around 50,000 additional high-tech leaders per year in the years up to 2025, or a total of around 450,000 until 2025 (EC, High-Tech Leadership Skills for Europe – Towards an Agenda For 2020 and beyond, 2017).

This new type of leader can spot, create, and serve fundamentally new markets. This will depend on the ability to capture the benefits of emerging new technologies. Industrial sectors will continue to be reshaped in the next 3-5 years. However, technology adoption and innovation rates remain relatively low which is also due to

the lack of technology savvy leaders who can assess and implement technological innovation (EC, High-Tech Leadership Skills For Europe–Towards An Agenda For 2020 And Beyond,2017). These leaders should be provided with relevant education and training opportunities. Research has revealed a lack of e-leadership training programmes and courses addressed to SMEs and start-ups in Europe (eLeadership Skills for Small and Medium Sized Enterprises–Final Report EC 2015).

This handbook is designed based on the needs of eLead's primary target group which includes consultants, VET trainers, in-company trainers, experts in the high-tech sector, trainers working with SME's and start-ups, incubators, and accelerators. In general, all the professionals involved in corporate training.

The needs were analysed through 23 interviews carried out in partner countries during the first project months. These interviews involved trainers, companies, and leaders. Some elements were clearly highlighted as important for a trainer in delivering a training path on e-leadership.

I-1 Understanding the e-leaders needs

eLead project defined, with the first project output, the eLead IO1 Competence Map, an overall e-leader profile describing knowledge, skills and competences related to the e-leader role. You might need to adapt this profile to different contexts or needs. To do this you, as a trainer, should analyse the e-leader's needs in terms of knowledge, skills and competences and should be able to translate these needs into learning outcomes. This must be the basis for a e-leadership training course design (see **section IV.III. Modules of the MOOC** of the present document). The target group's needs must be evaluated also in terms of training methodologies and educational activities.

I-2 Case studies and hands on

Learning by doing should always be the keyword. Trainers should be able to focus on case studies, simulation, and practical activities, so to make participants understand how to use in the workplace the competences they are acquiring. Trainers should consider case studies and examples as one of the main tools to be used in training paths for improving e-skills. Case examples of companies that are exploring trends, find opportunities and build new business models can be very effective for the target group. Trainers could also use case studies for developing discussions in class on how to manage and solve situations by taking advantage of the implementation of new technologies.

I-3 Strong communication skills

Having strong communication skills is extremely relevant for transferring knowledge on new technologies and their implications that very often are complex and not easy to understand.

I-4 Effective use of the educational technologies

Trainers should acquire extensive knowledge on digital education tools. These tools should support them in effectively delivering the course and having a clear view on the structure/modules.

I-5 Technical skills and big picture

On one hand, trainers should have great knowledge of the existing technical tools. This knowledge should be based on professional experience. This is extremely necessary for implementing efficient educational paths for e-leaders and inspiring participants about the opportunities of the new technologies. On the other hand, trainers should be able to translate very complex information in a simple way. They should be able to transfer technical knowledge in practical ways, enabling the participants to understand the potential of new disruptive technologies and to make the best out of them. New disruptive

technologies are often extraordinarily complex, and trainers shouldn't focus too much on technical aspects. E-leaders need to understand how technology works to see the big picture.

II- Up to date with Technologies and Competences

The *Shaping the digital transformation in Europe* study performed for the Directorate-General for Communications Networks, Content and Technology (DG Connect), highlights that Europe must be prepared for a digital transformation that benefits all European citizens inclusively and sustainably. To this end, proactive management of the potential for digitization is essential, resulting in an equal distribution of its benefits and a positive impact on the economy of all Member States. In this regard, effective use of the European Recovery Plan, with at least 20% of the funds earmarked to boost digitization in Europe, will help to mitigate the digital divide between Member States. To this end, and based on the European Digital Strategy, published in February 2020, the report explains how this digital transformation should be guided by four objectives:

- Build and deploy digital solutions to the challenges of society and the climate.
- Revitalize democracy, trust, and diversity.
- Ensure Europe's digital technological sovereignty and cybersecurity.
- Boost the economy and competitiveness

The document presents several actions with a view to improving Europe's position in adapting to new digital technologies and addressing the four previous objectives, in particular to **support lifelong learning for the future of work**.

As underlined by the European Centre for the Development of Vocational Training, committed and competent teachers and trainers are crucial to ensuring the quality and labour market relevance of learning, both in VET schools/ centres and in companies, and whether in classrooms, in workshops, in labs and simulated learning environments, or at the workplace. Teachers and trainers are responsible for strengthening the links between education and work, establishing new curricula, providing more, and high-quality, apprenticeships and other forms of work-based learning, and applying the European tools.

Providing teachers and trainers with access to quality professional development and support is essential to ensuring that both their technical competences and pedagogical skills are up to the highest standards. In this sense, cooperation and partnerships between VET institutions and labour market actors are crucial in ensuring the quality and relevance of learning.

The focus of the project has been to connect since the very beginning of the initiative the strategic actors and stakeholders from different backgrounds. One effective option to be informed and have updated trainers and teachers, is to create working groups in local ecosystems about different technologies and future trends, bringing together SMEs, leading companies, university and research members, public institutions, and citizens. Getting to know all these actors really enable us to have a very clear vision of the actual and future necessities, especially in terms of human resources and talents, and the opportunities that must be addressed. In this sense, we have defined next some of the future trends related to eLeadership that should be considered for the design of training programs:

- 6th Wave of Innovation
- 4th Industrial Revolution
- Sustainability, and Technology
- Hyper-digital transformation
- Digital Technologies

II-1 6th Wave of Innovation

Over time, innovation has gone from being considered a fashion, an isolated attempt or simply the result of chance – a concept still in force in large sectors – to being defined and implemented today as a discipline with its own concepts, methodologies and tools, as a structured process of widespread deployments. Innovations are, and will be, faster and faster, and the wave of business is getting closer and closer to the technological wave, being almost simultaneous. Only agile companies, with a true innovative culture implanted among their employees, with the ability to quickly adapt to new technologies that appear, and which are able to continuously innovate, will be able to survive. In this sense, a new wave of innovation is coming, driven by the depletion of the current model of capitalism and the need for reconfiguration around present environmental and social needs, thereby forming what would be the sixth wave of innovation.

II-2 4th Industrial Revolution

According to the World Economic Forum, the Fourth Industrial Revolution represents a fundamental change in the way we live, work, and relate to one another. It is a new chapter in human development, enabled by extraordinary technology advances commensurate with those of the first, second and third industrial revolutions. The Fourth Industrial Revolution is about more than just technology-driven change; it is an opportunity to help everyone, including leaders, policymakers and people from all income groups and nations, to harness converging technologies in order to create an inclusive, human-centred future. The real

opportunity is to look beyond technology and find ways to give the greatest number of people the ability to positively impact their families, organisations and communities.

II-3 Sustainability and Technology

Technology has lately been an ally to sustainability; with a variety of digital platforms, apps and devices developed to create alternative ways of tracking down resources, lowering consumption and providing more effective and efficient ways of manufacture. Research by PWC points out that “using Artificial Intelligence for environmental applications could contribute up to \$5.2 trillion to the global economy in 2030, a 4.4% increase relative to business as usual.” These digital solutions, enabled by the ‘Industrial Internet’, are known as “digital efficiency” and their aim is to provide outcomes that are beneficial to the environment and yet can foster economic growth. The fact of the matter is sustainability is not just about ecology. It is also an important tool to create better social and economic settings and thus finding solutions to some of the most pressing obstacles we are faced with right now.

II-4 Hyper-digital transformation and Digital Technologies

According to the *Shaping the digital transformation in Europe* study performed for the Directorate-General for Communications Networks, Content and Technology (DG Connect), the additional cumulative contribution to the EU GDP of new digital technologies could reach 2.2 trillion of euros, an increase of 14.1% compared to 2017. This figure would offset all the necessary technological investment and represent a direct positive return on the European Union's economy. However, to be a reality, the report notes that it is essential to increase the level of investment of private and public actors in digital technologies and competences. Several technologies have already impacted the actual traditional business operations and IT infrastructures:

- | | |
|---------------------------------|--------------------------------|
| - Cybersecurity | - Social Media |
| - Big Data / Business Analytics | - Collaboration Technologies |
| - Mobile technologies | - Internet of Things / Sensors |
| - Cloud computing | - Biotechnology |

Hyper-Digital transformation is the process of using digital technologies to create or modify existing business models, processes, culture, and customer experiences to meet changing business and market requirements with massive digitalization. In this process, new additional technologies with a relatively low level of importance today, will increase among digital leaders in the following years:

- Telepresence
- Digital Currency
- Artificial Intelligence
- Robotic process automation
- Sharing economy platforms
- Nanotechnologies
- Robots (hardware)
- Telematics
- Wearables

When combined, all these digital technologies increase the business impact among digital leaders. Undoubtedly, business and IT organizations need to evolve toward the implementation of these technologies to keep up and compete successfully.



III- Tools and strategies for eLeadership Vocational Training Coordination

Over time, the leadership environment has become more complex, volatile, and unpredictable, and the skills needed for leadership increasingly require more complex and adaptive thinking abilities. These changes can be expected to be even more acute in the e-world, which is increasingly complex and interconnected. In addition, the Internet and social networking tools enable new organizational structures with flatter hierarchies and more decentralized control. Fast growing SMEs and entrepreneurs have many competences needs that could be translated into training and education offers in the three skill areas that constitute e-leadership: IT savvy, business acumen and strategic leadership skills.

Especially in SMEs, ICT and business skills are usually taken through previous knowledge of the founders and key staff. E-leadership involves high level skills and must be based on a solid foundation built on standard education or previous work experience and requires a continuous learning process. This needs to be mentioned here so as not to give the impression that e-leadership could rely solely on shorter, focused training.

III-1 Evaluation of participants's needs

For organising a training course on e-leadership you must evaluate several elements:

Company size: The need for e-leadership can differ a lot between company sizes. Large Industries and SMEs or start-ups can have very different shortages of e-leadership knowledge, skills, and competences. Large corporations are more structured, and its employees need more specialised and structured training. They usually have a much stronger division of work and a well-developed matrix organisation structure. On the contrary, in very small firms where self-learning dominates, they need a less role-based training, which is short, flexible and affordable and much more focused on hands-on.

Different level of needs: Different necessities for e-leadership skills can be related also to the technological and organisational set up companies have, the business model and several further elements. Some companies could prefer affordable training of a few days with flexible hours and closely targeted on acute business problems, other companies would prefer a general overview of the topic and then specific training dedicated to specific roles. A training programme on e-leadership can be addressed to companies and individuals at different stages of an enterprise life cycle and their own careers and can be applied at different levels, from awareness raising purposes to digital transformation.

Company areas to be addressed: Any training programme for e-leadership should aim at enabling people to exploit digital technologies for innovation. As e-leadership constitutes a merger of three competence areas (Digital context + Business + Strategic leadership), e-leadership offers may address all three areas, or focus on one or two of the areas when they complement existing skills and competences.

Digital trends: Companies and e-leaders necessitate to keep pace with the fast changes of digital development and experiments with its deployment in the market. You should reflect on business

opportunities and challenges of current major trends such as Electric Mobility, AI, Cloud Computing, Big Data analytics, social media Technologies, Internet of Things, Customer Experience IT and IT Security, will obviously need to be revisited and kept up to date on a continuous basis.

III-2 6th Wave

Company needs and market requests: E-leadership competence areas and technological trends need to be compared with the real company's needs and the market requests. You must evaluate new technology trends and their applicability, current skills shortages and gaps, previous learning and internal competences. After having analysed all these elements you will have the right information for planning your training course.

III-3 Training Design for eLeadership courses

The basis for designing a training course for e-Leaders is to create the e-Leadership curriculum profile. It defines programme learning outcomes which are the set of the e-leadership knowledge, skills, and competences to be achieved at the end of the training. To do this you can proceed with the following steps:

1) Definition of the typical role in working environment

First of all, you have to define a sample role you want to focus on and analyse what are the related activities, responsibilities, expected performances and results connected with it. You would like to focus on a management role such as that defined by eLead project (see IO1 eLead Competence Map) or more specific ones. The definition of these "personas" may vary due to the level of detail you want the course to have, if it is a general overview or a training focused on a specific role, the company area you want to address or the digital technology you want to focus on.

2) Definition of the competences connected with the role identified

When you have identified the role, you want to focus on, you should select the main related competences. If necessary, you can define the core competence areas before. We, as eLead project partners, focused on the general role of manager or key people in companies defining the following core competence areas:

1. Team building
2. Innovative business models
3. Technology Trends
4. Innovation Management and Strategy
5. Customers

6. Problem solving
7. Digital communication
8. Global business Innovation trends
9. Diversity management
10. Internationalisation

For every competence area we have defined specific competences. For example, for the first competence area “Global business innovation trends” we have identified as fundamental for an e-leader the following competences:

1. To identify major changes in the international environment of relevance for global leading innovators.
2. To understand the role of innovation in the development of global strategies.

You can find all the competences identified and the complete process in the *IO1 eLead Competence Map*. At the end of the document, you have an overview of all the main competences required to perform the identified role.

3) Identification of the Learning outcomes

The set of learning outcomes to be achieved is at the centre of a curriculum profile. In this way learning outcomes, i.e., statements of what a learner knows, understands and is able to do on completion of a learning process, are central elements of all e-leadership curriculum profiles. To define those Learning Outcomes, we suggest matching the competences selected by the partnership during the previous phases with the [European e-Competence Framework](#). The e-Competence Framework provides a reference of 40 competences as required and applied at the Information and Communication Technology (ICT) workplace, using a common language for competences, skills and capability levels that can be understood across Europe. It is a reference framework of competences to support mutual understanding and provide transparency of language through the articulation of competences required and deployed by ICT professionals (including both practitioners and managers).

4) Definition of quality criteria

Finally, you should define some quality criteria to assess the quality of the curriculum profile and the training course delivered. You should assess the quality of the Learning Outcomes defined, the number of participants achieving those learning outcomes at the end of the training path and the quality of the training institution commitment/work in delivering the course. Next you can find a list of requirements for evaluating the quality criteria for e-Leadership education:

- Compatibility of the intended learning outcomes of a module / series of modules or programme with typical e-Leadership skills (Innovate strategic business and operating models, exploit digital trends, envision and drive change for business performance, Influence stakeholders across boundaries).
- Coverage of all the learning outcomes identified in the curriculum profile.
- Reflection of the education institutions' specific potential to contribute to e-Leadership education according to its mission and strategy.
- About methods and didactics: adequate possibility for learners to exercise professional practice related to the intended e-leadership performance and behaviour integrated in the course / module / programme.
- Regarding staff resources: personal experience with science on and or performance and behaviour of e-leaders in professional life present among the teaching staff.
- With regard to enhancement and quality processes for the individual educational offer within an education institution: an efficient, effective and sustainable process / mechanism for identifying, handling and taking into account ICT-related trends in science and economy, needs of potential employers, needs of potential and present learners and teachers / professors, when defining intended learning outcomes as well when developing a new offer focusing on e-leadership or when internally assessing and improving an existing one.

III-4 Educational tools for VET trainers

The rapid changes in technology, both in workplaces and everyday life, together with the ubiquity of digital devices and applications, mean that it is imperative for VET educators to develop their own digital skills and keep them current. At the same time trainees may also expect that educators use digital technologies to provide a flexible, convenient, and engaging learning experience. (Medlin 2016; Reeson et al. 2016).

The digital transformation was already a reality in Europe, nonetheless, in the wake of the coronavirus crisis, the European Commission's Digital Strategy gains renewed importance as digital tools are used to:

- ✓ Monitor the spread of the coronavirus
- ✓ Research and develop diagnostics, treatments, and vaccines
- ✓ Ensure that Europeans can stay connected and safe online

While restrictions are in place, and social and economic activities become more digital, citizens and businesses rely on the internet and connectivity. Thanks to broadband networks and digital infrastructure, we can keep on learning, socialising, and working. Trust services for businesses, eGovernment and eHealth ensure continuity and the availability of public services, while trusted security systems protect our

identities online and make sure that our activities remain private. Accelerated digitalization is indeed in process to create new business models and opportunities for digital leapfrogging in traditional industries and governance. The top trends in Europe that will have the most traction in 2021 and the areas in which VET programs should focus their attention will be:

- ✓ Data-driven, analytics-based customer experience
- ✓ Emergence of new online business models
- ✓ Resilient supply chains will emerge through leveraging analytics
- ✓ Flexible work culture
- ✓ Remote talent management
- ✓ 5G infrastructures
- ✓ Major focus on cybersecurity
- ✓ Artificial Intelligence, as a complementary technology for diverse use cases
- ✓ Cloud and Internet of Things (IoT), as strong growth imperatives

In the paragraph *V-Repository of resources and contents about high-tech leadership* of the present section, you can find a list of educational ICT tools.



IV- Didactics: Learning and Training Systems for the acquisition of e-leadership skills

IV-1 Brief presentation of the actual online learning and training systems

Learning the e-leadership skills can be achieved through a variety of didactics. Didactics refer to the teaching aims, the subject matter, the teaching methods and the organisational frame of teaching and learning. The didactics can be based on different educational styles. The type of educational style is often related to the level of education, the scientific approach and interaction between learner and teacher. The aim is to adopt an educational style that is engaging the learner and stimulates a virtuous learning process to ensure the transfer of knowledge in any given field of study. The didactic methods adopted should align to the prior knowledge level of the learner and seek to improve upon this level and assist the teacher in conveying information, in the best possible way.

The constructive didactics are common styles of education. The constructive didactics is based on an interactive learning approach. The interactive approach follows the belief that learning occurs as learners are actively approach. It differs from passive learning approaches which are often methods of verbal or textbook instruction where the learner receives information from the teacher to internalize the knowledge but receives no feedback from practice or from the teacher. The assessment in the passive learning is often based on exams where learners reproduce the knowledge. In contrast, in active learning, the learning is mostly done during actions such as debate, demonstrations, experiments etc. The course material and the instructor offer knowledge and information to guide the learner and facilitate learning. David Kolb has further developed this approach in the experiential learning approach where learners learn through experience or learning through doing. This stream of didactic has resulted in various methods such as situational learning, problem-based learning, and action learning to name a few.

In the field of leadership and learning about skills, the experiential method of didactics is commonly used. The approach of learning by doing allows the learner to capture the theoretical knowledge by making use of illustration of cases of situation or apply the knowledge to cases of investigation. The practical implementation of the knowledge will help the learner to apply the skills and learn how to act and think in each situation.

Traditional experiential learning methods were lab experiments and debating subjects in a classroom setting. The case-based teaching method has gained interest in experiential learning due to its nature to force the learner to make decisions and ask learners to describe a situation and offer a solution and defend the solution. These traditional experiential learning methods require a high level of interaction and direct engagement between teacher and learner. Classroom settings and the horseshoe-shaped classrooms which we often see in MBA and professional education are supporting the interaction between learners and their instructor.

Recent developments in online technology have allowed to develop courses that support distance learning and support interactions among learners and the instructors as well. The rise of MOOCs (Massive open online courses) offers unlimited participation and support blended learning approaches where learners can make use of online (video) content, forums, quizzes for passive assessment and interactions

among students in online (breakout) sessions. Since content is offered online, the MOOC also allow for self-paced

learning or an instructor-paced learning. In self-paced, the learning is more passive, and learners can follow their own schedule and apply the knowledge to cases that are provided. Interaction with the instructor is absent and guiding instructions can offer the learner feedback on the progress made. In instructor-paced learning, the learner follows the schedule given by the instructor and provides better support for interactive learning with both the instructor and peer-to-peer learning with other learners.

Given the variety of didactics available to develop the modules for the e-leadership skills, a first analysis of the requirements from the learner perspective is done. This gives direction to the method of learning and the structure of the teaching aims, the teaching methods and the organisational frame of teaching and learning.

E-learning (MOOC)

The target audience of the training modules is for trainers that educate young professionals about e-leadership. The content of the modules will help young professionals, managers, and employees, who already possess a few years of working experience to become an e-leader. The training modules will focus on the methodologies that will help trainees to acquire the competences to become an e-leader. The pedagogic way in which the competencies can be understood and acquired by young professionals is subject to the context in which the learning takes place. The context of learning by young professionals, managers and employees is characterized by short slots of time they can spend on training modules and the intensity varies over time. That is, young professionals, managers and employees are expected to acquire the e-leadership skills while working within the company or in the time they have outside the working hours.

Online training through a platform such as a MOOC can provide flexibility and engagement for this specific target. A MOOC is a Massive Open Online Course that is offered through the Internet and has in principle unlimited participation and is available at any time.

The features of the learning methodology based on MOOC include:

Flexibility in the learning environments:

- Learners want a flexible learning environment, to follow training modules as self-pace. For instance, recurring every week or taking several modules during a weekend. This requires a flexible approach to the organization of the training modules and the channels by which they are offered to the learners. Offering learning material online and blending it with examples of case illustrations (video cases/ case studies with assignments and lecture notes) can offer flexibility to the learner to master the content.

Experiential learning:

- Learners want a highly applied approach to learn the competencies. Based on the survey, we identified that successful e-leadership requires competencies that can be acquired at best when they are applied to cases. Experiential learning is a method to obtain this applied approach. Experiential learning is the process of learning through experience and is more specifically defined as "learning through reflection on doing". Providing the concepts, methods and competencies through the platform and applying them to a case is an approach to learn, apply, and reflect on the methods. Given the learning context of the young professional, this approach would apply best to work on in-company projects, reflect through peer-evaluation and if possible, engage in competitions to increase the commitment.

Blended learning:

The flexibility that learners need, can be supported through the MOOC by making use of blended learning techniques. Blended learning is when online tools are used to transfer knowledge through cases, videos, and readings prior to the lecture. As such the learning takes place outside the classroom and within the classroom the focus is on the application of knowledge, illustrate and discuss the learnings by using cases, examples etc. It supports the role of experiential learning: learn apply and reflect. The approach fits to the learning of skills. Learning by doing and reflect on situations and decisions. The use of examples and case illustrations can enable the transfer of competences by using real-life situations. These discussions are supporting the assignments that we intend to work on with learners. The assignments are focused on the work situation of the learner. It will focus on working on company projects: apply the competences on specific cases/ existing company cases and reflect on the competencies. Be able to identify important skills and raise awareness of skills that need further development.

IV-2 Objectives and competences of the eLeadership Vocational Training

The eLeadership Vocational Training consists of web-based training modules for a 32-hours training course for high-tech leaders, applying the European Credit system for Vocational Education and Training (ECVET) and the European Qualifications Framework (EQF) standards.

The main aims of this Open Course are on one hand, to create training materials for leaders and managers operating in the high-tech and digital sector to improve high-tech leadership skills and to acquire new e-leadership competences, and on the other hand to provide workers, managers and companies operating in high-tech/digital sector with flexible and interactive training system to improve motivation and to optimize time management.

The development of this online open training path for high-tech leaders based on ECVET and EQF standards, aims at aligning the competences of workers and managers in the high-tech sector to the high-tech/digital markets and society needs. The training path has been implemented through training instruments that are aligned with the actual daily work of the managers and workers operating in the high-tech sector (learning independent of time and place).

Through a comparison of the key activities to be carried out by High-tech leaders in partner countries, an eLead Competence Map was defined in the first phase of the project, describing the high-tech leader profile and the core competences and core competence areas identified, giving priority, in order of importance to:

Competence highlighted during the previous phases	e-Competence Framework
Team building and Diversity Management	D.9. Personnel Development E.4. Relationship Management
Innovative business models and Internationalisation	A.3. Business Plan Development A.5. Architecture Design E.7. Business Change Management
Technology Trends	A.7. Technology Trend Monitoring E.1. Forecast Development
Innovation Management and Strategy	A.9. Innovating D.10. Information and Knowledge Management E.5. Process Improvement
Customers	D.11. Needs Identification
Problem solving	C.4. Problem Management
Digital communication	D.12 Digital Marketing
Global business Innovation trends	A.1. IS and Business Strategy Alignment

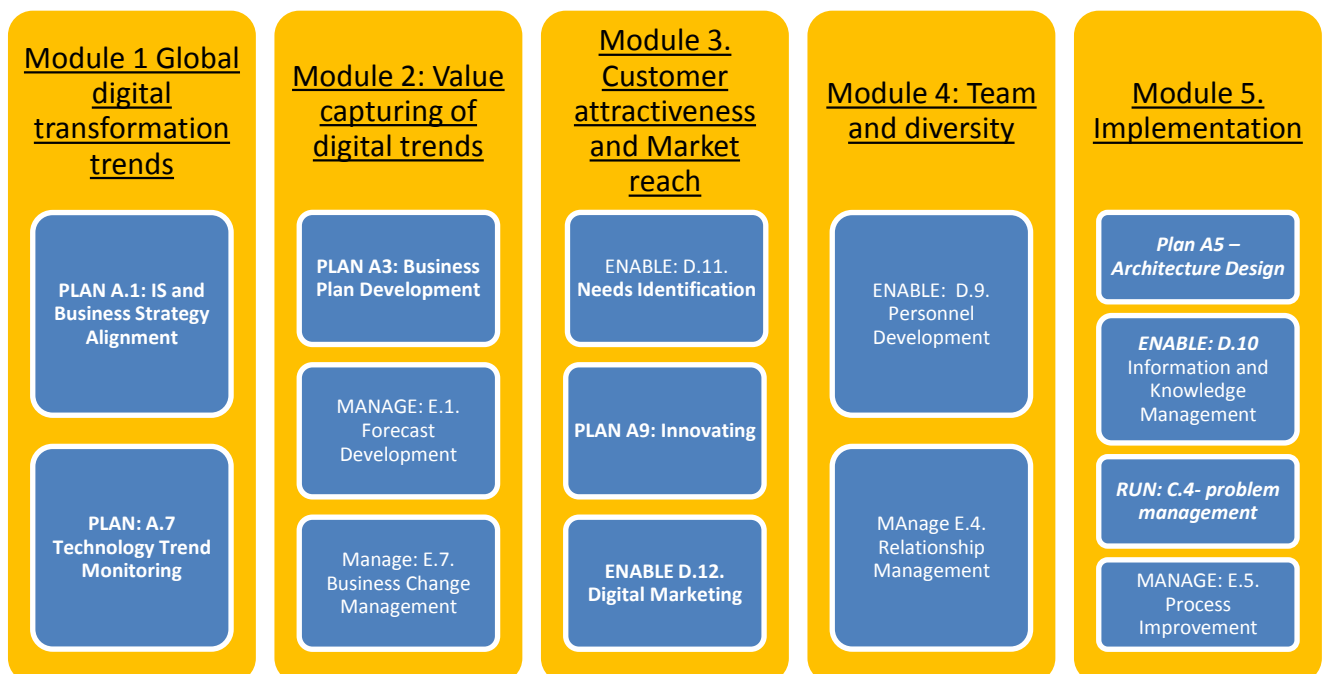
Table 1. E-competence framework based on E-Lead Competence map. IO1

The e-competence framework is central to the design of the MOOC. The framework is translated into 5 modules that following a chronological line of action for learners.

IV-3 eLeadership Vocational Training modules

The modules of the MOOC are presented by Figure X. Each module covers several competences. The modules are addressing different levels of proficiency and each level of proficiency has a distinct set of learning objectives that is supported by various resources, learning materials and assessment instructions. The MOOC has in total 5 modules. The first module has a focus on the global digital transformation trends.

This will help the learner to explore the new digital trends and understand how to translate these trends into opportunities for the firm. When the opportunities are identified, the second module aims to understand how to capture value from the digital trends. This involves the process of value creation and value capturing, which is articulated in the business model. The third module is a deep dive in the customer needs and size of the market. It provides the tools to analyse the customer needs and the requirements for the innovation. The module includes new methods of reaching out to customers by making use of digital marketing techniques. The fourth module discusses the requirements for the teams involved in the new digital technology identification and translation to commercial ends. It will focus on the development of teams and the people in those teams. Nowadays, we also witness that teams are highly interacting with other specialized teams to include new technologies and implement them. This is done in co-creation and relationship management is a vital element for success. The fifth and last module concerns the implementation of new digital products and services into the organization. The digital products and services may need to innovate the present business model which consequently has implications for the current IT architecture. The last module aims to implement new digital businesses and be able to manage the process of change and implementation.



Module 1: Global digital transformation trends

In this module we focus on the tools to identify global trends. Participants will work with various tools and methods to conduct environmental analyses and spot opportunities that result from new digital technologies. More and more industry sectors are digitized and can benefit from using digital solutions. These solutions can help improve existing business operations but may also transform how business operations are organized. This digital transformation of sectors can include new business opportunities that may affect the way of working and how business models are organized. Understanding the digital transformation trends and being able to evaluate them on the opportunities they may include for your business is a first and essential step to benefit and capture the value of what new digital technology offers.

More and more business development has to do with services. Innovation in services is different from innovation in manufacturing, more difficult to measure, but equally important. What are the means and the ways of innovating in services? How can different services, and different innovations, be combined, so to form a new solution, or set of solutions? Widening horizons, opening for co-creation with customers, or with supplies, may lead to new territory for a business to explore, New digital technologies such as augmented virtual reality and eye tracking provide outstanding opportunities for innovating in respect of service delivery. This module will explore these issues in developing an understanding of innovation in services and explores the idea of a service as a system in which inter-dependent processes combine to create value for customers.

Part 1.1 – PLAN: Technology Trend Monitoring (A7)

The first module aims to enable the learner to become familiar with the methods and tools to identify global digital trends. The goal is to be able to investigate the latest ICT technological developments to establish an understanding of evolving technologies. The learner can make an assessment of innovative solutions for integration of new technology into existing products, applications or services or for the creation of new solutions.

Learning objectives for proficiency level

- **EQF 6** – *applies independent thinking and can identify relevant sources of information*

Knowledge	Skills
- Has the knowledge to search various sources of information (e.g., magazines, conferences	S1: Monitor sources of information and continuously follow the most promising

and events, newsletters, opinion leaders, on-line forum, etc.) to monitor emerging technologies and the relevant market applications to address new market needs (K1,2,3)	
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- **EQF 7** *Makes strategic decisions envisioning and articulating future ICT solutions for customer-oriented processes, new business products and services; directs the organisation to build and exploit them.*

Skills
- Articulates business advantages and improvements to adopt emerging technologies
Resources & Materials:
<ul style="list-style-type: none"> • Loudon, J. & Loudon, J. (2020). Management Information Systems: managing the digital firm, 16th edition. Harlow, Pearson (chapter 5).

Part 1.2 – PLAN A1: IS and Business Strategy Alignment

Following the monitoring of trends, the learner anticipates long term business requirements, influences improvement of organisational process efficiency and effectiveness. Determines the IS model and the enterprise architecture in line with the organisation's policy and ensures a secure environment. Makes strategic IS policy decisions for the enterprise, including sourcing strategies.

Learning objectives for proficiency level

- **EQF 6** *Provides leadership for the construction and implementation of long term innovative IS solutions.*

Knowledge	Skills
K1: Understand the role of innovation in the development of global strategies	S6, S8: Determine requirements for processes related to ICT services
K2, K3: Understand the importance of creativity to develop strategic business concepts	S9, S11, S13: Identify the contribution to the business strategy and analyse implementation

- **EQF 7** Provides IS strategic leadership to reach consensus and commitment from the management team of the enterprise

Knowledge	Skills
<p>K5, K6: Translate the potential and opportunities into business aims and organisational objectives</p> <p>Can assess the implications of new opportunities for internal or external ICT developments (K4), sourcing models (K7), architectural frameworks (K9) and security (K10)</p>	<p>S2, S3: To analyse strategic situations and design appropriate corporate entrepreneurship strategies to create value, viability, and sustainability through the business model</p>

Resources & Materials:

- Loudon, J. & Loudon, J. (2020). Management Information Systems: managing the digital firm, 16th edition. Harlow, Pearson ([chapter 1 & 3](#)).

Module method:

The module is organized into 2 learning blocks. The first learning block covers 'Part 1.1 – PLAN: Technology Trend Monitoring (A7)' and has 2 online lectures for each proficiency level (EQF6 & 7). The second learning block follows the same logic with 2 online lectures for 'Part 1.2 – PLAN A1: IS and Business Strategy Alignment' to cover both levels of proficiency. In total there are 4 online lectures in this module, each 20 minutes supported with teaching notes and individual small quizzes to assess the learnings in each lecture. The module concludes with an individual assignment related to the company of the learner and has online interaction tools to discuss the findings with peers.

Assignment:

1. Describe the industry your company is active in and the main services your offer to clients
2. What new emerging technologies do you recognize for your company
3. What is the impact of digital trends on your business operations?
4. Analyse the importance of the digital trends for you company
5. Reflect on the strategic alignment and business implications to pursue the emerging technology

Module 2: Value capturing of digital trends

The key activity for an e-leader is to nail down the value of the new business idea as the fundament of the new business. Recognizing global trends and understanding the implications for the users and customers. What benefits do users and customers derive from adopting new digital technologies and how important is this for the company to pursue. This process includes the ideation process, by identifying the opportunity as a solution to an outstanding problem or an unmet need. Several questions need to be put forward in the process of ideation, however, followed by a process in which those questions are considered, analysed, and answered to, with the answers further tested, re-examined and so forth. Examples questions include: What specific needs do our users have? How can new digital technologies offer new solutions for our users? How and who will the solution impact? What will be their experiences? The ideation process labelled *Design Thinking* is recently yielding recognition as a provider of a viable tool in the activities of new business creation (Daniel, 2016).

Part 2.1 PLAN - Business Plan Development

Addresses the design and structure of a business or product plan including the identification of alternative approaches as well as return on investment propositions. Considers the possible and applicable sourcing models. Presents cost benefit analysis and reasoned arguments in support of the selected strategy. Ensures compliance with business and technology strategies. Communicates and sells business plan to relevant stakeholders and addresses political, financial, and organisational interests.

Learning objectives for proficiency level

- **EQF 6** Provides leadership for the creation of an information system strategy that meets the requirements of the business (e.g., distributed, mobility-based) and includes risks and opportunities.

Knowledge	Skills
K1, K2: Understand the importance of creativity when developing business models K3, K5, K6: Be able to reflect on the present and future market size and needs through SWOT and competitive analysis K4: Analyse the business plan elements and formulate milestones for implementation	S1: To Identify and design innovative business models & viable business positions based on SWOT and realistic market information and develop solid business models and financial plans S4: To evaluate the market and financial attractiveness and feasibility of business models

- **EQF 7** Applies strategic thinking and organisational leadership to exploit the capability of Information Technology to improve the business.

Knowledge	Skills
K7, K8, K9: Analyse the attractiveness of business models in terms of profitability, value creation channels and sourcing through co-creation K10, K11: Develop a financial planning including a risk and opportunity assessment	S6: Identify and design innovative business models to ensure S9: create value, viability, and sustainability through the business model S12: Define the appropriate value creation channels

Resources & Materials:

- Loudon, J. & Loudon, J. (2020). Management Information Systems: managing the digital firm, 16th edition. Harlow, Pearson (Chapter 1 & 10).
- Whittington, R., Johnson, G. & Scholes, K. (2020). Exploring strategy: text and cases. 12th edition. Harlow, Pearson (Chapter 1 & 7).

Part 2.2 MANAGE - E.1. Forecast Development

Interprets market needs and evaluates market acceptance of products or services. Assesses the organisation's potential to meet future production and quality requirements. Applies relevant metrics to enable accurate decision making in support of production, marketing, sales, and distribution functions.

Learning objectives for proficiency level

- **EQF 5** Exploits skills to provide short-term forecast using market inputs and assessing the organisation's production and selling capabilities.

Knowledge	Skills
K1: Market size and relevant fluctuations K2: Identify the accessibility of the market according to current conditions (e.g., government policies, emerging technologies, social and cultural trends, PEST/STEP, Porter etc.)	S1, S2: Apply what-if/scenario techniques to produce realistic outlooks with sales forecasts/projections

- **EQF 6** Acts with wide ranging accountability to produce a long-term forecast. Understands the global marketplace, identifying and evaluating relevant inputs from the broader business, political and social context.

Knowledge	Skills
K4: Build on the importance of large-scale data analysis techniques (data mining)	S4: Analyse and compare sales and production forecasts and analyse potential mismatches

Resources & Materials:

- Sharda, R., Delen, D. & Turban, E. (2018). Business Intelligence, Analytics, and Data Science. 4th edition. Harlow, Pearson (Chapter 2 & 3).
- Chaffey, D., Ellis-Chadwick, F. (2019). Digital Marketing, 7th edition. Harlow, Pearson (Chapter 1 & 4)

Part 2.3 - MANAGE - Business Change Management

Assesses the implications of new digital solutions. Defines the requirements and quantifies the business benefits. Manages the deployment of change considering structural and cultural issues. Maintains business and process continuity throughout change, monitoring the impact, taking any required remedial action, and refining approach.

Learning objectives for proficiency level

- **EQF 6** Provides leadership to plan, manage, and implement significant ICT led business change

Knowledge	Skills
K2: Analyse the impact of business changes on the organisation and human resources	S1: Analyse costs and benefits of business changes

- **EQF 7** Applies pervasive influence to embed organisational change

Knowledge	Skills
K3: Analyse the impact of business changes on legal issues	S2: Select appropriate ICT solutions based upon benefit, fit-gap analysis risks and overall impact S3: Construct and document a plan for implementation

Resources & Materials:

Loudon, J. & Loudon, J. (2020). Management Information Systems: managing the digital firm, 16th edition. Harlow, Pearson (Chapter 14).

Module method:

The module is organized into 3 learning blocks. The first learning block covers 'Part 2.1 PLAN - Business Plan Development' and has 2 online lectures for each proficiency level (EQF 6&7). The second learning block follows the same logic with 2 online lectures for 'Part 2.2 MANAGE - E.1. Forecast Development' to cover both levels of proficiency (EQF 5&6), and the third learning block deals with 'Part 2.3 - MANAGE - Business Change Management' and covers the two proficiency levels (EQF 6&7) in two online lectures. In total, six online lectures are included in this module, each 20 minutes supported with teaching notes and individual small quizzes to assess the learnings in each lecture. The module concludes with an individual assignment related to the company of the learner and has online interaction tools to discuss the findings with peers.

Assignment:

- ☐ Analyses of the market, how interesting and attractive is the new business opportunity for us.
- ☐ Reflect on the market size, competition, growth opportunities in related markets.
- ☐ Draft a first sketch of the business model operations and check and validate the sketch by conducting in-company analyses and consult important stakeholders.
- ☐ Conclude on the business model and strategy to be able to deliver the new offering.
- ☐ Assess the attractiveness and implications to the organization.

Module 3: Value capturing of digital trends

To fully grasp how, where and when the essential value creation takes place, it is important to practice “reverse thinking” – in this process each stakeholder and beneficiary are put in the centre in relation to the product. Traditionally, new business development heads the wrong way in this journey, since it is natural for the business developers to put the product at the centre stage and think of the beneficiaries as belonging in the outskirts. The idea is to induce the e-leader to shift priorities around, realize the critical importance of the customer, of how they think, feel and act. By realizing that customers use and buy products to do a certain job for them, the value a product creates for a customer becomes clearer. This helps to understand how to maximize value for the customer and make inferences to quantify the price setting, as opposed to a mark-up on cost or based on competitors.

Business strategy needs to reflect the value proposition, what the company is about, what competitiveness emanates from, and how to position versus competitors? Is success based on low cost, speed, or quality? Are you in a niche market with low volume, or opting for scale in a big market (a big fish in a small pond, or a small fish in a big ocean)? Are resources, workers, partners, or knowledge key to success? What is your market, is it pre-defined, and then how do you position in it, or are ways at hand for you to change the market, and to create new markets (red market space vs. blue market space, where boundaries are not set)? And where will you be in the future? What must you critically invest in/how use your resources, in order improve as required to reach where you wish to be?

Part 3.1 - ENABLE: D.11. Needs Identification

In this part the focus is on Market & Customer attractiveness: mapping the customer use of a product/ services. Actively listens to internal/external customers, articulates, and clarifies their needs. Manages the relationship with all stakeholders to ensure that the solution is in line with business requirements. Proposes different solutions (e.g., make-or-buy), by performing contextual analysis in support of user-centred system design. Advises the customer on appropriate solution choices. Acts as an advocate engaging in the implementation or configuration process of the chosen solution.

Learning objectives for proficiency level

- **EQF 7** Provides leadership in support of the customers’ strategic decisions. Helps customer to envisage new ICT solutions, fosters partnerships and creates value propositions.

Knowledge	Skills
K2, K7: Develop a thorough understanding of the needs and context of the new digital customer and business needs	S2, S4: Apply tools to interact and engage with customers and to analyse customer requirements S3: Analyse the ICT solution cost/benefit

<p>K4, K5, K6: Apply the tools and techniques for customer need analysis through communication and storytelling techniques</p> <p>K8: Develop a profile of end user based on client experience, tools of service design, customer journey</p>	
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Resources & Materials:

- Chaffey, D., Ellis-Chadwick, F. (2019). Digital Marketing, 7th edition. Harlow, Pearson (Chapter 2 & 3)

Part 3.2 – PLAN – Innovating

Devises creative solutions for the provision of new concepts, ideas, products, or services. Deploys novel and open thinking to envision exploitation of technological advances to address business/society needs or research direction.

Learning objectives for proficiency level

- **EQF 6** Applies independent thinking and technology awareness to lead the integration of disparate concepts for the provision of unique solutions.

Knowledge	Skills
<p>K3, K4: Understand the process of dynamics of innovation and development of the innovation strategy</p>	<p>S4: Apply tools to think out of the box</p> <p>S5: Assess and identify appropriate resources</p>

- **EQF 7** Challenges the status quo and provides strategic leadership for the introduction of revolutionary concepts.

Skills
<p>S4: Apply tools to think out of the box</p> <p>S5: Assess and identify appropriate resources</p>

Resources & Materials:

- Chaffey, D., Ellis-Chadwick, F. (2019). Digital Marketing, 7th edition. Harlow, Pearson (Chapter 1 & 4)

Part 3.3 - ENABLE D.12. Digital Marketing Market reach

Understands the fundamental principles of digital marketing. Distinguishes between the traditional and digital approaches. Appreciates the range of channels available. Assesses the effectiveness of the various approaches and applies rigorous measurement techniques. Plans a coherent strategy using the most effective means available. Understands the data protection and privacy issues involved in the implementation of the marketing strategy.

Learning objectives for proficiency level

- **EQF 8** *Develops clear meaningful objectives for the Digital Marketing Plan. Selects appropriate tools and sets budget targets for the channels adopted. Monitors, analyses, and enhances the digital marketing activities in an ongoing manner*

Knowledge	Skills
K1, K2, K3, K4 and K7: Analyse the business ecosystem and assess a plan for a digital marketing strategy that includes elements of social media and web technologies	S1: Strategic uses of IT and digital communications technologies S3: Assess the use of User Centric Marketing

Resources & Materials:

- Chaffey, D., Ellis-Chadwick, F. (2019). Digital Marketing, 7th edition. Harlow, Pearson (Chapter 5).

Course method:

The course is organized into 3 learning blocks and totals 4 online lectures. The first learning block, 'Part 3.1 - ENABLE: D.11. Needs Identification', aims at one proficiency level: EQF 7. The second learning block covers Part 3.2 – PLAN – Innovating' and has two lectures for proficiency levels (EQF 6&7) and the third learning block has again one proficiency level (EQF8). Each lecture is 20 minutes of online teaching material supported with small quizzes to assess the learnings of each lecture. The module concludes with an individual assignment related to your company and has online interaction tools to discuss your finding.

Assignment:

- Based on the new business opportunity identified in module 1, the present focus is to further understand the products currently offered to users. Analyse the job the product or service is doing for the users and assess how the emerging technology can help to improve the job of users. What are the needs they have and in which context do they operate? Assess attractiveness and implication to the organization. Finally, the focus is on developing a digital marketing strategy to engage and interact with the customer.

Module 4: Team and diversity

Teams are among the most important assets of a firm. Teams make it possible that firms can pursue and benefit from new emerging technologies. Being an eleader requires to make an assessment of the human capacity of the team. The skills, the knowledge, and the attitude of the team towards customers, innovation, new business development and implementation of new operations. In this part, the focus is on the skills and knowledge of eLeaders to develop teams that can make a significant difference.

Part 4.1 - ENABLE: D.9. Personnel Development

Diagnosis's individual and group competence, identifying skill needs and skill gaps. Review's training and development options and selects appropriate methodology considering the individual, project, and business requirements. Coaches and/or mentors individuals and teams to address learning needs

Learning objectives for proficiency level

- **EQF 3** *Monitors and addressees the development needs of individuals and teams*

Knowledge	Skills
K1: Understand the competence development methods	S1: identify competence and skill gaps
K2: Understand the role of competence and skill needs analysis methodologies	S2: identify and recommend competence-based development opportunities

- **EQF 4** *Takes proactive action and develops organisational processes to address the development needs of individuals, teams, and the entire workforce.*

Knowledge	Skills
K5: Understand the role and use of empowerment techniques	S5: Address professional development needs of staff to meet organisational requirements

Resources & Materials:

- Loudon, J. & Loudon, J. (2020). Management Information Systems: managing the digital firm, 16th edition. Harlow, Pearson (Various chapters & cases).

- Edwards, T., & Rees, C. (2017). International HRM, 3rd edition. Harlow, Pearson (chapter 9 & 14).

Part 4.2 - E.4. Relationship Management

Establishes and maintains positive business relationships between stakeholders (internal or external) deploying and complying with organisational processes. Maintains regular communication with customer/partner/supplier, and addresses needs through empathy with their environment and managing supply chain communications. Ensures that stakeholder needs, concerns or complaints are understood and addressed in accordance with organisational policy.

Learning objectives for proficiency level

- **EQF 4** *Provides leadership for large or many stakeholder relationships. Authorises investment in new and existing relationships. Leads the design of a workable procedure for maintaining positive business relationships*

Knowledge	Skills
K1, K2: Understand the role of organisation processes including, decision making, budgets and management structure and translate them into business objectives, own and of other stakeholders K3: Know how to measure and apply resources to meet stakeholder requirements K6: Understand apply relationship management of a company with its stakeholders	S1, S2, S3, S7: Be able to manage team building, through leadership, coordination and motivation of best practices and communicate and collaborate with other group members S8: Analyse the nature of leadership management within advance technology organizations

Resources & Materials:

- Chaffey, D., Ellis-Chadwick, F. (2019). Digital Marketing, 7th edition. Harlow, Pearson (Chapter 6).

Module method:

The Module is organized into 2 learning blocks and totals 3 online lectures. The first learning block, 'Part 4.1 - ENABLE: D.9. Personnel Development', has a focus on proficiency level: EQF 3 and 4. The second learning block covers 'Part 4.2 - E.4. Relationship Management' and has one lecture for proficiency levels (EQF 4). Each lecture is 20 minutes of online teaching material supported with small quizzes to assess the learnings of each lecture. The module concludes with an individual assignment related to your company and has online interaction tools to discuss your finding.

Assignment:

- The assignment is to make an analysis of the team and the intended innovation. First the aim is to analyse the present team and the skills, attitudes, and knowledge. Then based on the analyses of the needs for the new emerging technology, the learner identifies the needs of the team and the specific skills, knowledge and attitudes that need improvement. Then a plan for improvement and design of the team is installed to be able to pursue the new opportunity.

Module 5. Implementation

In the previous modules, the new digital technology opportunity is identified and is articulated in a business model and the learner has an understanding of the requirements of the team to make it happen. The next step is to implement the opportunity within the company and its IT infrastructure. To fully grasp the potential of the new emerging digital technology trends, the leader should be able to seamlessly implement the activities within the organization. The change process might require adaptation of ways of working and business model innovation. The digital leader should be able to assess the present IT architecture design and evaluate the change process including the costs and risks involved. This last module aims to equip the learner with the tools and knowledge to successfully lead the company to pursue new digital trend opportunities.

Part 5.1 - Plan A5 – Architecture Design

Specifies, refines, updates, and makes available a formal approach to implement solutions, necessary to develop and operate the IS architecture. Identifies change requirements and the components involved: hardware, software, applications, processes, information, and technology platform. Considers interoperability, scalability, usability, and security. Maintains alignment between business evolution and technology developments

Learning objectives for proficiency level

- **EQF 6** Acts with wide ranging accountability to define the strategy to implement ICT technology compliant with business need. Takes account of the current technology platform, obsolescent equipment, and latest technological innovations.

Knowledge	Skills
K3: Analyse different technological areas that	S1: Use knowledge in various technology areas to

currently offer greater innovation potential	build and deliver the enterprise architecture
K4: Reflect on the present architecture frameworks, methodologies, and systems design tools	S2: Understand the business objectives/drivers that impact the architecture component (data, application, security, development etc...)

- **EQF 7** Provides ICT strategic leadership for implementing the enterprise strategy. Applies strategic thinking to discover and recognize new patterns in vast datasets and new ICT systems, to achieve business savings.

Knowledge	Skills
K5: Analyse and recommend on systems architecture requirements: performance, maintainability, extendibility, scalability, availability, security, and accessibility	S4: Develop design patterns and models to assist system analysts in designing consistent applications
K6: Apply an assessment of costs, benefits, and risks of a system architecture	

Resources & Materials:

- Loudon, J. & Loudon, J. (2020). Management Information Systems: managing the digital firm, 16th edition. Harlow, Pearson (Chapter 6 & 7).

Part 5.2 - ENABLE - D.10. Information and Knowledge Management

Identifies and manages structured and unstructured information and considers information distribution policies. Creates information structure to enable exploitation and optimisation of information. Understands appropriate tools to be deployed to create, extract, maintain, renew, and propagate business knowledge in order to capitalise from the information asset.

Learning objectives for proficiency level

- **EQF 7** Correlates information and knowledge to create value for the business. Applies innovative solutions based on information retrieved.

Knowledge	Skills
K1: Apply the methods to analyse information and	S1: Gather internal and external knowledge and

business processes	information needs
K2: Understand how to develop ICT devices and tools applicable for the storage and retrieval of data	S6: Capture, storage, analyse, data sets using data mining techniques that are complex and large, not structured and in different formats

Resources & Materials:

- Loudon, J. & Loudon, J. (2020). Management Information Systems: managing the digital firm, 16th edition. Harlow, Pearson (Chapter 11 & 13).

Part 5.3 Problem management (RUN: C4- problem management)

Identifies and resolves the root cause of incidents. Takes a proactive approach to avoidance or identification of root cause of ICT problems. Deploys a knowledge system based on recurrence of common errors. Resolves or escalates incidents. Optimises system or component performance.

Level of proficiency

- **EQF 6** Provides leadership and is accountable for the entire problem management process. Schedules and ensures well trained human resources, tools, and diagnostic equipment are available to meet emergency incidents. Has depth of expertise to anticipate critical component failure and make provision for recovery with minimum downtime. Construct's escalation processes to ensure that appropriate resources can be applied to each incident.

Knowledge	Skills
K1, K3: Analyse the organisation's overall ICT infrastructure and key components including the organisation's critical situation escalation procedures K5: Analyse the link between system infrastructure elements and impact of failure on related business processes	S4: Can conduct risk management audits and act to minimise exposures

Resources & Materials:

- Loudon, J. & Loudon, J. (2020). Management Information Systems: managing the digital firm, 16th edition. Harlow, Pearson (Chapter 14).

Part 5.4 Problem management (MANAGE: E.5. Process Improvement)

Measure's effectiveness of existing ICT processes. Research and benchmarks ICT process design from a variety of sources. Follows a systematic methodology to evaluate, design and implement process or technology changes for measurable business benefit. Assesses potential adverse consequences of process change.

Level of proficiency

- **EQF 6** Provides leadership and authorises implementation of innovations and improvements that will enhance competitiveness or efficiency. Demonstrates to senior management the business advantage of potential changes.

Knowledge	Skills
K1: Apply research methods, benchmarks, and measurements methods K2: Understand the use of evaluation, design, and implementation methodologies	S3: Propose process changes to facilitate and rationalise improvements

Resources & Materials:

- Loudon, J. & Loudon, J. (2020). Management Information Systems: managing the digital firm, 16th edition. Harlow, Pearson. ([Chapter 13](#)).
- Sharda, R., Delen, D. & Turban, E. (2018). Business Intelligence, Analytics, and Data Science. 4th edition. Harlow, Pearson. ([Chapter 3](#)).

Course method:

The course is organized into 4 learning blocks and totals 4 online lectures. The first learning block, 'Part 5.1 - Plan A5 – Architecture Design', aims at one proficiency level: EQF 6&7. The second learning block covers 'Part 5.2 - ENABLE - D.10. Information and Knowledge Management' and has one online lecture for proficiency level EQF 6. The third learning block 'Part 5.3 Problem management (RUN: C4- problem management)' has again one proficiency level (EQF6) and the fourth learning block Part 5.4 Problem management (MANAGE: E.5. Process Improvement)' has one proficiency level at EQF 6. Each lecture is 20 minutes of online teaching material supported with small quizzes to assess the learnings of each lecture. The module concludes with an individual assignment related to your company and has online interaction tools to discuss your finding.

Assignment:

- Based on the new business opportunity and new business model and team requirements in the earlier models, the learner develops a plan for implementation. The plan includes an analysis of the present IT architecture and provides recommendations on the main parts of the organization that need to be adapted to support the new digital technology. The plan has a general overview of milestones and an assessment of risks and identified.

IV-4 Practical guide to conduct a successful eLeadership training

In recent years, the increase of online training courses for firms' employees is relevant. On the other hand, several initiatives at national and EU level (such as the Digital Innovation Hub) were born to promote the digitalization of SMEs: raising the demand for eleadership skills within SMEs and by service providers.

The MOOC is addressed to **three main targets**:

a) SMEs employees and managers involved in implementation of digital projects; b) external consultants working in private and public institutions that are supporting SMEs in the digital transformation; c) employees in technology provider firms, who are playing a key role for SMEs digital transformation.

Methodology for an effective use of the eLead MOOC

One of the main problems of MOOC courses is the high dropout rate. To reduce the dropout rate and maximize the learning outcomes it is essential for the trainers who propose this methodology to put specific attention on a set of activities to be performed before starting the course and during its implementation. In the case of MOOC it is more appropriate to refer to participants and facilitators rather than students and teachers. In this learning environment participants enjoy a high degree of autonomy in their learning process. Moreover, the

background, motivations and attitudes of participants may vary widely. By definition, in the MOOC learning methodology the presence of teachers is quite light. However, the facilitator plays a key role in guiding and supporting the participants to reduce the dropout and facilitate the learning process.

Ex ante activities

Before the engagement of trainees in the use of the MOOC and of other learning resources it is essential to interact with trainees to collect information on the following aspects:

- Identification of the context in which the trainees operate, their present position and their career prospects.
- Evaluation of the trainings needs.
- Identification of the learning objectives.
- Choice of the learning modules and definition of the learning methodology.
- Selection of the group of trainees (numbers and roles) and set up of course timing.

MOOC are generally intended for individual use. However, the interaction with a group of people involved in the same course may be highly beneficial to maintain the engagement with the course and to improve the learning outcomes.

The trainers should have a clear understanding of the different profiles of participants and adapt the training methodology to their needs. At the same time, the variety of participants may be used as a way of enhancing the learning opportunities through the exchange of experience and competences. Trainers are responsible for avoiding the situation of "education to strangers" which is often attached to the use of MOOC.

By definition the MOOC offers a high level of personalisation, based on the choice of the learning modules, the class format, the degree of interactivity, etc. It is important that these aspects are not left to the choice of trainees but discussed with the trainers before the engagement in the course.

The ideal MOOC duration is 4 or 5 weeks of work. Weekly workload should be between 3 and 5 hours

On-going activities

According to the empirical evidence about the effective use of MOOC courses the recommended time engagement of participants is about 3 to 4 hours per week. This commitment is compatible with the time that motivated young professionals, managers of employees are likely to dedicate, at least for a period, to improve their skill and career prospects. Trainers (facilitators) should advise participants not to exceed those limits to try and reduce the learning period; on the contrary they should help participants to set and maintain a good learning pace.

To maintain a good learning pace, it is essential to provide periodical assessments of the learning outcomes. The assessment is based on tools and tasks that are part of the MOOC and can be performed autonomously by the participants.

However, it is important for participants to discuss and evaluate the results of these evaluation steps with the trainers.

While designing the MOOC it is important to set clear and precise communication guidelines in relation to the tools available in the platform (ex: chats, discussion forums, social networks, wiki, etc.) and all the technical helps regarding these tools.

The structure of the MOOC must be considered a Starting-up Module so that the people involved in the training begin to settle and become more familiar with the platform and resources available. This type of information can be also spread using a short video with proper subtitling.

The structure of the course should be divided into sections, identified by a description name, that include activities aimed at completing within one specific period.

In general, the use of educational video, video tutorials, exercises, tasks, discussion topics is recommended to increase the engagement of the trainees.

All the educational materials of the course should be visible and downloaded by registered users even when the courses are completed.

Trainees, at the beginning of the course, should be informed about the enrolment's dates and deadlines and about the engagement time in a course description page.

Ex post activities:

- Evaluation of learning outcomes (soon after the training and over a longer period)

- Certification of competences acquired
- Brainstorming between trainees about their learning activities and the application of the new competences

Here below is a table with a recap of the main activities:

	Facilitators' role	Mooc tools and activities
EX ANTE (Design and preparation phase)	Design of the MOCC structure	Calendar and suggested schedule
	Content creator	Videos and pre-MOOC materials
	Assessment activities creator	
ON GOING (Implementation and development phase)	Test communication tools	Emails, forum. Q&A sessions
	Facilitation activities	Self-assessment
	Collaborative activities	
EX POST (Data analysis and investigation phase)	Assessment session	Assessment and peer-assessment
	Certification	Questionnaires
	Evaluation	

Repository of ressources and contents about high-tech leadership

V-1 Educational ICT Tools

In this section, we are going to enlist several educational tools IT related or not that could be used by VET trainers to assist them in developing their courses.

❖ Survey, Polls, and Quizzes

Why: Useful tools for all stages of a training course. The trainer can create a survey or a quiz to identify the knowledge of their participants, trainees regarding e-leadership's concept and accompanying skills of an e-leader. Moreover, surveys/quizzes could be used in later stages of the training path to evaluate the learning objectives.

Where:

- **Google Forms-** (part of Google Drive)Collect RSVPs, run a survey, or quickly create a team roster with a simple online form. Possibility to check out the results, neatly organized in a spreadsheet.
- **Addpoll-**an easy way to create polls, surveys, and html forms on the web.

❖ Self-assessment tools

Why: Participants are invited to self-assess their leadership capabilities (including e-leadership skills) through an online tool provided. In that way the level of each participant, regarding their e-skills, is reported and based on these reports the trainer can identify the needs and adjust their courses accordingly.

❖ Web conferencing

Why: Due to the pandemic situation of COVID-19, distant learning and online platforms were a common tool for effective learning. Despite their rise due to the recent occasion, they are effective tools to teach trainees from all over the world and set great example for e-leadership skills and competences.

Where:

- **Zoom** - Cloud platform for video and audio conferencing, collaboration, chat, and webinars, offers robust collaboration and engagement tools as part of its standard free license. Administrators, teachers, parents, and students also have access to: Unlimited meetings for up to 100 participants.
- **Google classroom** - Helps classes connect remotely, communicate and stay-organized.

❖ Create infographics

Why: A useful tool for visualizing data and teaching data visualization concepts. Provides literate information in multiple formats or mediums.

Where:

- **Easel.ly** - Create and share visual ideas online. Vhemes are visual themes. Drag and drop a vHEME onto your canvas for easy creation of your visual idea.
- **Gapminder** - is used in classrooms around the world to build a fact-based world view.

❖ Case studies

Why: Case studies create a major advantage of teaching in terms of students that will be actively engaged in figuring out the principles by abstracting from the examples. They assist in the development of skills such as: Problem solving, decision making.

Where: Guide and Templates on how to write a case study

❖ MOOC

Why: Massive open online courses include virtual interactions, discussions, evaluation. They are massive so they facilitate access to education through information and network technology. Due to their characteristics, they can be a good tool for developing digital competences.

Where:

- **Udemy** – English, Spanish and Portuguese language courses on ICT skills and programming
- **UNEVOC Resources** – Tools, guides, MOOCs and other resources collected by UNESCO's International Centre for Technical and Vocational Education and Training for continued learning in TVET.

As mentioned previously it is equally important for VET educators themselves to be constantly trained to increase their competences and e-skill, update their information on the existing technological tools to transfer their knowledge in the most effective way.

The tools listed below could assist VET trainers in the acquisition of this kind of skills:

E-TRAINERS

E-trainers is an example of structured digital training platform based on the Moodle system with which teacher will spend less time preparing their lessons while getting the students more engaged. The platform provides practical and **interactive exercises**, a variety of **instruments and tools** to provide users with the best approach to digital didactic methods. The courses also include **continuous support** and a **coaching service** to facilitate the integration of the learned skills and tools in their work.

Link: <http://www.e-trainers.eu/>

Enhance Digital Teaching Platform

This platform developed by the UK Education and Teaching Foundation provides VET educators and assessors with access to free, short, certified online self-learning training modules. These modules are mapped to the Digital Teaching Professional Framework and are designed to improve the use of technology in teaching and assessment to enhance learners' experiences and outcomes.

Link: <https://enhance.etfoundation.co.uk/>

[1] www.ecompetences.eu

APTEFORMA

APTE's **digital training classroom** (APTEFORMA) provides online training to promote the knowledge of disruptive technologies in the environment of Spanish Science and Technology Parks, which counts more than **8,100 companies** and **178,500 workers**, to increase the competitiveness, professionalism and ultimately the **digital talent** of these professionals. APTEFORMA offers content in different formats, among them, MOOCs, training pills, video pills, self-training courses, guides and infographics on topics related to disruptive technologies and focused on their application in the business environment, such as **Blockchain, Artificial Intelligence, Cybersecurity, Industry 4.0., Digital Transformation, Edge Computing, Smart Cities, Big Data, Augmented Reality** and **3D manufacturing and printing**, among others.

Link: <https://www.apte.org/apteforma/>

Digitalisation - Online Learning Tool for the Digitalisation of SME (Europe)

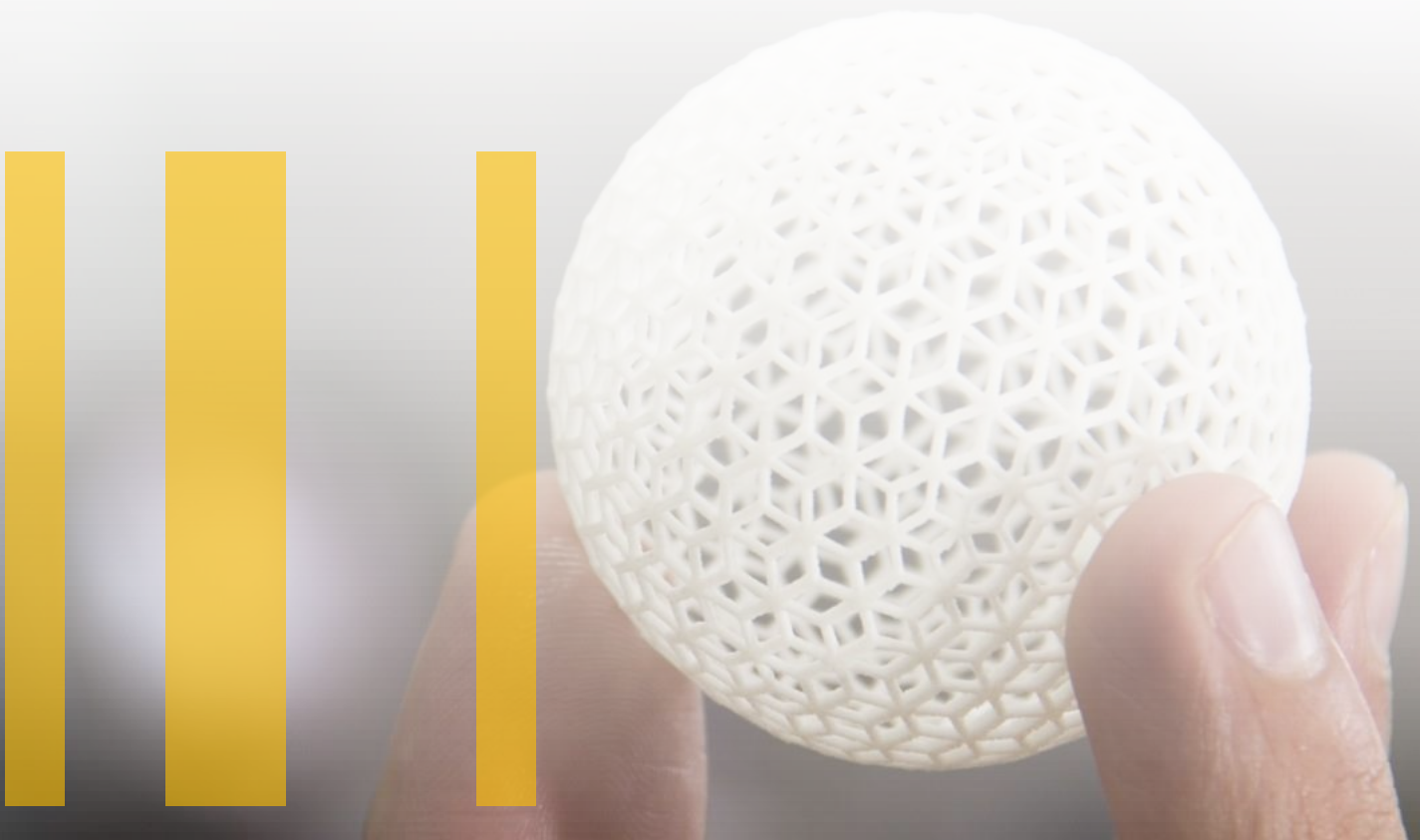
The digital transformation of the economy brings with it challenges. Every company today needs decision makers and employees that have a fundamental understanding of the potential of digital technologies and applications and who can moderate the necessary process of change in their company. This European project from the Erasmus Plus Program offers a **self-learning tool** that can be accessed online and is free of charge.

Link: digital-transformation-tool.eu

CORSINCLOUD

This web-based platform is an interactive environment for distance learning enabling trainee's identity recognition, the continuous monitoring of the trainee's presence, attention, level of engagement and satisfaction while attending a course and finally the automatic certification of the attended courses and related achieved credits. Today the platform is used to provide mandatory courses on work health and safety and refresh courses for professionals.

Link: www.corsincloud.it e https://youtu.be/MNbSXk_UE4w



V-2 Resources and Contents about high-tech leadership

NATIONAL AND EUROPEAN STRATEGIES

The European Digital Strategy

The EU's digital strategy aims to make this transformation work for people and businesses, while helping to achieve its target of a climate-neutral Europe by 2050. The Commission is determined to make this Europe's "Digital Decade".

Link: <https://ec.europa.eu/digital-single-market/en/content/european-digital-strategy>

Digital Belgium: Plan for Ultrafast Internet in Belgium 2015-2020 (Belgium)

Belgium launched this plan with the aim of providing speeds of up to 1Gps to half of the country by 2020, to ensure a 4G and LTA Advanced roll-out throughout Belgium and to facilitate a proactive 5G roll-out.

Link: <http://digitalbelgium.be/en/>

Wallonia's Digital Strategy 2019-2024 (Belgium)

Digital Wallonia sets the framework for all the Walloon Government's actions in terms of Wallonia's digital transformation. Over 500 million euros have been harnessed over four years for its implementation.

Link: <https://www.digitalwallonia.be/en/digital-strategy>

Directorate-General Digital Transformation (Belgium)

This DG is the driving force behind the evolution and the digital reforms of the federal government and provides advice and develops projects in connection with the new technologies, with particular attention for citizens and businesses.

National Digital Strategy 2016-2021 (Greece)

This roadmap and framework for the country's digital development establishes the vision and specifies the areas of intervention on which the effort should focus, so that Greece, with a horizon of 2021, can be included in the European digital map with demands.

Link: http://www.epdm.gr/el/Documents/EP_MDT/GR-Digital-Strategy_2016-2021.pdf

National Program for the digital competences development (Italy)

The Italian National Program for the digital competences, development defines some main areas and suggests knowledge, skills, and

competences, from the European e-Competence framework.

Link:

http://egov.formez.it/sites/all/files/programma_nazionale_cultura_formazione_competenze_digitali_-_linee_guida.pdf

Dutch Digitisation Strategy 2.0 (Netherlands)

In 2019, the State Secretary for Economic Affairs and Climate Policy, the Minister of Justice and Security, and the State Secretary for the Interior and Kingdom Relations presented an update of the **Dutch Digitalisation Strategy**. By updating the strategy, the government aims to maintain the Netherlands' position in Europe's digital vanguard.

Link: <https://www.nederlanddigitaal.nl/english/dutch-digitalisation-strategy-2.0>

España Digital 2025 (Spain)

In 2020 a specific plan to impulse the digital transformation of the country was presented by the Spanish government. The agenda addresses objectives such as accelerating the digital transformation of SMEs, boosting digital entrepreneurship, and enhancing the international projection of national digital entrepreneurship.

Link:

https://www.lamoncloa.gob.es/presidente/actividades/Documentos/2020/230720-Espa%C3%B1aDigital_2025.pdf



TRAINING INITIATIVES

Architecture, Processes and Technologies Industry 4.0 Executive Course (Italy)

The course is structured in six modules, Fundamentals of Industry 4.0, Architecture and Processes I4.0, Lean Production e I4.0, Technologies Industry 4.0, Safety and Maintenance I4.0

Active and passive plant safety and Legislation I4.0. This education program provides a complete overview of all aspects of the Industry 4.0 paradigm in order to train resources ready to meet the challenges of the industry of the future.

Link:

https://www.univpm.it/Entra/Universita_Politecnica_delle_Marche/Home/Tutti_gli_avvisi_di_UnivPM/Corso_di_perfezionamento_in_Architetture_Processi_e_tecnologie_industry_4_0_1

Technology & Innovation Management Executive Course (Italy)

The course explores issues related to the definition of technological strategies, the identification of internal and external sources of new ideas, the optimization of the composition of the project portfolio, the effective organization of the new product development process, the Design Thinking, and the understanding of needs of customers, the protection of value created by innovation. Participation in the course will allow participants to strategically analyse and experience the most advanced trends of Industry 4.0 technologies (such as IoT, Robotics, AI).

Link: <https://www.bbs.unibo.it/hp/open-program/technology-and-innovation-management/#scarica-brochure>

First Cycle Degree/Bachelor in Information Science for Management (Italy)

This Degree from the University of Bologna aims to produce experts in new information technology and new means of communication and coordination, to be able to work in complex ICT settings as coordinators within companies and markets. The Programme provides knowledge of methods, techniques and tools for developing economic, organizational and scientific systems and applications based on Information and Communications Technology, together with the background needed to appreciate how the area is evolving and to contribute to it doing so.

Link:

https://corsi.unibo.it/laurea/InformaticaManagement/insegnamenti/piano?code=8014&year=2019&manifest=it_2019_8014_000_000_2019

Master in Innovation Management - MAIN (Italy)

The program is specifically designed to provide an in-depth understanding of the innovative dynamics at the company level. MAIN students learn to identify, manage, and shape the innovative trajectory of the firm in order to exploit its strengths and lead it to success in the competitive arena.

Link: <https://www.santannapisa.it/it/innovation-management>

Online Training Programme Take the lead (Belgium)

Take the Lead explains how to successfully steer organisations through a digital transformation geared to enhancing its resilience and agility – assets enabling them to come to grips with the external environment while at the same time maintaining their focus on future growth.

Link:

<https://www.vlerick.com/en/programmes/management-programmes/digital-transformation/take-the-lead>

DIGITAL LEADERSHIP (Belgium)

This training program from Vlerick Business School focuses on formulating and implementing transformational change strategies by the critical fusion of disruptive technologies and business.

Link:

<https://www.vlerick.com/en/programmes/management-programmes/digital-transformation/digital-leadership>

Management of Technology University Curriculum (The Netherlands)

In this program from the University of Delft the students learn to explore and understand technology as a corporate resource, a resource that shows how firms can use technology to design and develop products and services that maximise customer satisfaction on the one hand, while maximising corporate productivity, profitability, and competitiveness on the other.

Link:

<https://www.tudelft.nl/en/education/programmes/management-of-technology>

[sters/applied-physics/msc-applied-physics/applied-physics-programme/orientation-management-of-technology/](https://www.aegean.edu.gr/en/education/programmes/masters/applied-physics-programme/orientation-management-of-technology/)

Master in Management of Business, Innovation and Technology - MBIT (Greece)

Technology in the digital era of start-up companies is developing at a rate that few professionals can keep up with. Producing innovative ideas that have a commercial aspect can be challenging. The MBIT from Athens Tech College is a ground-breaking master's course that provides the required skills to apply computer science on entrepreneurship.

Link:

<https://www.athtech.gr/en/courses/masters/management-of-business-innovation-technology/>

Business, Arts and Technology for Innovation Master (Spain)

The master from the University of Málaga aims to create 360-degree profiles, not specialist neither technologist, but persons with adaptation capacity and ability to create new projects, considering the importance of the human factor. The three main blocks of the master include Business Art and Technology, Sustainable Development Goals and Soft Skills with face-to-face classes and master classes with strategic company leaders and key actors.

Link:

https://bat4innovation.com/?fbclid=IwAR3nv5zISN3n0ZRu4PVrGHfOweeL29ff28NLor20NjxmIV5Da_pFr0dW2E

Digital Transformation Management Training Program (Spain)

The Digital Transformation Management Program is a comprehensive and intensive program from the IE University to lead change management environments in times of maximum complexity. How to cultivate the skills to be an intra-entrepreneur and be able to build a digital transformation roadmap within any sector?

Link:<https://www.ie.edu/es/exponential-learning/programas/programa-direccion-transformacion-digital/>

Leadership and Strategy in the age of Disruption Training Program (Spain)

The Leadership & Strategy in the Age of Disruption program from the IE University delves into the various challenges' leaders are faced with in a business climate marked by uncertainty, complexity and technological disruption. Leaders are now being challenged to use visionary thinking, make insightful strategic decisions, and guide their teams to success amidst an ever-changing environment.

Link:<https://www.ie.edu/exponential-learning/programs/leadership-strategy-age-disruption/>

Innovation for Growth Program (Spain)

The program from IE University explores a framework for making strategic planning more robust amidst an increasingly changing and volatile business environment. By understanding the challenges that businesses face today, identifying the kind of organizations that are currently providing access to the most innovative landscapes, and recognizing the new kind of

intelligences that are required to succeed, this course challenges the understanding of the role innovation plays in a company's growth strategy.

Link:<https://www.ie.edu/exponential-learning/programs/innovation-for-growth/>

RELEVANT PUBLICATION

- **Skills for industry** from the DG Internal Market, Industry, Entrepreneurship and SMEs: https://ec.europa.eu/growth/industry/policy/skills_en
- **Shaping Europe's digital future, priorities 2019-2024** from the European Commission: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/shaping-europe-digital-future_en
- **Digital Europe** from the World Economic Forum: <https://www.weforum.org/projects/digital-europe>
- **Growth potential of Advanced technologies** for Europe, from the DG Internal Market, Industry, Entrepreneurship and SMEs: https://ec.europa.eu/growth/industry/policy/advanced-technologies_en
- The Path to Digital Leadership - Oracle: [wealth-report-summary-full-report-3942059.pdf \(oracle.com\)](https://www.oracle.com/wealth-report-summary-full-report-3942059.pdf)
- **Report on the European Educational and Training Landscape - Training Needs of Citizens and SMEs (Digital SkillUp - Erasmus+ Project):** [http://www.eun.org/documents/411753/817341/Report on the European Educational and Training Landscape.pdf?fbclid=IwAR1UxezuCFrpxYi50shX3TDg6OqS67AHcpGG5o4tYbNliiZAGwzI4v592S0](http://www.eun.org/documents/411753/817341/Report+on+the+European+Educational+and+Training+Landscape.pdf?fbclid=IwAR1UxezuCFrpxYi50shX3TDg6OqS67AHcpGG5o4tYbNliiZAGwzI4v592S0)
- **High tech skills industry** – from EU Commission, Directorate General for Internal Market, Industry, Entrepreneurship and SMEs: <https://op.europa.eu/en/publication-detail/-/publication/6d643b48-917f-11e9-9369-01aa75ed71a1/language-en/format-PDF>
- **Manifesto for Europe's digital future** – From European Digital SME Alliance: <https://www.digitalsme.eu/manifesto/>

LINKS OF INTEREST

- Digital Leaders global initiative: <https://digileaders.com/>
- Digital Leadership Institute: <https://euagenda.eu/organisers/digital-leadership-institute>
- Digital Europe Trade Association: <https://www.digitaleurope.org/>
- E-Leadership, European Guidelines and Quality Labels for new Curricula Fostering e-Leadership Skills: <https://www.eskills-guide.eu/index.php?id=1617>
- Digital Transformation Pillars of the global energy leader Endesa: [Digital transformation and innovation plans - Iberdrola](https://www.endesa.com/en/digital-transformation-and-innovation-plans-iberdrola)

- Open & Agile Digital Transformation Toolkit from the city of Barcelona: <https://ajuntament.barcelona.cat/digital/en/digital-transformation/technology-for-a-better-government/transformation-with-agile-methodology>
- Advanced Technologies for Industry (ATI) project from the European Commission: <https://ati.ec.europa.eu/>
- Digital SkillUp: <https://www.digitalsme.eu/projects/digital-skillup/>

Real Cases & Benefits to implement eleadership

AID-ALTERNATIVE INNOVATIVE DEVELOPMENT-A.I.D. (Greece)

This organization created by active citizens aims to contribute to the creation of an equal and just society by using formal and non-formal learning methods and initiatives specifically aimed at children, young and adult learners.

As an organisation that fosters innovation and collaborates daily with entities from all around the world, the need has risen to implement **e-leadership** techniques within the organisation's operational system. Moreover, the pandemic outbreak and the restrictions in multiple sectors have opened a window of opportunity for the acquirement of digital skills.

For the above reasons, AID included among their developed training courses, a course specified in e-leadership, digital skills and competences, a **digital leadership course** that combines business and technology experts in one program and provides new business solutions using the most globally applicable innovative technologies.

For A.I.D. the **benefits and impacts** of this strategy have been:

- **The increase of employees' productivity**, due to the automation of multiple tasks that required a lot of time to be realised.

- **Improves customers satisfaction**. In a very competitive environment is rather important to be constantly updated and transform your business according to new

available tools that assist your company in terms of speed, customer support.

- **Network expansion**. Digital leadership assists in the best exploitation of digital tools. Tools that provide the opportunity to reach a larger audience due to the convenience that provides, making the company provides most known with low cost.

Website: <http://aid.com.gr/>

ARELANCE (Spain)

Arelance supports companies in digital transformation, in IT projects and develops its own software products and trains specialists. Its portfolio covers many industries from IT, consultancy, banking, healthcare, telecom, logistics, commercial, retail to the public sector.

The companies Arelance provides consulting services to, have very specific needs for the improvements of their technological tools and demand professionals with proven digital experience. It is indeed essential to be up to date with all the news technologies to be delivered, to be able to properly train digital leaders.

The key factor to be competitive in this fast-changing actual market is undoubtedly to realise **continuous updates of the team and leaders' knowledge and capacities**. In this sense, Arelance proposes a specific **Digital Training team** which aim to assist clients in the training and deployment of their teams and digital leaders while adapting to their technological needs and relying on talent and innovation.

According to Arelance, the main **benefits and impacts implementing Digital Leadership** for a company are indeed the following:

- More competitiveness
- Successful Career Path (in a very changing and demanding market)
 - Opportunities of national and international expansion
- Increase of the turnover

Website: <https://www.arelance.com/home>

Conclusion

Innovation requires a change of mindset, a new way of using the technological tools available. This process is not spontaneous and must be provoked. That is the eLead project, to train digital leaders to produce new ways of thinking that produces innovation in companies, both at a technological, human, and organizational level. that is used to deliver such offer.

Digital transformation opens new chances for industry to become more efficient, to improve processes and to develop innovative products and services. It also creates unique marketplace challenges and opportunities.

The IO2 eLead Pedagogic Handbook is indeed dedicated to VET professionals and we hope that the resources included (training modules, methodologies, and tools) will support you in the implementation of an effective and successful training course for high-tech leaders.

