DiTEMP
DIGITAL TRANSFORMATION
& EMPLOYABILITY

Co-funded by the
Erasmus+ Programme
of the European Union

Digital Transformation & Employability

DiTEMP GUIDELINES

CONTENT

01. PRESENTATION

These *Guidelines* are the result of the work carried out by the DiTEMP Consortium (6 partners from Italy, Spain, Romania and Greece) in the project entitled *Digital Transformation and Employability: acquiring transversal competences in curricular education* within the framework of the European Commission's Erasmus+ Programme.

The Guidelines focus on: project framework; implementation of DiTEMP learning materials by project partners and third parties; virtual training area and learning resources developed.

This document is meant to be used by institutions interested in providing learning materials and methods devoted to train university staff on how to integrate digital transformation concepts in their own regular teaching work and activities to foster student awareness and support the development of skills to deal with future digital transformations.

02. PROJECT FRAMEWORK

The *DiTEMP Project (Digital Transformation and Employability: acquiring transversal competences in curricular education)* has been funded with the support of the European Commission's *Erasmus+ Programme* and has been developed by six international partners from four countries (Italy, Spain, Romania, Greece).

The project consortium is composed by: University of Padova (IT, project leader), University of Macerata (IT), Universidad de la Laguna (ES), Fundación Universidad-Empresa (ES), University of Iasi (RO), and Militos Consulting (GR).

Background

- Digital transformation overview

Digital transformation is a technology-driven continuous change process of companies and the entire society, is about adopting disruptive technologies to increase productivity, value creation, and the social welfare (Ebert & Duarte, 2018). Digital transformation shapes society at all levels: according to Norqvist (2018), it refers to "a process where humans are re-shaping the way society 'works' by ways of interpreting and understanding society, including the usage of digital technologies in everyday life" (p.2).

DX entails transformation of business, organisational activities, processes, required competences, and clearly has huge effects on the workforce and the labour market. The OECD (2019) estimates that 14% of workers face a high risk that their tasks will be automated, and another 32% will experience major changes in the tasks required in their jobs. The European Commission (Gonzalez Vazquez, I., Milasi, S., Carretero Gomez, S., Napierala, J., Robledo Bottcher, N., Jonkers, K., Goenaga, X. (eds.), Arregui Pabollet, E., Bacigalupo, M., Biagi, F., Cabrera Giraldez, M., Caena, F., Castano Munoz, J., Centeno Mediavilla, C., Edwar, 2019) also estimates that millions of jobs will be at risk of automation in the next decades, of which the most exposed are those that require relatively low levels of formal education or do not involve complex social interaction.
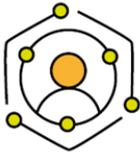
However, digital transformation in the labour market does not only affect low skilled workers. Highly skilled professionals will also be affected by the new business processes brought along with DX and will require a greater level of digital skills and a sound understanding of the trends of digital transformation over time, in business and society.

On the other hand, the OECD (2019) pointed out that while the DX process destroys jobs, it also creates them and that in the period 2006-2016, "four out of ten new jobs were created in highly digital-intensive sectors". These new jobs, many of which did not exist in the past, not only require workers with a good knowledge of new technologies, but also workers who are equipped with the transversal skills that will allow them to operate in "digitalised" business sectors.

Understanding the type of skills required by these new challenges and opportunities is important to ensure that education and training policies help workers and future cohorts of workers benefit from these new professional opportunities. Education and training policies need to ensure that workers have the right mix of skills to successfully navigate the transition to the digital labour market, and thrive in it (OECD, 2019).

To this respect, Higher Education plays a fundamental role in preparing future graduates to deal with an evolving business scenario: whilst there has been an increased attention on digital skills acquisition, both from the student/learner side (DigComp 2.1) and the teacher/trainer side (DigCompOrg), little effort has been devoted to understanding how digital transformation affects the market where the citizen will perform his/her role as worker.

- The labour market

Warhust and Hunt (2019) pointed out that digital transformation impacts both on work and employment since it impacts on the activity (of doing, therefore work), and the terms and conditions in which the activity takes place (relations with employers, contracts, therefore employment). Jobs as such are the combination of work and employment.

A clear example on how technology has changed jobs can be the growth of platform work. Platform work is "an employment form in which organisations or individuals use an online platform to access other organisations or individuals to solve specific problems or to provide specific services in exchange for payment" (Eurofound, 2018). The three players of the supply and demand process are the online platform, the worker and the client: the client asks for a product/service, the platform appoints the worker, and the worker accomplishes the task. Typical of platform work is the breakdown of work into tasks. Tasks of platform workers may include professional tasks (e.g. software development), transport (e.g., food delivery), household tasks (e.g., cleaning), and micro-tasks (e.g., online tagging). Following the incremental use of platform workers by consumers, a relatively new phenomenon arose at least in Western Countries – the gig economy. In short, the gig economy can be defined as a segment of the labour market characterised by flexible and temporary jobs carried out by independent contractors, or freelancers. A typical example of the gig economy is Uber, whose case has been widely studied and has led to the creation of a new concept, the 'uberisation' of work (Nurvala, 2015). On one hand, the higher flexibility and availability of temporary workers who can be called on demand supports the creation of new job opportunities; on the other

hand, the same process entails relevant social issues, such as a diminished opportunity to access permanent employment, which has to date been the backbone of social organisation, and around which the welfare state is organised.

In addition to new forms of work organisation, digital transformation also leads to job creation in traditional settings: social media managers, app designers, SEO content writers or even "influencers" are professional positions certainly born following the digital transformation. More importantly, however, digital transformation deeply impacts and changes organisational processes in all types of companies and institutions: disruptive technologies do not only require adaptation or alignment, but also integration, or embeddedness (Bharadwaj et al., 2013; Vial, 2019), toward a Digital Business Strategy (DBS), which has been defined as "the focus on the transformation of products, processes and organizational aspects owing to new technologies" (Matt et al., 2015). The DBS, by changing the operational strategy, requires a different functional strategy, which underlines the deployment of different skills in leaders and staff.

- Are digital skills enough?

Digital competence is a key concept that has emerged alongside technological development and its implications in social and economic terms. The European Commission defines digital competence as:

"Digital Competence is the set of knowledge, skills, attitudes, abilities, strategies, and awareness that are required when using ICT and digital media to perform tasks; solve problems; communicate; manage information; collaborate; create and share content; and build knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, reflectively for work, leisure, participation, learning, and socialising".

The debate over digital competence has been central in the frame of the "Skills for the 21st Century" discourse, as 'the digital' element is embedded in all spheres of life. Following research works from academic and policy field, and in the frame of the initiative "Learning and Skills for the Digital Era[1]", the European Commission published the European Digital Competence Framework for Citizens – DigComp - (last version: Carretero et al., 2017), which is today the main reference both for individuals, to self-assess skills needed in the digital era, and policymakers, to monitor citizens' digital skills and to support curricula development. DigComp comprises 5 dimensions

1. Competence areas identified to be part of digital competence:
    a. Information and data literacy
    b. Communication and collaboration
    c. Digital content creation
    d. Safety
    e. Problem-solving

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[1] https://ec.europa.eu/jrc/en/research-topic/learning-and-skills

2. Competence descriptors and titles that are pertinent to each area, which includes a description of 21 competences

3. Proficiency levels for each competence, which are eight ranging from Foundation to Highly Specialised

4. Knowledge, skills and attitudes applicable to each competence

5. Examples of use, on the applicability of the competence to different purposes.

In addition to its value as a practical tool, the DigComp approach stresses the relevance of digital competence for life, not only for work. Digital competence is also one of the eight key competences defined in the "Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning":

- Communication in the mother tongue;
- Communication in foreign languages;
- Mathematical competence and basic competences in science and technology;
- Digital competence;
- Learning to learn;
- Social and civic competences;
- Sense of initiative and entrepreneurship; and
- Cultural awareness and expression.

To deal with digital transformation is thus to deal with the complexity of an evolving socio-economic scenario that requires, in work settings, both cognitive and non-cognitive skills. As the range of contents and tasks evolves, adaptability, communication, critical thinking, creativity, entrepreneurship and readiness to learn become increasingly important (Morandini et al., 2020). For this reason, being 'digitally skilled', in terms of technical ability, is not enough, neither for finding nor for retaining a job. In order to participate in the knowledge-based workforce, individuals should develop a large set of skills which are played out within the digital world: the digital citizen should therefore be equipped with a combination of soft and hard skills, attitudes, capacities and capabilities, and, above all, be aware, responsible and proactive on own life design.

Why DiTEMP?

- To make teachers aware of the impact of digital transformation in their own reference field markets.
- To increase students' capability to act and manage the complex and rapid changes that the labour market is experiencing as a result of digital transformation.

Objectives

DiTEMP aims at ensuring the provision of learning materials and methods devoted to train university staff on how to integrate digital transformation concepts and activities in their own regular teaching work in order to foster student awareness, readiness and employability in a fast-changing, digitally-driven labour market and to support the development of the skills needed to deal with future digital transformations.

03. DiTEMP INTERVENTIONS

In this context, DiTEMP elaborated a framework of intervention to integrate the digital transformation concept in curricular education through:
- The definition of learning outcomes for the development of competences related to digital transformation in business and field-specific disciplines;
- The design and planning of an integrated pathway in which learning outcomes of digital transformation were embedded in different disciplines, represented within the consortium;
- The training of trainers;
- The piloting of the integrated pathway, its evaluation and validation by teachers, support services staff (career centres), and students.

DiTEMP conducted 4 different piloting interventions in 4 different universities, which incorporated the critical aspects of digital transformation into curricular education in higher education.

University of Padova

University of Padova's DiTEMP intervention consisted in a 40-hour, online training course, entitled Digital Skills in Psychology, which ran for an academic year and focused on developing digital skills designed for professional psychologists. The course was structured around three areas:
- Data Collection: setting up online surveys
- Data Management: processing and sharing digital data; identify and deal with the IT security risks of data storage and processing; national and international regulations on privacy and personal data
- Data Enhancement: building and evolving a personal brand; ensure content visibility; effective use of personal branding and digital reputation for the creation a professional profile

Students were evaluated in specific criteria in order to obtain an online Open Badge which certifies the skill acquired or the goal achieved, how it was verified, who issued it and who received it. The criteria evaluated were based on the following activities:
- Set up a short survey using Qualtrics and/or Google Forms, and export the database to .csv format
- Implement basic script to automate analysis of a teacher-created dataset in order to extract representative statistics
- Write a brief practical-training report and share it with teachers on file-sharing platforms
- Complete a Personal Branding Canvas and create a professional profile on LinkedIn or another professional social network site

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242 students from Psychological study courses accessed and completed at least one activity of the course. 27 completed the whole training, were successfully evaluated and gained the Open Badge. 56,6% of participants assessed the quality of the learning experience with a score of 8 out of ten.

University of Macerata

University of Macerata carried out interventions in two MA programs (Management of Cultural Heritage and International Tourism and Destination Management) with one common BA programme (Cultural Heritage and Tourism), proposing a roadmap for adopting a comprehensive strategy to pilot new internal cooperation processes and include digital transformation awareness in regular educational offers for a full academic year. Some of the main targets of the intervention were:
- To provide iterative input to students about digital transformation in different settings (classroom, seminars, other activities)
- To integrate the project topic in yearly activities, such as the seminar cycles, regular workshops and seminars
- To integrate field activities with support activities and other programmes centrally managed (not departmental activities).

Four types of activities took place during the academic year:
- Workshops, inside and outside the university (before the lockdown)
- Webinars
- Career development meeting series
- Modules in the frame of regular courses

47,44 % of the students were most involved in activities related to identity and media, culture and communication and digital translation.

University of La Laguna

In the second semester of the 2020-2021 academic year, a series of activities were carried out at the University of La Laguna addressed to groups of selected students from Degrees in Civil Engineering; Technical Architecture, Accounting and Finance, Design, and Tourism.

The aim of these activities included raising student awareness on the impact of digital transformation and increasing their ability to manage the complexity and rapid changes experimented by the labour market as a result of the digital transformation process. Activities included were:
- XI Ibero-American Congress of University Teaching: The digital transformation of the University
- Webinar: What role does digitalisation play in the professional development of students?
- Webinar: How does digital business work?
- Webinar: Inspiring examples: digitalisation and entrepreneurship
- Entrepreneurial Talent Fair

A study was carried out in order to evaluate the impact of the activities on students' perception of the importance of being trained in digital skills and to master digital tools for employment. 306 responses were obtained at the beginning of the semester and 61 responses after the activities had been completed. Digital and communication skills are considered the most important for getting a job in the future, in particular: an open mindset for future digital developments; knowing how to use web browsers, search engines, email, texts, wiki, blogs, Photoshop, PowerPoint, video creation and editing software; and the ability to find and evaluate online resources for information accuracy / reliability.

University of Iasi

University of Iasi's DiTEMP intervention consisted in a 4-hour, online training course, entitled Digital Curriculum in HEIs, within the frame of the Master in Educational Policies and Management. The course, which ran weekly for a pilot academic semester starting in May 2021, aimed to develop digital skills for curriculum building based on the UNESCO Initiatives on Global Education Policies with a special focus on digitalisation of education. Students were invited to work the UNESCO Reports as case studies and to identify the impact of the reports' ideas on their current teaching activity.

100 teachers and 34 MA students completed the course.

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04. DiTEMP TRAINING

As a result of the DiTEMP interventions, a series of learning materials were developed, addressed to teachers, researchers, career counsellors and professional support staff in Higher Education Institutions.

These materials are accessible as open educational resources from the [DiTEMP website](#) (section "[Online Traning](#)"):

- The *Teacher Toolkit*, suitable for both individual and group learning, includes training methods and learning materials that facilitate the use of different channels and formats to train teachers. Therefore, the toolkit is comprehensive both of video and reading resources.

- The *Learning Area* offers validated learning programmes, completed with tools and examples, to support student awareness on digital transformation in the labour market. The programmes offered cover four field areas: Business and Economics, Education, Psychology, and Tourism and Cultural Heritage.

1. DiTEMP Teacher Toolkit

The learning materials included in the *Teacher Toolkit* conform the contents of the following courses:

– Course 1 – Digital Transformation and Employability (full programme)

− Course 2 – Digital transformation in the classroom looking at the future work (short-programme for teachers)
− Course 3– Digital transformation in the career services (short programme for career counsellors)

You are free to pick up and use the most interesting learning material for your interests and needs. However, to benefit from a full learning experience, we suggest you use them in sequence. You will find the content description and links to the material in these Guidelines and on the [DiTEMP website](#).

Course 1 – Digital transformation and employability (full programme)

Module 1. The landscape of digital transformation
This introductory module gives you an overview on digital transformation and its implication for learning, work and life.
1.1. How artificial intelligence and digital transformation will change the future of work
1.2. How to build Open Education capacity among university educators
1.3. The future of work & digital ethics
1.4. Digital curriculum in HEIs
1.5. Big Data Analytics to support Universities in placement and programs' review

Module 2. Methods and tools (for teachers)	**Module 2. Methods and tools (for career counsellors)**
How to integrate digital transformation in teaching? This module provides you with inspirational ideas, examples, and practical tools to design your learning courses.	How to integrate digital transformation in career services? This module provides you with inspirational ideas, examples, and practical tools to support students in their journey toward working life.
2.1. Content co-creation online for university students: how to use Wikipedia?	2.1. Online career guidance and counselling
2.2. Digital tools for dynamic online classes	2.2. Career services in the pandemic era
2.3. Online project-based learning	2.3. Personal branding. Why and how to build it?
2.4. Using case method to reflect on digital transformation and work	2.4. How to better appreciate your entrepreneurial capacities using digital strategies?
2.5. Linking students and entrepreneurs in times of pandemic: a case in agri-food	2.5. Hybrid jobs and future skills
2.6. From paper to screen	

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Module 3. Understanding points of view (for teachers)	**Module 3. Understanding points of view (for career counsellors)**
Have a look at the career counselling concepts and contents!	Have a look at the teachers' concepts and contents!
3.1. Content co-creation online for university students: how to use Wikipedia? 3.2. Digital tools for dynamic online classes 3.3. Linking students and entrepreneurs in times of pandemic: a case in agri-food	3.1. Personal branding. Why and how to build it? 3.2. How to better appreciate your entrepreneurial capacities using digital strategies? 3.3. Hybrid jobs and future skills

Readings & References

Course 2 – Digital transformation in the classroom looking at the future work (short-programme for teachers)

How artificial intelligence and digital transformation will change the future of work
How to build Open Education capacity among university educators
The future of work & digital ethics
Hybrid jobs and future skills
Content co-creation online for university students: how to use Wikipedia?
Digital tools for dynamic online classes
Online project-based learning
Using case method to reflect on digital transformation and work

Course 3– Digital transformation in the career services (short-programme for career counsellors)

How artificial intelligence and digital transformation will change the future of work
The future of work & digital ethics
Big Data Analytics to support Universities in placement and programs' review
Hybrid jobs and future skills
Online career guidance and counselling
Career services in the pandemic era
Personal branding. Why and how to build it?
How to better appreciate your entrepreneurial capacities using digital strategies?

- **Teacher Toolkit resources**

The webinars and learning materials described in the following pages correspond to the contents of the three DiTEMP courses listed above.

- **Webinars:**

Big Data Analytics to support Universities in placement and programs' review
Addressed field: Transversal (digital transformation and life/work; soft skills; digital skills)
Language: English
Speaker: Alessandro Vaccarino – Burning Glass
https://training.DiTEMP.eu/teacher-toolkit/webminar-1/

Nowadays, the labour market is evolving rapidly: digital transformation, smart working, etc. Professionals are required to continuously review and increase their skills to be aligned with market needs. In this scenario, Universities play a key role in training and education of future managers and professionals. How to support them in optimising their placement and training activities? Big Data can provide a novel and valuable way to analyse and monitor labour market needs. In this session we introduce the methodology of labour market intelligence and explain how analysis of online job vacancies can support fulfilling successful goals.

Content co-creation online for university students: how to use Wikipedia?
Addressed field: Cultural Heritage and Tourism / Education
Language: English
Speaker: Pierluigi Feliciati, Professor of Records and Information Science, University of Macerata, Italy.
https://training.DiTEMP.eu/teacher-toolkit/webminar-2/

The speaker presents the opportunities opened by adopting the Wikimedia ecosystem to engage university students in online collaborative co-creation of content on cultural heritage and tourist destinations. The presentation includes Wikimedia projects'; main characters and features (Wikipedia, Wikimedia Commons, WikiVoyage and Wiki Loves Monuments). In past years the University of Macerata organised several workshops and initiatives for students based on the Wikimedia ecosystem, working on local destinations, cultural heritage topics, typical local recipes and so on. The speaker presents some of these initiatives as examples.

How artificial intelligence and digital transformation will change the future of work?
Addressed field: Transversal (digital transformation and life/work; soft skills; digital skills)
Language: English
Speaker: Emanuele Frontoni, Professor of Computer Vision and Deep Learning, Department of Information Engineering, Università Politecnica delle Marche, Italy.
https://training.DiTEMP.eu/teacher-toolkit/webminar-3/

Digital tools, AI and Machine Learning are already changing the way we work, and the future will see other big changes. AI could also create more jobs and help us recruit candidates as long as people are willing to adapt and work smarter. The webinar addresses topics such as: introduction to AI, deep networks, examples of AI application, the role of data, novel works in AI, crowdsourcing, generative adversarial networks.

How to build Open Education capacity among university educators
Addressed field: Transversal (digital transformation and life/work; soft skills; digital skills)
Language: English
Speaker: Fabio Nascimbeni, Assistant Professor, Universidad Internacional de la Rioja, Spain.
https://training.DiTEMP.eu/teacher-toolkit/webminar-4/

In the traditional narrative, Open Education approaches, including the use of OER, MOOCs and open teaching practices, aim to increase equity of education and to improve the quality of teaching, mostly by allowing the re-use of openly-licensed contents produced by others. This is certainly true, but research is starting to document the fact that Open Educational approaches also bear the potential to innovate teaching practices, by facilitating student engagement, responsibility and co-creation of knowledge. The webinar presents some interesting open teaching practices, connecting them to the competences that educators need to build in order to put those in practice, and provides some ideas on how these competences can be developed.

From paper to screen – The digital Indipetae Database at the University of Macerata
Addressed field: Cultural Heritage and Tourism / Transversal (digital transformation and life-work; soft skills; digital skills)
Language: English
Speaker: Emanuele Colombo, Associate Professor and Chair of the Department of Catholic Studies, DePaul University, USA.
https://training.DiTEMP.eu/teacher-toolkit/webminar-5/

The webinar introduces the Digital Indipetae Database (DID), a collaborative project of Digital Humanities founded in Rome and Boston. When completed, the DID will collect about 22,000 applications to overseas missions written by Jesuits between the 16th and 20th centuries. The serial study of these letters, thanks to the database, will contribute to understanding the development of globalisation from a European perspective. Additionally, the webinar reports about a lab workshop, in which students in the field of humanities were able to engage with 17th century primary sources and learn the basics of Italian palaeography; simultaneously, they acquired skills in Digital Humanities and contributed with their work to the Digital Indipetae Database.

Linking students and entrepreneurs in times of pandemic: a case in agri-food
Addressed field: Cultural Heritage and Tourism / Transversal (digital transformation and life-work; soft skills; digital skills)
Language: English
Speaker: Alessio Cavicchi, Professor of Place Branding and Rural Development and Food Economics and Marketing, University of Macerata, Italy.
https://training.DiTEMP.eu/teacher-toolkit/webminar-6/

Working with entrepreneurs and stakeholders through project-based learning and consultancy projects is widely recognised as a pedagogical approach able to facilitate students' learning and acquisition of transversal and employability skills. Although important for all fields, it is particularly important in the field of agri-food, which requires first-hand contact (economic, environmental and social) with the rural area and community in which food is produced. In this webinar, Prof. Cavicchi shares experiences of pedagogical practices of project-based learning

with agri-food entrepreneurs carried out online during the lockdown due to pandemic. The report of the outcomes of the digital learning pathway, whose design can be transferred to other fields, identifies strengths (sometimes unexpected) and weaknesses of the design and implementation, as well as further opportunities for improvement.

The future of work & digital ethics
Addressed field: Transversal (digital transformation and life/work; soft skills; digital skills)
Language: English
Speaker: Dr Madelon van Oostrom, Hanze University of Applied Sciences, The Netherlands.
https://training.DiTEMP.eu/teacher-toolkit/webminar-7/

The intentions of tech developers and tech companies are often good. But ethical problems arise when technology ends up allowing discrimination or exclusion. These are generally unintended consequences of technology with harmful effects on human life. Therefore, a fundamental exercise that we can do when faced with the challenge of remedying them is to seek answers to important questions such as: Improvement for whom? The government or the citizens? The company or the workers? Because issues related to power often come into play and a suggestive way to analyse them is with a sociological perspective and ask: What is the future of work? What kind of life will we have when algorithms and artificial intelligence take over the jobs? And who is the "we"? Who will benefit from this transformation and who will lose?

Good online teaching practices to promote an entrepreneurial attitude in the classroom
Addressed field: Business and Economics / Transversal (digital transformation and life/work; soft skills; digital skills)
Language: Spanish
Speaker: Anna Maria Viraló, Director of the Nazaret Los Realejos Educational Centre
https://training.DiTEMP.eu/teacher-toolkit/webminar-8/

The aim of this activity is to reflect on the importance of promoting entrepreneurship in the classroom from an increasingly digital environment. Good practices and tools related to entrepreneurship, teaching and digitalisation will be shared in the session

Digital tools for dynamic online classes
Addressed field: Business and Economics / Education / Transversal (digital transformation and life/work; soft skills; digital skills)
Language: Spanish
Speaker: Héctor Pino, Apple Distinguished Educator and Google Certified Innovator & Trainer
https://training.DiTEMP.eu/teacher-toolkit/webminar-9/

This learning material offers an overview of available digital tools to stimulate online teaching. The selection of these tools was made taking into account their level of accuracy for teaching, especially in the new digital environment, and also their capacity to stimulate digital skills for employment. At the end of the document, you will find a video guide on a useful tool for dynamic online classes called Flipgrid. The video was recorded by Prof. Javier Mendoza from the University of La Laguna.

How to enhance the entrepreneurial attitude in the classroom through digital media?
Addressed field: Business and Economics
Language: Spanish
Speaker: Natalia Rodríguez, Co-founder of 'CAMBIUM, Sustainable accompaniment'.
https://training.ditemp.eu/teacher-toolkit/webminar-10/

The aim of this activity is to reflect on the importance of promoting entrepreneurship in the classroom from an increasingly digital environment. Good practices and tools related to entrepreneurship, teaching and digitalisation will be shared in the session.

The digitalisation of teaching: A need that has come to stay
Addressed field: Business and Economics | Education
Language: Spanish
Speaker: Manuel Area Moreira, main Researcher of the Laboratory of Education and New Technologies and the Head of the Chair of Technology and Education of Mapfre-Guanarteme, University of La Laguna.
https://training.DiTEMP.eu/teacher-toolkit/webminar-11/

The aim of this activity is to reflect on the importance of promoting entrepreneurship in the classroom from an increasingly digital environment. Good practices and tools related to entrepreneurship, teaching and digitalisation will be shared in the session.

Personal branding. Why and how to build it?
Addressed field: Education /Psychology /Career guidance and counselling / Transversal (digital transformation and life/work; soft skills; digital skills)
Language: English
Speakers: Dr. Diana CHIHAIA, Head of Students Services and Alumni Affairs; Șerban Vornicu, Head of Alumni and Labour Market Insertion (UAIC).
https://training.DiTEMP.eu/teacher-toolkit/webminar-12/

The aim of this webinar is to offer an overall picture of the importance of personal branding for students. Instruments and strategies, tips and tricks on how to develop the personal branding for a student are presented.

How to better appreciate your entrepreneurial capacities using digital strategies?
Addressed field: Business and Economics | Education | Career guidance and counselling | Transversal (digital transformation and life/work; soft skills; digital skills; etc.)
Language: English
Speakers: Carmen Mihaela Crețu, Faculty of Psychology and Educational Sciences; Corina Forăscu, Faculty of Computer Science; Sorin Anton, Faculty of Economics and Business Administration – University of Iasi, Romania.
https://training.DiTEMP.eu/teacher-toolkit/webminar-13/

This webinar discusses why to consider developing entrepreneurship capacities, and how digitalisation supports entrepreneurship learning and spurs entrepreneurial activity. Also, it intends to help students to better appreciate their entrepreneurial capacities and their potential on entrepreneurial capital. During the session the participants are invited to actively reflect on what the successful entrepreneur is and also, they will fill in The Self Nomination

Guide on Entrepreneurial Talent Traits. This is a spotting tool which includes a list of entrepreneurial characteristics, attitudes and behaviours formulated based on literature review.

- **Learning Materials**

How career services face COVID
This material aims to help Career Services staff to gain an overview of difficulties that young people may face in penetrating the labour market during this tough time and how Career services and academic offices can use and modernise their services with digital tools to answer students' needs.
Career Services in Pandemic Era

Future skills
This material will provide useful information and external resources to all professionals involved in the world of training and work, in order to develop policies and actions aimed at reducing skills mismatch, through the construction of models and tools to innovate teaching, training and orientation, towards the path of increasing quality employment in your country.
Hybrid Jobs and Future Skills

Teaching with case method
This learning material addresses the design, development and implementation of modules using a case approach to support reflection on digital transformation in the subject-field, and provides tools for teaching and learning.
Using case method to reflect on digital transformation and work
Cases group reflection template
Cases Individual reflection
Cases roadmap and template

Online project-based learning
The learning material is addressed to inspire you in designing, developing and delivering a project-based learning activity within a course. The case analysed as an example has been implemented in an undergraduate degree in Tourism, in the field of sustainable rural tourism (agri-food).
How to organise a project-based learning online course
Assessment criteria example
Group composition template
Programme of presentation day example
Structured discussion example
Students Guide

Digital tools for dynamic online classes
This material presents a number of digital tools with the aim of stimulating online teaching. The selection of these tools was made taking into account their level of accuracy for teaching, especially in the new digital environment, and also their capacity to stimulate digital skills for employment.
Digital tools for dynamic online classes

Online counselling

Career guidance and counselling helps individuals find their right career paths based on professional guidance on their aptitudes, motivations, skills and shortcomings. It employs standardised assessment tools (objective and subjective) to help the client to set realistic career goals. Online career guidance and counselling appeals more to the younger generations who employ the internet more for decision-making. This learning material presents the evolution of career guidance and counselling following digital transformation and the increasing use of digital technologies.

[Online Counseling](#)

Digital Curriculum

Digital curriculum is a sophisticated option with several connected technology elements aligned to grades which allow students to search for specific topics by the level of difficulty. It also provides teachers with a full course management system, including everything from custom lesson plans to automatic grading.

[Digital Curriculum](#)

Further Open Educational Resources & Readings

Businessballs

https://www.businessballs.com/

BusinessBalls is a free and ethical home of all things leadership, management, and personal effectiveness. Resources are developed by experts and designed to make you more effective as a person and professional. Full of useful resources to improve your professionality and find new tools to support you in supporting graduates' employability.

**Connect!**

https://connect-erasmus.eu/

Connect Project, based on the review of literature, media and resources and the course units, will be focused on providing complementary content, material and resources within an interactive learning environment. This material can be applied both in the in-service training for career counsellors, coaches and other practitioners working in public practice (e.g. employment agencies, chambers, job centres of adjacent services, university career services) or in private companies (HR services, freelancers). The content, material and resources aim to provide lecturers and students as well as practitioners with additional working material in order to organise and shape the practical working process. The Media centre will provide a variety of resources and material such as videos, practical oriented tools and resources, fact sheets, activities, exercises for lecturers, students and career counsellors.

Digital Skills and Jobs Platform

https://digital-skills-jobs.europa.eu/en

This Platform managed by the European Commission provides open access to a wide variety of high-quality information and resources to professionals interested in the broad topic of digital skills and jobs giving you invaluable insights on its impact. Its smart search and filtering functions are helpful to easily find relevant, up-to-date content and dynamic, collaborative spaces. Through the platform you can learn about EU initiatives and National strategies
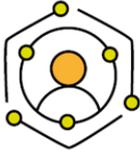
sections to gain an overview of the European digital landscape and ongoing actions aimed at boosting digital transformation. Thanks to the Inspiration section you can learn more about good practices and research related to digital skills and jobs.

Facing the digital transformation. Are digital skills enough?
https://op.europa.eu/en/publication-detail/-/publication/d1a3a705-e355-11ea-ad25-01aa75ed71a1/language-en/format-PDF/source-221773554

[synopsis from the website] Digitalisation presents great opportunities for economic growth and improvements in working conditions. At the same time, it brings challenges such as new skill requirements – with potentially important distributional implications in the absence of commensurate policy action. To facilitate the digital transition and reap its benefits, people will need a broad set of skills. The analysis in this paper suggests that both cognitive (numeracy, literacy and digital) and non-cognitive skills exhibit a strong and robust positive correlation with labour productivity. While cognitive skills remain very important, there are signs that noncognitive skills are rapidly increasing in importance. In a world in which the task content of jobs is progressively de-routinised and changing faster than ever, adaptability, communication and collaboration skills, critical thinking, creativity, entrepreneurship, and readiness to learn become all the more important. The digital transformation calls for policies that foster strong foundation skills, promote life-long learning and strengthen the link between education, training and the world of work. Complementary structural policies that promote efficient resource allocation or that enhance investment in intangible assets can strengthen the link between skills and productivity. While education and training policies fall mostly under the responsibility of Member States, the EU can support human capital development by promoting cooperation and the exchange of best practices among Member States, and through targeted financial support.

Future of work, future of society
https://op.europa.eu/en/publication-detail/-/publication/9ee4fad5-eef7-11e9-a32c-01aa75ed71a1/language-en/format-PDF/source-221774041

[synopsis from the website] The way we work, and our societies more broadly, are undergoing fundamental transformations in a context of globalisation, demographic changes, and the rapid advance of technologies. This Opinion by the European Group on Ethics in Science and New Technologies (EGE) responds to a request by the European Commission to examine issues surrounding the future of work and its societal, political and technological effects. The report traces the trends shaping the new landscape of work: from the impact of artificial intelligence on jobs, and new ways of working in the gig economy, to the use of smart tools and data to recruit and track workers. It assesses the degree to which current governance frameworks are fit for purpose and analyses the ethical implications for individuals and societies. The report finds that while digital technologies create value and bring efficiency gains, evidence indicates increasing hardship for many and a widening inequality gap. It warns that new forms of work bring unparalleled flexibility but also precarity. In order to safeguard European values of human dignity, solidarity and justice, the EGE calls for a shift of focus and a bold re-thinking of the existing social contract. Rather than placing the overwhelming responsibility on individual upskilling, the EU should embark on a societal upskilling, giving renewed consideration to the institutions and economic, political, and social frameworks that shape the welfare of people and societies.

ICARD

http://www.icard-project.eu/

Career Counsellors could find interesting learning materials, a compilation and analysis of the state-of-the-art of available programmes, modules or practices within HEIs promoting self-awareness, self-development and career management of University students. Within the project was developed the ECDP (European Career Development Programme), a transversal learning programme aimed at fostering acquisition of professional awareness and career management skills by University students, composed of modules, learning materials, evaluation and assessment tools. Thanks to the guidelines and recommendations career services can adopt and integrate in their activities the programme.

Keystart2work

http://www.keystart2work.eu/en/

KeySTART2Work aims to bridge the gap between the labour market needs and the labour force skills, upskilling young and adult learners through the development of an innovative online ICT tool for self-assessment of Transversal Competences. Career Counsellor can take advantage of this tool to integrate it within a learning path to increase awareness about the importance of transversal skills.

Shaping the digital transformation in Europe

https://op.europa.eu/en/publication-detail/-/publication/917c520f-fd56-11ea-b44f-01aa75ed71a1/language-en/format-PDF/source-221773786

[synopsis from the website] The digital transformation of Europe's economies and societies is accelerating. It is entering a next phase, fuelled by a fusion of technologies that gradually blur the lines between the physical, digital, and biological spheres and push the frontier of what computers are capable of doing. These new technologies – and the new business models they create, building on the use of data – are progressively coming to maturity for at-scale deployment, and will increasingly impact all sectors of the economy. In section 2 of this report, we discuss a set of such high-impact technologies and applications, for example, artificial intelligence, high-performance computing, advanced robotics, virtual and augmented reality, and their potential impact on Europe's economy, the labour market, and wider society.

Skill development in the platform economy. Comparing microwork and online freelancing

https://www.cedefop.europa.eu/en/publications-and-resources/publications/5581

[synopsis from the website] This Cedefop CrowdLearn study undertakes a comparative analysis of skill development and workplace learning practices among two major types of online platform work: online freelancing and microwork. It combines information on microworkers drawn from Amazon's Mechanical Turk platform with the original CrowdLearn sample of online freelancers surveyed from three major online labour platforms (Fiverr, Upwork, PeoplePerHour). The research compares the types and frequency of use of workplace learning activities and self-regulated learning strategies adopted by these two main types of crowdworker.

The first of its kind internationally, this comparative study generates additional insights and policy recommendations on how to foster workplace learning and skill development in the platform economy. It highlights the potential role of microwork as a viable avenue for labour market integration, income supplementation and skill development opportunities for workers who otherwise under utilize their skills. Supporting skill development in 'voluntary' microwork

Skills Panorama
https://skillspanorama.cedefop.europa.eu/en
Skills Panorama turns labour market data into accurate and timely intelligence to offer new insights into skill needs in the European Union. Labour markets and skill needs are constantly evolving. Skills Panorama helps guidance practitioners to keep up with the latest developments, make useful comparisons to previous trends or identify anticipated changes. Skills Panorama aims to foster the development or improvement of skill needs assessment and anticipation; which in turn, is a milestone for education and training systems becoming more responsive to labour market needs; and for better matching of skill supply and demand across the EU.

SkillSyncer
https://skillsyncer.com/
SkillSyncer is a free resume keyword scanner and job application tracker for job seekers. This tool intelligently identifies skills and keywords missing from Cvs when compared to a job description or application format. This resume keyword scanner is a valid supporting tool for career counsellor in ensuring students' resume is ATS (Applicant Tracking System) compliant thanks to the analysis of thousands of job descriptions to help identify the best keywords to use on a resume. Using the right keywords is important when applying through an ATS to ensure you capture every important keyword and get noticed.

The future of work
https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-covid-19
Since 1990, every year McKinsey provides a deeper understanding of the evolving global economy to identify trends and forces shaping the global economy.
This year the report is focused on the future of work after COVID-19. This kind of report is a useful tool for career guidance practitioners to gain an updated overview of the main changes in the labour market.

Trinity's Guided Reflection
https://www.tcd.ie/students/reflection/
Trinity College in Dublin makes available a Guided Reflection aimed at guiding students to reflect on their learnings gained from activities outside the classroom, for example during a summer job or informal internship, from a volunteering experience, a sporting achievement or activity. In particular, it is intended to help them CAPTURE how they have developed their skills and to ARTICULATE this effectively. Career Counsellors and Career services staff can use this tool as a valuable source of material to support students in building a CV or preparing for interviews in the future.

Ulisse Project
https://ulisseproject.eu/
ULISSE project aims to unveil the true meaning of soft skills by developing the concept of "Not-So-Soft-Skills" and creating a common language with respect to soft skills among the key actors
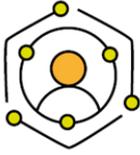
involved (intermediaries, job seekers and employers). Based on this, the project design specific training paths for addressing the company's NSSS needs, to increase the students´ employability and the job match-making. Several tools are available to support the activities relating to career counselling and placement:
- tool to identify the companies' real needs in the local labour market
- method to identify the NSSS veiled under what we usually call "soft skills" and defining a common lexicon
- training paths for answering the companies' needs and increasing students' employability
- innovative tools for evaluating the learning impact
- toolkit to support the companies in writing more effective job offers

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Understanding technological change and skill needs: skills surveys and skills forecasting. Cedefop Practical Guide 1

https://www.cedefop.europa.eu/en/publications-and-resources/publications/4197

[synopsis from the website] The world of work is being impacted by a fourth industrial revolution, transformed by artificial intelligence and other emerging technologies. With forecasts suggesting large shares of workers, displaced by automation, in need of upskilling/reskilling, the design of active skills policies is necessary. Conventional methods used to anticipate technological change and changing skill needs, such as skill surveys and forecasting, have limited scope to provide insights into emerging trends. With the increasing use of big data and AI methods, analysts have new 'real-time' tools at their disposal. Skill foresight techniques are also increasingly used to gauge in-depth stakeholder information about future technologies and skill needs.

Understanding technological change and skill needs: big data and artificial intelligence methods. Cedefop Practical Guide 2

https://www.cedefop.europa.eu/en/publications-and-resources/publications/4198

[synopsis from the website] The world of work is being impacted by a fourth industrial revolution, transformed by artificial intelligence and other emerging technologies. With forecasts suggesting large shares of workers, displaced by automation, in need of upskilling/reskilling, the design of active skills policies is necessary. Conventional methods used to anticipate technological change and changing skill needs, such as skill surveys and forecasting, have limited scope to provide insights into emerging trends. With the increasing use of big data and AI methods, analysts have new 'real-time' tools at their disposal. Skill foresight techniques are also increasingly used to gauge in-depth stakeholder information about future technologies and skill needs.

Understanding technological change and skill needs: technology and skills foresight. Cedefop Practical Guide 3

https://www.cedefop.europa.eu/en/publications/4199

[synopsis from the website] The world of work is being impacted by a fourth industrial revolution, transformed by artificial intelligence and other emerging technologies. With forecasts suggesting large shares of workers, displaced by automation, in need of upskilling/reskilling, the design of active skills policies is necessary. Conventional methods used to anticipate technological change and changing skill needs, such as skill surveys and forecasting, have limited scope to provide insights into emerging trends. With the increasing use of big data and AI methods, analysts have new 'real-time' tools at their disposal. Skill

foresight techniques are also increasingly used to gauge in-depth stakeholder information about future technologies and skill needs.

2. DiTEMP Learning Area

As mentioned above, the DiTEMP *Learning Area* offers validated learning programmes, completed with tools and examples, in four field areas:

Business and Economics
Digital transformation enables organisations to compete in an economic environment that constantly changes as technology evolves. It lets companies improve the customer experience, achieve greater productivity and develop new business models. To that end, digital transformation is necessary for any business looking to survive in the future. This section contains an overview of main concepts of digital businesses and exercises, which have been already tested in subjects in the business area, that teachers can use to help their students to adapt to the digital environment.
The Digital Economy: Digital Business Models and Digital Revenue Models

Education
Teachers and students are living in the digital age. The importance of digital education has never been more highlighted than right now. The big challenge of all HEIs over the world is to step next from the digital competence and digital usage to digital transformation of educational environment. Digital learning facilitates personalised education, help every student to learn at their own best pace and path for them. Digital transformation is important because it enables the students and teachers to find new ways to enhance knowledge and skills adapted to current needs. Teachers and students need new innovative teaching-learning methods and tools adapted to digitalisation era. This could be through finding new and engaging ways to connect digitally, it could be exploring alternative uses for a virtual classroom, or it could be experimenting with different forms of blended learning.
In this section you will find:
a) A teacher's nomination tool for spotting talented students in entrepreneurship. This tool was elaborated and validated in the frame of CoTalent – Erasmus Ka2 project, available on an electronic platform in 6 languages. Teachers will find instruction how to use this tool in their classroom environments.
b) An introductory approach on curriculum development and transformation policies and strategies during past decades, reaching at the current era of digital curriculum. In this respect, we invite teachers and students to debate the UNESCO Report Education in a post-COVID world: Nine ideas for public action UNESCO, and especially, the need of education digitalisation at a global scale. Visiting the report, teachers could initiate reflective discussions on curriculum digitalization.
Digital Tools for Teaching
Developing Innovative Curriculum
Business Communication
Educational Scenario on Digitalisation

Psychology

Digital technology and media influence almost every aspect of daily life and at the same time human psychology also influences the development and evolution of digital media and technology, such as its influence on business performance, growth, and economic landscape. Psychologists of the future should be equipped with knowledge and awareness to surf the changes due to digital disruption, here you can find interesting materials. The following learning path is composed of 3 areas including different modules and activities to teach you how to collect, manage and enhance your digital data.

Data Collection
Data Management
Data Enhancement

Tourism and Cultural Heritage

Digitalisation created new opportunities and challenges for companies working in tourism and cultural heritage – new working methods, new roles, relationships, business models, and competences needs. In this section, you will find suggestions and materials on teaching to support students' awareness about digitalisation and promote their employability in sustainable tourism.

The International Student Competition (MA)
Place branding and rural development (MA)
Entrepreneurship and Business Planning (BA)
Seminars & Workshops (All levels)
The Alumni Corner (Transversal)

05. RECOMMENDED BACKGROUND REFERENCES

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