LEAD

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IO1 Competence Map

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

ELEAD COMPETENCE MAP

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ELEAD

Intellectual Output n.1
Competence Map

Contents

Introduction

This Competence Map is a product of eLead, an Erasmus+ KA2 development of innovation project, co-financed by the European Commission.

It aims at delivering a competence map for the new High-tech Leader qualification. The competence map was designed through a comparison of the key activities to be carried out by High-tech leaders in partner countries and is based on a clear definition of the high-tech leader profile. The rationality for using these results is due to the needs for structured, in the form of learning outcomes, training for High-tech leaders. The e-leader profile that will be created is also the basis for the provision of supporting materials for VET professionals in the field of new technologies. It establishes transparent competences, skills and knowledge connected with the e-leader profile in partner countries.

Companies, in particular SMEs, do not always realise the importance of the digital transformation for their business. 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 leaders is, able to 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 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).

This document aims at providing a recognition of common competences and professional standards for high-tech leaders, based on European standards (ECVET and EQF). Clear and agreed definitions and metrics for measuring innovative e-leadership skills and their implications on innovative job profiles are among the recommendations included by the European Commission in the Report “High-tech Leadership for Europe 2017”.

The eLead Competence Map is intended as a tool impacting on training supply for SMEs and start-ups, providing VET professionals with a tool to produce effective training paths and assessment methodologies. The definition of a common qualification for High-tech leadership will foster the national and European recognition process for the competences described.

This Competence Map is the result of a joint partnership between partners from Belgium, Greece, Italy, Netherlands and Spain.

1. Definition of e-leadership

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)

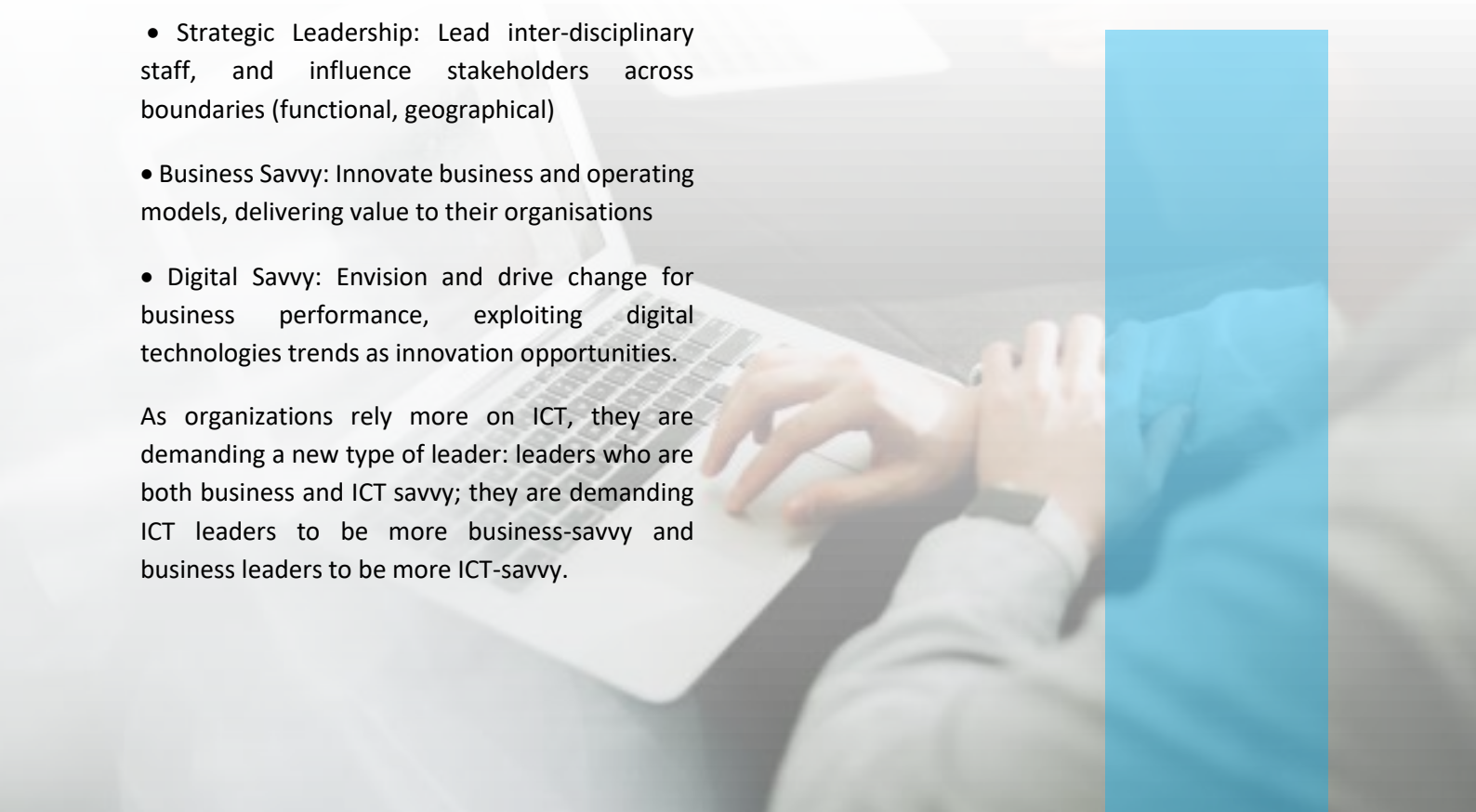
- Business Savvy: Innovate business and operating models, delivering value to their organisations

- 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 have an effect on 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 is able to 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.



2. Methodology

This document has been designed by the eLead partnership based on the following phases:

Phase 1

During the first phase, the partnership analysed through a desk analysis, curricula and training programs at national level in order to select the relevant competences associated with e-leadership. The partners found no training courses, curricula or initiatives specifically addressed to e-leaders, so they focused on similar or complementary topics. They selected and analysed 14 curricula or programmes focusing on the following topics: digital transformation, Information Management, Business Engineering, Business and Technology, Innovation Management, Technologies 4.0, Architecture, Processes and Technologies, Industry 4.0, digital competences development, IT for Management.

The courses, training programmes and curricula have been analysed in terms of learning outcomes highlighting knowledge, skills and competences achievable.

The elaboration of these data resulted in a list of 217 competences divided in 4 main competence areas:

1. Innovate strategic business and operating models
2. Exploit digital trends
3. Envision and drive change for business performance
4. Influence stakeholders across boundaries

These 4 main areas involved competences across several sub-areas as highlighted in the following table:

1. Innovate strategic business and operating models	2. Exploit digital trends	3. Envision and drive change for business performance	4. Influence stakeholders across boundaries (functional, geographical).
1.1 Global business Innovation trends	2.1 Technology trends	3.1 Innovation management and strategy	4.1 Team building
1.2 Innovative business models	2.2 Information systems	3.2 Agile methodology	4.2 Diversity management

1.3 Business plan	2.3 Business aspects of an information strategy and ICT architecture;	3.3 Project management	4.3 Internationalisation
1.4 Strategic marketing	2.4 Big data analytics and tools	3.4 Process optimisation	4.4 Digital communication
1.5 Business analytics	2.5 Machine Learning	3.5 Problem solving	4.5 Customers
1.6 Data visualization	2.6 ICT based services	3.6 Market analysis	
	2.7 Technologies for industry 4.0	3.7 Financial skills	

Phase 2

During the second phase, the partners identified the common e-leadership competences required by the labour market in partner countries. This task was carried out through an online questionnaire which involved workers, managers and companies in high-tech and digital sector. Respondents were asked to grade the individual competences on a scale between 1 (not important) to 5 (very important). In total 71 questionnaires were collected in all partner countries . The results of this phase indicated the following competence areas very important in all the partner countries.

Core competences

Competence areas	Competences
1. Global business innovation trends	- To identify major changes in the international environment of relevance for global leading innovators - To understand the role of innovation in the development of global strategies
2. Innovative business models	- To Identify and design innovative business models - To collect realistic market based information to develop solid business models and financial plans
3. Technology Trends	-Technology Trends and Digital Transformation Emerging, exponential and consolidated technologies (artificial intelligence and machine learning, IoT, robotics, cloud computing, blockchain, etc…) - To implement Digital Transformation - To know the different technological areas that currently offer greater innovation potential
4. Innovation Management and Strategy	- To understand the dynamics of innovation and development of the innovation strategy - To choose the best strategy to articulate and frame the digital transformation challenges derived from the creation of organisational agility
5. Problem solving	- To tackle complex problems (for which analytical solutions are not appropriate or not possible) in an appropriate and systematic way
6. Team building	- Team building (how the build the best teams) - Leadership, coordination and motivation of the people who make up the teams/organizations

	- Communication and collaboration with other group members. - Relationships management - How to Involve, motivate and communicate others - Public speaking - Relationship management of a company with its stakeholders - To use collaboration skills by working in teams - To Analyse the nature of leadership management within advance technology organizations
7. Diversity management	- Diversity Management - Prevention of stereotypes or prejudice - Valorisation of diversity in groups and organisations
8. Internationalisation	- To understand the international management issues at the company level - To understand the strategy of international companies
9. Digital communication	- Strategic uses of IT and communications technologies
10. Customers	- To Interact and engage with customers - The new digital customer

Furthermore, the questionnaires highlighted some competences almost at the same level of importance than the core competences which can be useful in defining the e-leadership competences.

Additional competences

Competence areas	Competences
1. Global business Innovation trends	- To be open to Innovation and collaborative innovation
2. Innovative business models	- To analyse strategic situations and design appropriate corporate entrepreneurship strategies - To create value, viability and sustainability through the business model - To understand the importance of creativity when developing business models
3. Business plan	- Building a minimum viable business proposition - Developing innovative ideas in a business economic context - To evaluate the attractiveness and feasibility of business models - To understand the role of business planning for the entrepreneurial process

4. Technology Trends	- Developing mind-set that allow to reinvent our self and adapt more easily to the constant change that characterizes the digital era - To have disruptive technology knowledge which are going to change in the next 4 years - To Identify key technological trends and disruptive technologies in the ICT industry - Raising awareness about the use of new habits that allow the shift toward working smarter and to achieve better results with less effort - Understanding the implications of Industry 4.0 paradigm shift
5. Information systems	- Analysing the relationship between business processes, strategy and technology - Recognising different strategic and managerial issues, challenges, opportunities and decisions to be made by corporations and organizations with regards to the development and use of information systems (IS) and information technology (IT)
5. Innovation Management and Strategy	- Creative skills as tools for the generation and creation of ideas and opportunities for sustainable development - To define and implement innovation strategy concepts and models (rationale, ingredients, implications) relevant for organizing new product development efforts - To effectively address the challenge of digital transformation in a professional content
6. Project management	- KPI and evaluation of innovative performances - KPI and evaluation of innovative performances - To understand key aspects, basic concepts and approaches in management and strategy
7. Financial skills	-To use basic tools for understanding how companies work, their structure, analysing the economic effects of the decisions taken and understand a balance
8. Team building	- To provide arguments how leaders contribute to organizational performance
9. Internationalisation	- To understand international business strategy - To use information management issues in an international context
10. Digital communication	- Digital communication Ecosystem - Social media strategy
11. Customers	- Client experience, customer journey

Phase 3

The results of the questionnaires have been analysed and refined during the third stage. This phase was carried out through an interview which involved 22 stakeholders and experts in the specific vocational field in partner countries. After having analysed the results of the previous phase, the respondents were asked to identify the minimum set of competences required by an e-Leader, based on their experience.

The results confirmed the core competences and core competence areas identified during the previous phase giving priority, in order of importance to:

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

From the interviews it seems that the e-leader has a strong role in defining the team composition. The specific skills and experience that is needed within the team to monitor technology trends and evaluate how technology can offer new or updated business operations. This involves that the e-leader has a strong orientation towards the market. How users and customers use products and how digital technologies can help users and customers to solve the problems they experience or improve their work. This may involve that the e-leader may also adapt the current product service offering and the business model that is used to deliver the product service offering.

Phase 4

The final phase consisted in the elaboration of the eLead Competence Map matching the competences selected by the partnership during the previous phases with the European e-Competence Framework[1].

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).

The European e-Competence Framework is structured in four dimensions. These dimensions reflect different levels of business and human resource planning requirements in addition to job/work proficiency guidelines and are specified as follows:

Dimension 1: 5 e-Competence areas, derived from the ICT business processes PLAN – BUILD – RUN – ENABLE – MANAGE

Dimension 2: A set of reference e-Competences for each area, with a generic description for each competence. 40 competences identified in total provide the European generic reference definitions of the e-CF 3.0.

Dimension 3: Proficiency levels of each e-Competence provide European reference level specifications on e-Competence levels e-1 to e-5, which are related to the EQF levels 3 to 8.

Dimension 4: knowledge and skills relate to e-Competences in dimension 2.

The eLead competence map includes what an e-Leader is expected to know, do and perform during his daily practice. The main aim is to offer a concise overview of the e-leader profile describing the main knowledge, skills and competences linked with the role.

[1] www.ecompetences.eu

The matching with the e-Competence Framework is summarised below:

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

3. e-Leader Profile

Plan

Dimension 1 e-Comp. area	A. PLAN		
e-Competence: Title + generic description	A.1. IS and Business Strategy Alignment 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.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8		EQF 6 Provides leadership for the construction and implementation of long term innovative IS solutions.	EQF 7 Provides IS strategic leadership to reach consensus and commitment from the management team of the enterprise.
Knowledge	K1 To understand the role of innovation in the development of global strategies; K2 To understand the importance of creativity when developing business models K3 business strategy concepts K4 trends and implications of ICT internal or external developments for typical organisations K5 the potential and opportunities of relevant business models K6 the business aims and organisational objectives K7 the issues and implications of sourcing models K8 the new emerging technologies (e.g. distributed systems, virtualisation, mobility, data sets) K9 architectural frameworks K10 security		
Skills	S1 To identify major changes in the international environment of relevance for global leading innovators; S2 To analyse strategic situations and design appropriate corporate entrepreneurship strategies S3 To create value, viability and sustainability through the business model S4 To be open to Innovation and collaborative innovation S5 analyse future developments in business process and technology application S6 determine requirements for processes related to ICT services S7 identify and analyse long term user/ customer needs S8 contribute to the development of ICT strategy and policy, including ICT security and quality S9 contribute to the development of the business strategy S10 analyse feasibility in terms of costs and benefits		

	S11 review and analyse effects of implementations S12 understand the impact of new technologies on business (e.g. open/big data, dematerialisation opportunities and strategies) S13 understand the business benefits of new technologies and how this can add value and provide competitive advantage (e.g. open/big data, dematerialisation opportunities and strategies) S14 understand the enterprise architecture S15 understand the legal & regulatory landscape in order to factor into business requirements

Dimension 1 e-Comp. area	A. PLAN		
e-Competence: Title + generic description	A.3. 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.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8		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.	EQF 7 Applies strategic thinking and organisational leadership to exploit the capability of Information Technology to improve the business.
Knowledge	K1To understand the importance of creativity when developing business models K2 To understand the role of business planning for the entrepreneurial process K3 To understand international business strategy. K4 business plan elements and milestones K5 the present and future market size and needs K6 competition and SWOT analysis techniques (for product features and also the external environment) K7 value creation channels K8 profitability elements K9 the issues and implications of sourcing models K 10 financial planning and dynamic K 11 new emerging technologies K 12 risk and opportunity assessment techniques		
Skills	S1 To Identify and design innovative business models		

	S2 To collect realistic market based information to develop solid business models and financial plans S3 Developing innovative ideas in a business economic context S4 To evaluate the attractiveness and feasibility of business models S5 Building a minimum viable business proposition S6 To Identify and design innovative business models S7 To collect realistic market based information to develop solid business models and financial plans S8 To analyse strategic situations and design appropriate corporate entrepreneurship strategies S9 To create value, viability and sustainability through the business model S10 To use information management issues in an international context; S11 address and identify essential elements of product or solution value propositions S12 define the appropriate value creation channels S13 build a detailed SWOT analysis S14 generate short and long term performance reports (e.g. financial, profitability, usage and value creation) S15 identify main milestones of the plan

Dimension 1 e-Comp. area	A. PLAN		
e-Competence: Title + generic description	A.5. 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. Takes into account interoperability, scalability, usability and security. Maintains alignment between business evolution and technology developments.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8		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.	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	K1 Technology Trends and Digital Transformation K2 Emerging, exponential and consolidated technologies (artificial intelligence and machine learning, IoT, robotics, cloud computing, blockchain, etc…) K3 different technological areas that currently offer greater innovation potential K4 architecture frameworks, methodologies and systems design tools		

	K5 systems architecture requirements: performance, maintainability, extendibility, scalability, availability, security and accessibility K6 costs, benefits and risks of a system architecture K7 the company's enterprise architecture and internal standards
Skills	S1 use knowledge in various technology areas to build and deliver the enterprise architecture S2 understand the business objectives/drivers that impact the architecture component (data, application, security, development etc…) S3 assist in communication of the enterprise architecture and standards, principles and objectives to the application teams S4 develop design patterns and models to assist system analysts in designing consistent applications

Dimension 1 e-Comp. area	A. PLAN		
e-Competence: Title + generic description	A.7. Technology Trend Monitoring Investigates latest ICT technological developments to establish understanding of evolving technologies. Devises innovative solutions for integration of new technology into existing products, applications or services or for the creation of new solutions		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8			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.
Knowledge	K1 emerging technologies and the relevant market applications K2 market needs K3 relevant sources of information (e.g. magazines, conferences and events, newsletters, opinion leaders, on-line forum, etc.) K4 the rules of discussions in web communities K5 applied research programme approaches		
Skills	S1 monitor sources of information and continuously follow the most promising S2 identify vendors and providers of the most promising solutions; evaluate, justify and propose the most appropriate. S3 identify business advantages and improvements of adopting emerging technologies		

Dimension 1 e-Comp. area	A. PLAN
e-Competence: Title + generic description	A.9. 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.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8		EQF 6 Applies independent thinking and technology awareness to lead the integration of disparate concepts for the provision of unique solutions.	EQF 7 Challenges the status quo and provides strategic leadership for the introduction of revolutionary concepts.
Knowledge	K1 dynamics of innovation and development of the innovation strategy K2 existing and emerging technologies and market applications K3 business, society and/or research habits, trends and needs K4 innovation processes techniques		
Skills	S1 choose the best strategy to articulate and frame the digital transformation challenges derived from the creation of organisational agility S2 identify business advantages and improvements of adopting emerging technologies S3 create a proof of concept S4 think out of the box S5 identify appropriate resources		

Run

Dimension 1 e-Comp. area	C. RUN		
e-Competence: Title + generic description	C.4. 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.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8			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. Constructs escalation processes to ensure that appropriate resources can be applied to each incident.
Knowledge	K1 the organisation's overall ICT infrastructure and key components K2 the organisation's reporting procedures K3 the organisation's critical situation escalation procedures K4 the application and availability of diagnostic tools K5 the link between system infrastructure elements and impact of failure on related business processes.		
Skills	S1 To tackle complex problems (for which analytical solutions are not appropriate or not possible) in an appropriate and systematic way S2 monitor progress of issues throughout lifecycle and communicate effectively S3 identify potential critical component failures and take action to mitigate effects of failure S4 conduct risk management audits and act to minimise exposures S5 allocate appropriate resources to maintenance activities, balancing cost and risk S6 communicate at all leves to ensure appropriate resources are deployed internally or externally to minimise outages		

Enable

Dimension 1 e-Comp. area	D. ENABLE		
e-Competence: Title + generic description	D.9. Personnel Development Diagnoses individual and group competence, identifying skill needs and skill gaps. Reviews training and development options and selects appropriate methodology taking into account the individual, project and business requirements. Coaches and/or mentors individuals and teams to address learning needs.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8		EQF 3 Monitors and addressees the development needs of individuals and teams	EQF 4 Takes proactive action and develops organisational processes to address the development needs of individuals, teams and the entire workforce.
Knowledge	K1 competence development methods K2 competence and skill needs analysis methodologies K3 learning and development support methods (e.g. coaching, teaching)		

	K4 technology and processes K5 empowerment techniques
Skills	S1 identify competence and skill gaps S2 identify and recommend work based development opportunities S3 incorporate within routine work processes, opportunities for skills development S4 coach S5 address professional development needs of staff to meet organisational requirements

Dimension 1 e-Comp. area	D. ENABLE		
e-Competence: Title + generic description	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.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8			EQF 7 Correlates information and knowledge to create value for the business. Applies innovative solutions based on information retrieved.
Knowledge	K1 methods to analyse information and business processes K2 ICT devices and tools applicable for the storage and retrieval of data K3 challenges related to the size of data sets (e.g. big data) K4 challenges related to unstructured data (e.g. data analytics)		
Skills	S1 gather internal and external knowledge and information needs S2 formalise customer requirements S3 translate /reflect business behaviour into structured information S4 make information available S5 ensure that IPR and privacy issues are respected S6 capture, storage, analyse, data sets, that are complex and large, not structured and in different formats S7 apply data mining methods		

Dimension 1 e-Comp. area	D. ENABLE
e-Competence: Title + generic description	D.11. Needs Identification 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 centered

	system design. Advises the customer on appropriate solution choices. Acts as an advocate engaging in the implementation or configuration process of the chosen solution.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8			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	K1 emerging technologies and the relevant market applications K2 business needs K3 organisation processes and structures K4 customer need analysis techniques K5 communication techniques K6 "Story telling" techniques K7 The new digital customer K8 Client experience, customer journey		
Skills	S1 analyse and formalise business processes S2 analyse customer requirements S3 present ICT solution cost/benefit S4 Interact and engage with customers		

Dimension 1 e-Comp. area	D. ENABLE		
e-Competence: Title + generic description	**D.12. Digital Marketing** 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.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8			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	K1 Digital communication Ecosystem K2 Social media strategy		

	K3 marketing strategy K4 web technologies K5 search engine marketing (PPC) K6 search engine optimization (SEO) K5 mobile marketing (e.g. Pay Per Click) K7 social media marketing K8 e-mail marketing K8 display marketing K9 legal issues/requirements
Skills	S1 Strategic uses of IT and communications technologies S2 understand how web technology can be used for marketing purposes S3 understand User Centric Marketing S4 use and interpret web analytics S5 understand the on-line environment

Manage

Dimension 1 e-Comp. area	E. MANAGE		
e-Competence: Title + generic description	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.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8	EQF 5 Exploits skills to provide short-term forecast using market inputs and assessing the organisation's production and selling capabilities.	EQF 6 Acts with wide ranging accountability for the production of a long-term forecast. Understands the global marketplace, identifying and evaluating relevant inputs from the broader business, political and social context.	
Knowledge	K1 market size and relevant fluctuations K2 accessibility of the market according to current conditions (e.g. government policies, emerging technologies, social and cultural trends, etc.) K3 the extended supply chain operation K4 large scale data analysis techniques (data mining)		
Skills	S1 apply what-if techniques to produce realistic outlooks S2 generate sales forecasts in relation to current market share S3 generate production forecasts taking into account manufacturing capacity S4 compare sales and production forecasts and analyse potential mismatches S5 interpret external research data and analyse information		

Dimension 1 e-Comp. area	E. MANAGE		
e-Competence: Title + generic description	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.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8		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	K1 organisation processes including, decision making, budgets and management structure K2 business objectives, own and of other stakeholders K3 how to measure and apply resources to meet stakeholder requirements K4 business challenges and risks K5 Diversity Management K6 Relationship management of a company with its stakeholders		
Skills	S1 Team building (how the build the best teams) S2 Leadership, coordination and motivation of the people who make up the teams/organizations S3 Communication and collaboration with other group members. S4 Relationships management S5 How to Involve, motivate and communicate others S6 Public speaking S7 To use collaboration skills by working in teams S8 To Analyse the nature of leadership management within advance technology organizations S9 deploy empathy to customer needs S10 identify potential win win opportunities for customer and own organisation S11 establish realistic expectations to support development of mutual trust S12 monitor ongoing commitments to ensure fulfilment S13 communicate good and bad news to avoid surprises S14 Prevention of stereotypes or prejudice. S15 Valorisation of diversity in groups and organisations		

Dimension 1 e-Comp. area	E. MANAGE		
e-Competence: Title + generic description	E.5. Process Improvement Measures effectiveness of existing ICT processes. Researches 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.		
Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3 to 8			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	K1 research methods, benchmarks and measurements methods K2 evaluation, design and implementation methodologies K3 existing internal processes K4 relevant developments in ICT (e.g. virtualisation, open data, etc.), and the potential impact on processes K5 web, cloud and mobile technologies K6 resource optimisation and waste reduction		
Skills	S1 implement Digital Transformation S2 compose, document and catalogue essential processes and procedures S3 propose process changes to facilitate and rationalise improvements S4 implement process changes		

Dimension 1 e-Comp. area	E. MANAGE		
e-Competence: Title + generic description	E.7. Business Change Management Assesses the implications of new digital solutions. Defines the requirements and quantifies the business benefits. Manages the deployment of change taking into account structural and cultural issues. Maintains business and process continuity throughout change, monitoring the impact, taking any required remedial action and refining approach.		
Dimension 3 e-Competence proficiency levels e-1		EQF 6 Provides leadership to plan, manage and implement	EQF 7 Applies pervasive influence to embed organisational change.

to e-5, related to EQF levels 3 to 8		significant ICT led business change.	
Knowledge	K1 digital strategies K2 the impact of business changes on the organisation and human resources K3 the impact of business changes on legal issues		
Skills	S1 analyse costs and benefits of business changes S2 select appropriate ICT solutions based upon benefit, risks and overall impact S3 construct and document a plan for implementation of process enhancements S4 apply project management standards and tools		

Conclusions

Along with the other eLead Intellectual Outputs, the Competence Map has been designed for people wish to implement training paths for e-leaders in companies, VET institutions and any other organisation interested in supporting the acquisition of e-competences.
It has been created based on the research and development process implemented by eLead partnership. We hope this Competence Map provides an easy to use tool to orient curricula and training programmes for e-leaders in Europe.

Digital transformation opens new chances for industry to become more efficient, to improve processes and to develop innovative products and services. It has also created unique marketplace challenges and opportunities. 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, often not realise the importance of the 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 requires 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 leaders is, able to 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. 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. This applies to higher and executive education, training providers and online and blended learning providers.

eLead project wants to address the need for providing e-leadership skills in an integrated, well recognised and accredited format. VET professionals are the key for supporting e-competences achievement and make curricula more relevant, up to date and effective.