PEDAGOGY

OF SUSTAINABLE HOSPITALITY DIGITALISATION

for VET Educators and Hospitality Business Field Coaches and Team Leads

SUSTAINABLE HOSPITALITY DIGITALISATION TOOLKIT

2023

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No. 2021-1-LV01-KA220-VET-000033140

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Co-funded by the European Union

PEDAGOGY OF SUSTAINABLE HOSPITALITY DIGITALISATION

IS USEFUL FOR:

- VET educators,
- Programme leads,
- Hospitality field coaches,
- Trainers,
- Team leads from professional hospitality environment.

Abstract

Pedagogy of Sustainable Hospitality Digitalisation, as the part of Sustainable Hospitality Digitalisation Toolkit, OER, the digital brochure for VET educators, programme leads, hospitality field coaches, trainers, team leads from professional hospitality environment. The digital book provides review of 1) how to teach sustainable hospitality digitally; 2) how to design course and materials 'Sustainable Hospitality Digitalisation'; 3) how to embed digitalisation process, topic of sustainable digitalisation in Hospitality VET programmes, courses and how to deliver other content courses by means of digitalisation; 4) how to design digital courses, materials, workshops for hospitality VET studies; 5) how to design materials and field workshops on digitalisation for hospitality organizations; 6) how to infuse digitalisation in hospitality working environments; 7) how to differentiate the tasks and activities on hospitality digitalisation and sustainable hospitality digitalisation; 8) how to measure sustainable hospitality digitalisation 9) how to merge green skills and digitalisation skills effectively for increasing sustainability of hospitality. The brochure includes review of relevant educational approaches, theoretical concepts, methods, pedagogic and digital skills, competencies and practical methods on embedding digitalization in VET hospitality courses, further hospitality professional workshops in working environments. The guidebook provides practical cases on embedding digitalisation in Hospitality VET Learning, review of best world practices on embedding of digitalisation and the canvas of skills and competences to provide digital courses, design digital courses, deliver the subject content by means of digitalisation and about the digitalisation means, and to instruct learners how to embed digitalisation in the studies assignments and in the working area. KA220-VET Cooperation partnerships in vocational education and training 'Sustainable Hospitality Digitalisation Toolkit' in the field of VET (both initial and continuing) is aimed to enhance access to training and qualifications for all by support to pooling of resources, and providing initial and/or continuing training to the staff, further strengthen key competences in initial and continuing VET, in particular digital skills, green skills, employability.

Hyperlink: www.sustainable-hospitality-digitalisation-toolkit.com

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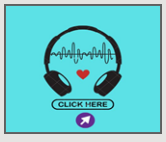

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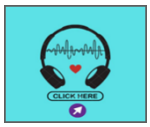


I Description of the project, the aim and the objectives of the project

The Project Results: Innovative Open Educational Resources: Sustainable Hospitality Digitalisation Toolkit

PR1 Sustainable Hospitality Digitalisation Guidebook for VET Learners and Professionals (initial, continuous learners);

PR2 'Pedagogy of Sustainable Hospitality Digitalisation' for VET Educators and hospitality business field coaches and team leads,

PR3 digital course 'Sustainable Hospitality Digitalisation Toolkit' with materials;

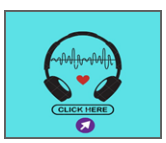
PR4 Series of Webinars on 'Sustainable Hospitality Digitalisation'

KA220-VET Cooperation partnerships in vocational education and training 'Sustainable Hospitality Digitalisation Toolkit' in the field of VET (both initial and continuing) is aimed to

enhance access to training and qualifications for all by support to pooling of resources, and providing initial and/or continuing training to the staff, further strengthen key competences in initial and continuing VET, in particular digital skills, green skills, employability.

The Project Objectives:

- Develop Sustainable Hospitality Digitalisation Guidebook for initial and continuous VET Learners;
- Provide practical guidelines 'Pedagogy of Sustainable Hospitality Digitalisation' to VET Educators and coaches of initial and continuous professional hospitality education;
- Produce digital course 'Sustainable Hospitality Digitalisation Toolkit ' with teaching and learning resources for initial and continuous VET education and professional field workshops;
- Produce series of webinars to demonstrate how to use the resources and the course by the educators and learners from the two perspectives, and produce reviews on related to sustainable digitalisation subtopics;
- Improve VET educators' knowledge on hospitality digitalisation and approaches to embed digitalisation in the units;
- Mobilise social capital to raise awareness and promote the need to improve digital and digitalisation skills in Hospitality VET education and in the hospitality industry;



Improve the intellectual and digitalisation competence of the project The project consortium consists of the six participants:

Table 1: List of the Project Partners

COUNTRY	PARTNER NAME	WEBSITES
Latvia	SIA "HOTEL SCHOOL" Viesnīcu biznesa koledža /"HOTEL SCHOOL" Hotel Management College OID E10176704	www.hotelschool.lv
Denmark	ERHVERVSAKADEMI DANIA (Dania Academy) OID E10102026	www.eadania.dk
Italy	Italian Hospitality School SRL OID E10242654	www.hoschool.it
Cyprus	City Unity College Nicosia OID E10155506	www.cityu.ac.cy
Sweden	DigitalGuest APS OID E10277526	www.digitalguest.com
Spain	INERCIA DIGITAL SL OID E10145080	www.inerciadigital.com

The project consortium applied with the project proposal because each participant is interested in its performance for own needs, national, regional needs for such cooperation and development of useful qualitative resources and advancing these organisations during the cooperation and after. The project will meet the needs of each participant: to advance own representation in the market, apply own competence, merge the competences and develop the project results of demand in all partnership countries and other EU countries.

II Description of the Project Partners

There are five partners participating in developing this guidebook. All of them experienced and recognized for their abilities to development relevant learning both onsite and online taking in consideration the relevant trends influencing both the topics related to the hospitality industry and considering the relevant learning and teaching methods for the future employees and the present employees in the industry.

Co-funded by the European Union

'Sustainable Hospitality Digitalisation Toolkit''
ERASMUS+ PROJECT 2021-1-LV01-KA220-VET-000033140
www.sustainablehospitalitydigitalisation.toolkit.com

SIA "HOTEL SCHOOL" Viesnīcu biznesa koledža
Country: Latvia, Riga www.hotelschool.lv
Description: The project coordinator
HOTEL SCHOOL Viesnīcu biznesa koledža SIA (HOTEL SCHOOL Hotel Management College LLC), established in 2010, is VET provider, an accredited HE institution, provider of 1st Level professional higher education (college) and the 4th Level professional qualification (LQF and EQF Level 5) in Hospitality Management. In addition, BTEC Level 5 Higher National in Business, in Hospitality Management/CA. HOTEL SCHOOL holds Erasmus ECHE, VET and ADULT educations accreditations.. HOTEL SCHOOL has developed good cooperation with employers who ensure internship opportunities for students and learners as well as employ HOTEL SCHOOL graduates. HOTEL SCHOOL is experienced partner in the development of the methodologies, competency frameworks and professional standards. HOTEL SCHOOL has VET experience, competence in design and providing VET education, using digital systems in learning environment. The school applies digital technologies in the study process and is able to create, apply the new course and methods to develop and apply digital skills by educators, staff, learners, current and potential employers and partners. HOTEL SCHOOL runs totally digitalised

education system, which is applicable both for in-class learning and out-of-class learning.

ERHVERVSAKADEMI DANIA (Dania Academy)
Country: Denmark www.eadania.dk
Description: The project partner
Dania Academy is a modern higher-education centre offering applied degrees at undergraduate level. The campusses are located in seven cities across the Central Denmark Region. The student body consists of 2.800 full-degree students, and we have more than 3.000 part-time students. Dania offers 21 undergraduate programmes. According to the Danish national qualification framework, Dania Academy is comparable to a university of applied sciences and has awarding powers at bachelor's level. Fields of education are business, tourism and hospitality, IT & Game development, Technology & Health.

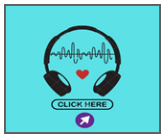
City Unity College Nicosia
Country: Cyprus, Nicosia www.cityu.ac.cy
Description: The project partner
City Unity College Nicosia was established in April of 2014 and started its operation in September of 2014. The college currently offers 14 programs (diplomas, bachelors and masters) in various fields of study and some of them are offered in cooperation with Cardiff Metropolitan University. All the programs are recognized by the Cyprus Agency of Quality Assurance and Accreditation in Higher Education. Besides the accredited academic programs CUCN offers a variety of professional short courses in different areas. The total number of students in both academic and vocational oriented programmes is approximately 1000.

INERCIA DIGITAL SL
Country: Spain, Aljaraque.
Description: The project partner
Inercia Digital has received the accreditation of the Certificate of Compliance by AENOR with the AENOR EA0043 Young Innovative Company title, awarded to "Inercia Digital: training company" (2015). Beyond that, the Andalusian Employment Service has also awarded

Inercia Digital the title of "Entidad Colaboradora de Formación para el Empleo" (Collaborative Entity in the Training for Employment) in the field of e-learning as a virtual training centre fostering employment and honing employability skills for job seekers. Inercia Digital was also appointed a new member of the "Digital Skills and Jobs Coalition" of the European Commission in 2017. In addition, our Erasmus+ Accreditation for Vocational Education and Training have been approved in 2021! Inercia Digital is also a specialist in the implementation of e-learning platforms: Learning Management Systems (LMS). Their innovation in digital skills for education has led them to create and manage various web pages and virtual platforms for educational institutions and training providers in order to help them integrate ICT into their daily activities. At the same time, Inercia Digital has trained said institutions in digital skills and web tools, e-learning and collaborative work. Inercia Digital has ample international and European experience, inside and outside the Erasmus+ Programme.

ITALIAN HOSPITALITY SCHOOL

Italian Hospitality School SRL
Country: Italy, Roma www.hoschool.it
Description: The project partner
ITALIAN HOSPITALITY SCHOOL is a private Adult Education and Vocational Education (VET) institution that offers tourism and hospitality ("Hotel services", "Catering services" "Cook assistant"), EQF level 5 courses, summer university with a professional orientation for young people from all over the world, with an exciting holiday program in Rome, to discover the history, art and culture, of the city, to learn Italian language and earn ECTS points.
ITALIAN HOSPITALITY SCHOOL focuses also on general and academic language courses, to build the practical understanding and language skills of learners all the way to fluency. The school's partners are Italian hotels and resorts that offer internships and jobs for students.



III Introduction

The project consortium consists of the six participants: SIA "HOTEL SCHOOL" Viesnīcu biznesa koledža (E10176704 - Latvia)- the project coordinator; ERHVERVSAKADEMI DANIA (E10102026 - Denmark) – the project partner; DigitalGuest APS (E10277526 - Sweden) – the project partner; INERCIA DIGITAL SL (E10145080 - Spain) – the project partner; Italian Hospitality School SRL (E10242654 - Italy) – the project partner; City Unity College Nicosia (E10155506 - Cyprus) – the project partner. The project consortium applied with the project proposal because each participant is interested in its performance for own needs, national, regional needs for such cooperation and development of useful qualitative resources and advancing these organisations during the cooperation and after. The project meets the needs of each participant: to advance own representation in the market, apply own competence, merge the competences and develop the project results of demand in all partnership countries and other EU countries.

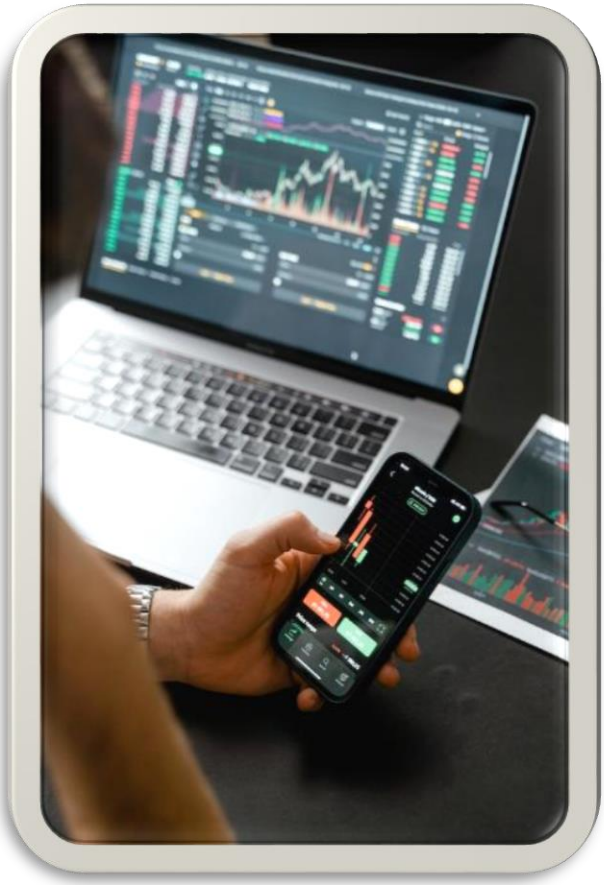
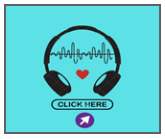


Figure 1. Source: Tima Miroshnichenko

The brochure includes review of relevant educational approaches, theoretical concepts, methods, pedagogic and digital skills, competencies and practical methods on embedding digitalisation in VET hospitality courses, further hospitality professional workshops in working environments.

The guidebook provides practical cases on embedding digitalisation in Sustainable Hospitality VET Learning, review of good practices on embedding of digitalisation and the canvas of skills, competences to provide digital courses, design digital courses, deliver the subject content by means of digitalisation, about sustainable digitalisation means, and to instruct learners how to embed digitalisation in the studies assignments, in the working area.



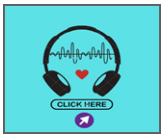
IV The Aim and the Objectives of 'Pedagogy of Sustainable Hospitality Digitalisation'

This book focuses on Pedagogy for Sustainable Hospitality Digitalisation is an extension on methodology, approaches, and methods sketched in the first part of the guidebook. Pedagogy has a lot of different meanings and definitions. The core is no matter the specific approach the review mentioned below and the different phases illustrated in the circle as well. The art of pedagogy in this context is also adding sustainable and digital elements to learning in a hospitality context. Another element to be considered is the prerequisites of the learner.

The digital brochure provides review of 1) how to teach sustainable hospitality digitally; 2) how to design course and materials 'Sustainable Hospitality Digitalisation'; 3) how to embed digitalisation process, topic of sustainable digitalisation in Hospitality VET programmes, courses and how to deliver other content courses by means of digitalisation; 4) how to design digital courses, materials, workshops for hospitality VET studies; 5) how to design materials and field workshops on digitalisation for hospitality organizations; 6) how to infuse digitalisation in hospitality working environments; 7) how to differentiate the tasks and activities on hospitality digitalisation and sustainable hospitality digitalisation; 8) how to measure sustainable hospitality digitalisation 9) how to merge green skills and digitalisation skills effectively for increasing sustainability of hospitality. (Sustainable Hospitality Digitalisation Toolkit Project application).

Figure 2. Source: Project logo

The brochure includes review of relevant educational approaches, theoretical concepts, methods, pedagogic and digital skills, competencies and practical methods on embedding digitalization in VET hospitality courses, further hospitality professional workshops in working environments. The guidebook provides practical cases on embedding digitalisation in Hospitality VET Learning, review of best world practices on embedding of digitalisation and the canvas of skills and competences to provide digital courses, design digital courses, deliver the subject content by means of digitalisation and about the digitalisation means, and to



instruct learners how to embed digitalisation in the studies assignments and in the working area. On the basis of DigComp 2.0, 2.1, 2.2. and taking into consideration the specifics of the Hospitality Business digitalisation, the Digital Competence Framework for Sustainable Hospitality Digitalisation Educator will be developed.

These nine focus areas can be illustrated as below. And they will all be described in this chapter.

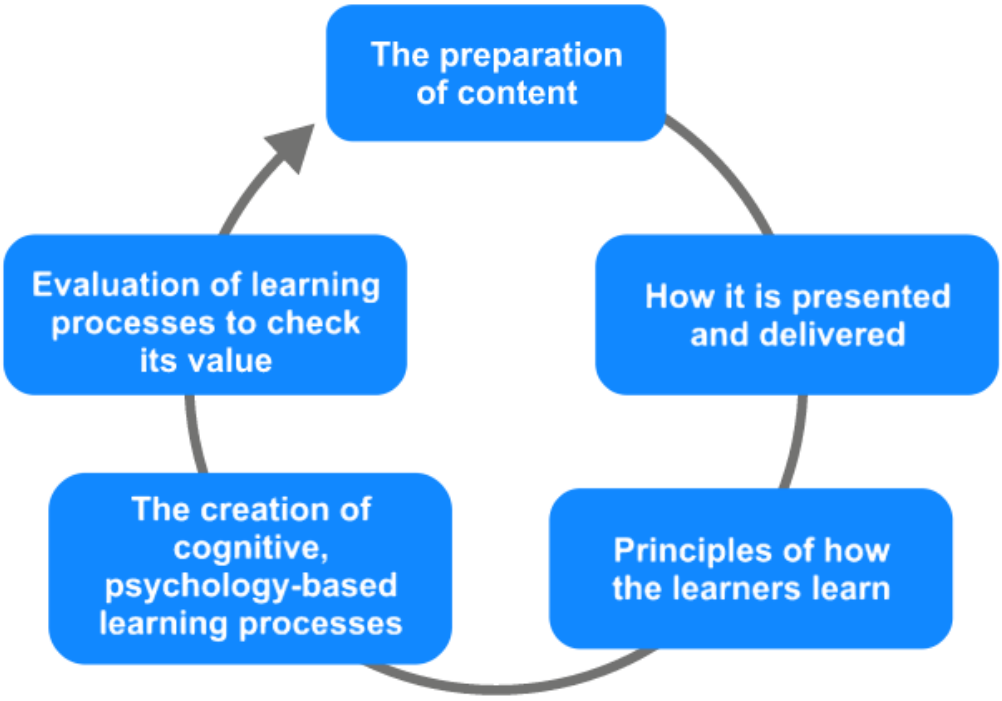
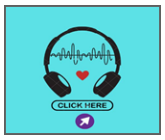


Figure 3. *Nine* focus areas (Skillshub, 2017).



V Description of the Target Audience for 'Pedagogy of Sustainable Hospitality Digitalisation'

'Pedagogy of Sustainable Hospitality Digitalisation' for VET Educators and hospitality business field coaches and team leads, but applicable to wider hospitality audience including VET educators, programme leads, hospitality field coaches, trainers, team leads from professional hospitality environment.

The digital brochure provides review of

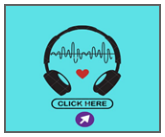
1) **How to teach sustainable hospitality digitally;**
2) **How to design course and materials 'Sustainable Hospitality Digitalisation';**
3) **How to embed digitalisation process, topic of sustainable digitalisation in Hospitality VET programmes, courses and how to deliver other content courses by means of digitalisation;**
4) **How to design digital courses, materials, workshops for hospitality VET studies;**
5) **How to design materials and field workshops on digitalisation for hospitality organizations;**
6) **How to infuse digitalisation in hospitality working environments;**
7) **How to differentiate the tasks and activities on hospitality digitalisation and sustainable hospitality digitalisation;**
8) **How to measure sustainable hospitality digitalisation**
9) **How to merge green skills and digitalisation skills effectively for increasing sustainability of hospitality**

The purpose for developing this guidebook is improving the skills on sustainable digitalization in the hospitality industry by covering the needs of labour market to advance skills of current and upcoming staff. The toolkit is also meant to be a modern resource on sustainable hospitality digitalisation that can be offered to VET educators and VET learners for learning and teaching activities.

In general, the guidebook provides information, learning and training and possibilities. The focus is structuring knowledge and give easy access to the relevant sources to uncover the current knowledge and skills and provide access to further professional education in both learning environments and the businesses in the hospitality businesses. Everything is developed with respect of environmentally sustainable technologies according to SDG 17.

The main target groups for this guidebook are:

VET educators – in an educational setting and a work-based setting.



VET is the abbreviation for Vocational Education and Training. Initial VET is usually carried out at upper secondary level and post-secondary level before students begin working life. It takes place either in a school-based environment (mainly in the classroom) or in a work-based setting, such as training centers and companies. VET also takes place after initial education and training or after beginning working life. It aims to upgrade knowledge, to help citizens to acquire new skills and to retrain and further personal and professional development. It is largely work-based. (EC, 2023).

Different examples on VET learning and training in a school bases environment could be the use of simulations e.g., training in the use of booking systems, gamification on decision making in real life situations. (EC, 2023).

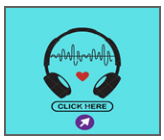
Another setting could learning in an work based setting as an internship in hospitality business focusing on onsite training of theoretical knowledge. The educators in this context can be both educators from the school-based environment in a role as tutors or it can be coaches from the internship company with the specific role of focusing on the interns and their learning processes. (EC, 2023).

Trainers from the professional hospitality environment

Adult learning refers to a range of formal and informal learning activities, both general and vocational, undertaken by adults after leaving initial education and training. (EC, 2023).

Adult learning has been identified as a focus topic of the European Education Area for the period 2021-2030. The recovery from the COVID-19 pandemic and the digital and green transitions have accelerated changes in how we live, learn and work. People need to update their knowledge, skills, and competences to fill the gap between their education and training and the demands of a rapidly changing labor market. The aim of this guidebook and the toolkit is also advising employees on both the decision making level and their employees how to upgrade their skills at the workplace by either having an emerged focus on upgrading their employees as a part of their daily working hours or self-training using the tools provided for it in the toolkit. (EC, 2023).

The brochure includes review of relevant educational approaches, theoretical concepts, methods, pedagogic and digital skills, competencies and practical methods on embedding digitalisation in VET hospitality courses, further hospitality professional workshops in working environments.



As OER, improved competence is expected of VET educators, coaches, team leads via project open access platform. The improved competence of educators will influence competence of hospitality VET learners and professionals.

Pedagogy for Sustainable Hospitality Digitalisation is extension on methodology, approaches, and methods of Guidebook on Sustainable Hospitality Digitalisation for VET Learners and Professionals, it is linked to the Course 'Sustainable Hospitality Digitalisation Toolkit' concepts and activities introduced in Series of webinars on Sustainable Hospitality Digitalisation.

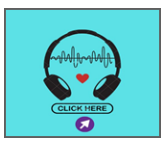


Figure 4. Source: Sasha Ineson at pexels.com

1.The Role of Pedagogy of Sustainable Hospitality Digitalisation

To enhance digital skills among students of and employees in the hospitality industry calls for a discussion of pedagogy and didactics. In this project the approach to designing teaching for these groups of learners is in an online setting. The different learning activities of the teaching modules will be available to students and employees in a Learning Management System (LMS). So in fact teaching is digitalized to train digital skills already through interaction with the learning activities of the modules.

Etienne Wenger og Jean Lave's theory of situated learning becomes very relevant when training employees on the job and when training students for specific industries. Essentially Lave & Wenger found that learning is always situated in a context of social relations and human artifacts. In this sense learning should be closely linked to practice since competencies are not abstract and constant abilities but rather linked to the situation in which they are applied (Dolin, 2020 p. 78-80). This also indicates learning for students in school should somehow be related to a practice. E.g. through working with industry cases or visiting industry relevant work places etc. The point being competencies are very hard to transfer from one situation to another and therefore they should be learned in relevant situations.

The online learning management system has been chosen to teach digital competencies in a digital setting. Students/employees will have to engage on an online platform with online learning activities and this will train their digital skills. These skills are not necessarily industry specific therefore industry specific digital skills will have to be made available in the learning management system as well.

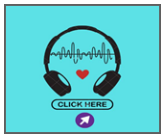
1.1. Gilly Salmon's didactical framework

We recommend Gilly Salmon's didactical framework.

The five stage model (Salmon, 2013) as a good starting point for creating the online learning modules in the learning management system. The five stages of the model are:

1) **Access and motivation**
2) **Online socialization**
3) **Information exchange**
4) **Knowledge construction**
5) **Development**

Stage one is primarily focused on motivating students to active participation. E-learning activities on this stage could be logging in to the system, posting in a



forum in the learning management system and such. It has to do with familiarizing with the learning management system.

Stage two demands learning activities to enhance socialization between learners. But also between learners and teachers. An e-learning activity at this stage could be an assignment in a forum where each learner is asked to post the video from YouTube that they currently think is the must funny video. They could also be requested to comment on e.g. two other learners' video posts. This engages them in conversation and ensures they begin understanding each other on a deeper and more personal level. This also potentially creates trust which is vital for learning.

Figure 5. Source: Fernandez, N. at pexels.com

At stage three of Gilly Salmon's model participants engage in mutual exchange of information and make learning-related contributions. An e-learning activity at this stage could be dividing learners into groups that are responsible of introducing the rest of the learners to a certain theoretical perspective or a theoretical model. As a group they would have to read about and discuss amongst them how to understand the model and how to best present it to the rest of the learners. The assignment could be to present it in a video and post it in a forum. These videos can be watched over and over as long as the learners have access to the LMS. It could even be an opportunity to let them download the videos to keep them for future learning.

At stage four course-related group discussions and activities develop and the interaction becomes collaborative, more team-oriented and more complex. Knowledge construction begins. An e-learning activity at this stage could be

1) Watch the case video "a hotel in a crisis situation" (individually)

2) Assess which gaps from the theoretical model could help explain the crisis that the hotel is experiencing (groups)

3) Create a video with a suggestion for a solution to the crisis and upload it to a forum (groups)

4) Watch another groups' video and provide them with half a page of written feedback (groups). Rubrics could be provided for this fourth step of the e-learning activity. A rubric is a matrix with specific criteria such as learning objectives to guide learners into giving feedback on specific, chosen areas.

At stage five participants are comfortable working together online and develop an ability to fully exploit the benefits for their learning. An e-learning activity at this stage could be online learning reflections in a forum. Feedback from either peers or teachers should be considered to enhance learning outcome.

We strongly recommend designing e-learning activities for employees in and students of the hospitality industry within all five stages of the model above.

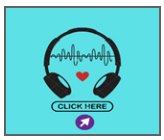
Sources: Dolin, Jens (2020): Undervisning for læring in Rienecker, Lotte et. al (2020): Universitetspædagogik. Samfundslitteratur.

Sources: Salmon, Gilly (2013): E-tivities – the key to active online learning. Second ed. Taylor and Francis Ltd.

The theoretical framework of sustainable digitalization in the hospitality industry aims to provide theoretical insights into the components and tools of digitalization that would equip you with the necessary understanding of the concept.

The definition of digital transformation by Solis (2016) is: "the investment in and development of new technologies, mindsets, and business and operational models to improve work and competitiveness and deliver new and relevant value for customer and employees in an ever-evolving digital economy". The definition outlines the importance of innovativeness, strategic human resource management, and technology integration. Within the hospitality industry, digital transformation requires action in four main aspects:

Digital Transformation:
1) Framing digital challenge,
2) Focus investment,
3) Engaging the organization,
4) Sustaining transformation (Prihanto & Kurniasari, 2019).



According to Bumann & Peter (2019), the digital transformation framework consists of six components, namely:

- **1.2. THE DIGITAL TRANSFORMATION FRAMEWORK:**
- STRATEGY
- ORGANIZATION
- PEOPLE
- CUSTOMER
- TECHNOLOGY
- CULTURE (Bumann & Peter, 2019)

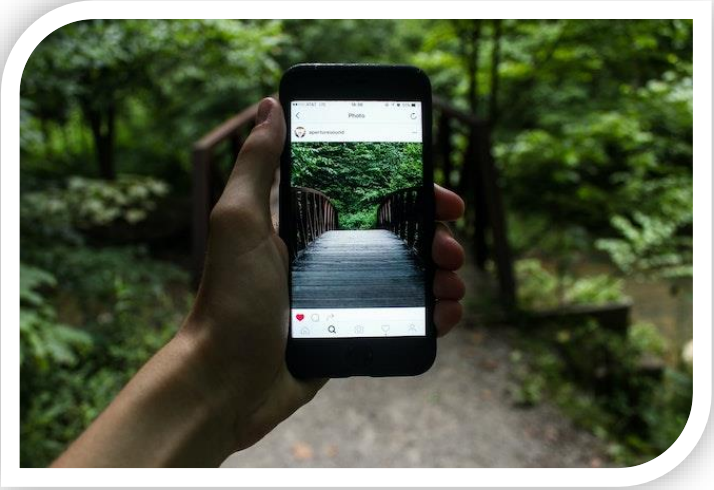


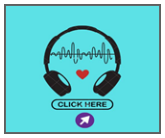
Figure. Source: Jeremy Levin at pexels.com

- **Strategy -** successful digitalization starts with building sophisticated digital long term and short term development strategy. The digitalization aspect of hospitality enterprises should be implemented in corporate, as well as business and functional level strategies. Well formulated digitalization strategy is the cornerstone of digitalization success.

- **Organization** - the most important factor in implementing the digital strategy is organizations' set up, partnership networks, collaborative spirits. If organization is flexible, collaborative, it can quickly respond to changes in the environment and implement digitalization tools at much faster rate.

- **People** - the employees, their knowledge, skills, competencies and determination is critical factor for digitalization implementation. The employees should be willing and capable of learning, improving, and committed to personal and professional development.

- **Customer** - customers have become more aware of digitalization tools and request more hybrid interaction channels. Customers want to interact with the organization via traditional and digital means, and while doing so, customers provide organizations with the data and customer insights.



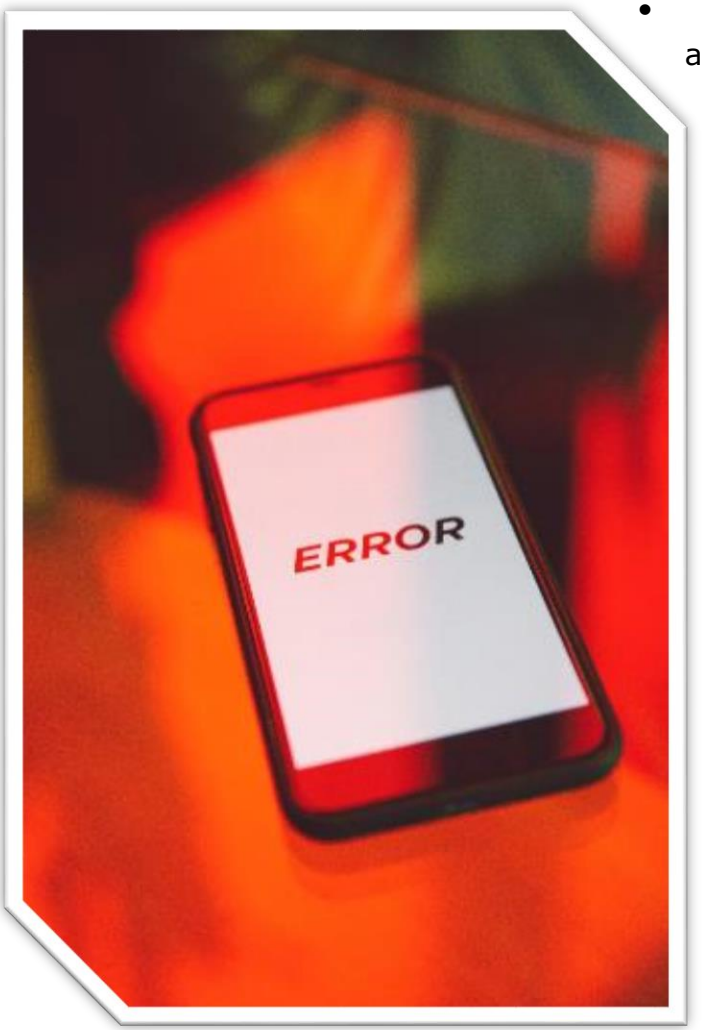
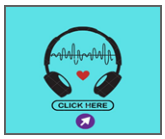


Figure 6. Source: Polina Zimmerman at pexels

- **Technology** - one of the aspects of hospitality industry digitalization is the organizations capabilities, ability and strategy to acquire, use and adopt new technologies. The flexibility, speed and innovation is crucial aspects.

- **Culture** - the hospitality organizations' culture also plays important role in digitalization process. The digitalization process requires strong digital leaders, commitment from the higher levels of management and freedom given to employees to experiment.

IN CONCLUSION, THE SUSTAINABLE HOSPITALITY DIGITALIZATION FRAMEWORK IS COMPOSED OF MULTIDIMENSIONAL AND COMPLEX STRUCTURES, AND DIGITALIZATION SHOULD BE THE PRIORITY IN STRATEGIC, BUSINESS, AND FUNCTIONAL LEVELS OF ORGANIZATIONAL MANAGEMENT.



2. The Roles in Pedagogy of Sustainable Hospitality Digitalisation

Communicative coworkership: Designing employee roles key to digital transformation of hospitality?

Heide and Simonsson define coworkership as "those practices and attitudes that coworkers develop in relationships with their manager, their colleagues and their employer at large" (Heide and Simonsson, 2011, p. 202).

One can argue that if all employees are responsible for the digitalization results, the practices and attitudes of each employee are keys to succeed. Coworkership is connected to the decentralisation trend of flattening the organizational structure – a philosophy that allows greater employee autonomy and faster decision making and ability to conduct emergent strategizing in which everyone takes responsibility for the success of the entire organisation. Due to the rapic changes and dynamic environment in which hospitality organisations operate.

The main reason for the growing research focus on employee roles is that the communication of employees increasingly is understood to have significant implications for the performance of the organization and its ability to adapt to emergent trends and contextual factors such as the power of digitalization.

So, what is the exact role of employees and managers in digital learning and transformation? In the absence of direct management and supervision, the employee or coworker has to have a reflexive approach to enable learning and development, collective knowledge and meaning creation.

"The reflexive approach, however, should be understood in a broader sense, namely, that the coworker, as well as actively reflecting the stimulation of learning and development, is willing to question taken for granted truths about how themselves, their managers, their colleagues, and even how the entire organization communicates, to actively contribute to organizational betterment" (Alvesson et al., 2017). Coworkers must be ready to take greater responsibility for co-creating digital transformation in open dialogue with managers.

As argued by Heide and Simonsson (2011), the concept of coworkership points out that managers must move away from the traditional focus on control to instead embrace a more transformational approach. This requires a more trust-based management approach in which trusting their ability to create digital value in their workplace. Only when these findings have been accepted and implemented, the digital learning can begin.

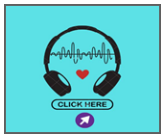


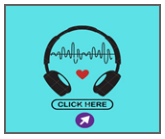
Figure 7. Source: Karolina Grabowska

In Heide and Simonsson's article about coworkership, they stress that the social roles performed by employees are important to understand. These roles vary and all contain different communication roles and responsibilities. Madsen and **Verhoeven highlights eight roles enacted by employees:**

- **external embodiments**
- **promotors**
- **defenders**
- **information scouts**
- **relationship builders**
- **internal sensemakers**
- **innovators**
- **critics**

(Verhoeven, J. W.M., 2022).

When investing in digitalization, applying these roles in the learning and implementation process can help learners reach the desired learning objectives. Learning managers must make courses that promote and train participants in trying out the various roles mentioned above in relevant case-related learning activities. In this way, participants can build competencies in making new digital learning skills sustainable and memorable and organisations can build internal architecture that nurtures and supports sustainable digitalization processes.



3. The Participants and Stakeholders in Pedagogy of Sustainable Hospitality Digitalisation

In order to assess who within the scale and scope of the sustainable hospitality digitalization can be identified and defined as the participants and stakeholders, one initially has to look into the theory of stakeholder in order to bring forward a proper definition:

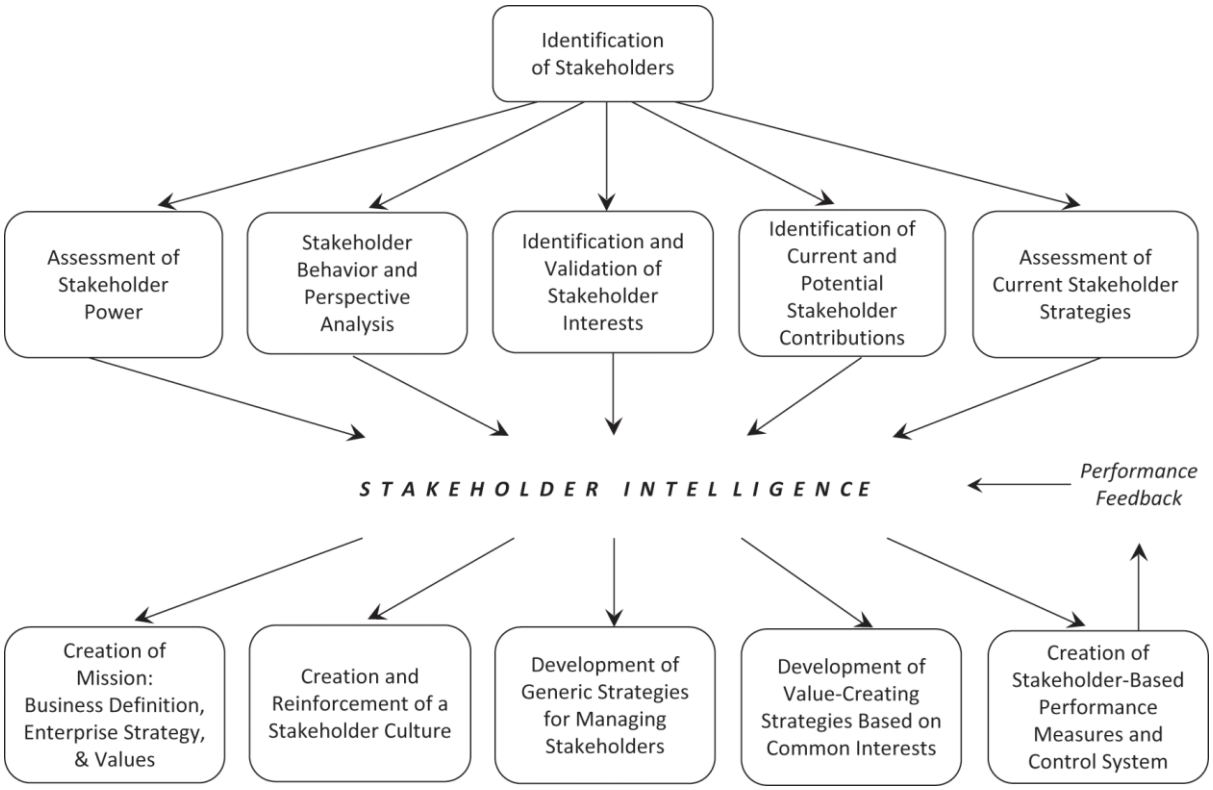


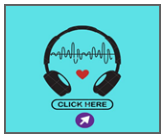
Figure 8. Source: Cambridge University Press.

At its core the "Stakeholder theory" is a pathway for a company or an organization on how to convey their "strategic intend" to those with a keen interest into their line of products and to be in line with the CSR it adheres to within.

The Stakeholder theory equally argues that anyone adhering to the theory should "create value to all stakeholders, not just the shareholders" (Stakeholder Theory, 2018).

This implicate that any given company or organization cannot solemnly have an outlined financial benefitting strategy, but should also encompass value to those identified within the realm of usage and reach of their products.

Thus, to attain a firm understanding the scale, scope, and reach of participant and stakeholders in the pedagogy of sustainable hospitality digitalisation, one must identify both the participants and stakeholders, and define what role they play within. This implicate that any given company or organization cannot solemnly



have an outlined financial benefitting strategy, but should also encompass value to those identified within the realm of usage and reach of their products.

Thus, to attain a firm understanding the scale, scope, and reach of participant and stakeholders in the pedagogy of sustainable hospitality digitalisation, one must identify both the participants and stakeholders, and define what role they play within.

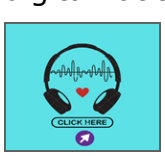
3.1. Academy and University lectures: Lectures or educators across Hospitality AP, Bachelor and Master levels are alike the most prominent provider and participant in bringing the pedagogy of sustainable hospitality digitalization forward. They will stay at the helm providing access to the pedagogy of sustainable digitalization via their lecturing. Obviously, in this instance the participating lectures from SIA Hotel School, Italian Hospitality School, City Unity College, and EA Dania act as both providers to the learning process and participants in their capacity as outlining and conveying the concept of pedagogy of sustainable hospitality digitalization to the main recipients.

3.2. Students: Hospitality students across the spectrum of AP, Bachelor, and Master levels alike are both the main stakeholders as recipients of pedagogy of sustainable hospitality digitalization, as they are the intended target audience in terms of the learning of it. They are the future aspect and participants inside the hospitality industry both as common non-managerial workers on the front and back-office sides as well as the managerial sides of operations. Thus, they play a vital part in the knowledge spheres of pedagogy of sustainable hospitality digitalization as they must both contain and understand the preconceptions in order to being able to be conveying it into the working environment on all levels of the industry.

3.3. Coaches: Within the hospitality industry we find those who have been bestowed upon to teach employees within the industry on the principles of pedagogy of sustainable hospitality digitalization. Their role is to coach directly to employees inside the industry within the various physical entities of any given company inside the industry.

3.4. Providers: The providers can best be described as being the IT cooperations aligned to bringing forward and implementing the pedagogy of sustainable hospitality digitalization. Therefore, in this instance we can identify Digital Guest APS and INERCIA DIGITAL SL as the main software corporations as main stakeholders in executing this part of the concept, as it falls upon them to device the software to bring alive the toolkit.

3.5. Decision makers: within the fulfillment of the whole process, one can identify various decisionmakers acting as vital and pivotal stakeholders to the development and distribution of the pedagogy of sustainable hospitality digitalization. They can be among others be identified as the responsible politicians



at EU level dispensing and distributing the monetary resources needed to conduct research on any level of, responsible national politicians inside the Ministry of Education, responsible educational head of hospitality studies at campuses with a keen interest in either performing research on any scale or to apply the research into their line of hospitality educations.

3.6. European Union aka EU: Given that the EU acts as both the monetary provider to this project while equally serving as the principal client to the project, one can only conclude that their participation entitles them to be recognized as a major stakeholder to the pedagogy of sustainable hospitality digitalization being brought forward either via scholarly lecturing or via coaching directly into the hospitality industry.

Figure 9: Source Kaboompics .com pexels.com

4. Review and Summary with the Links to the Related Regulative Documents

DIGITAL ACTION PLAN 2021 - 2027

4.1. What is the Digital Education Action Plan?

The Digital Education Action Plan (2021-2027) is a renewed European Union (EU) policy initiative that sets out a common vision of high-quality, inclusive and accessible digital education in Europe, and aims to support the adaptation of the education and training systems of Member States to the digital age.

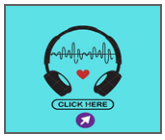
The Action Plan, adopted on 30 September 2020, is a call for greater cooperation at European level on digital education to address the challenges and opportunities of the COVID-19 pandemic, and to present opportunities for the education and training community (teachers, students), policy makers, academia and researchers on national, EU and international level.

The initiative contributes to the Commission's priority 'A Europe fit for the Digital Age' and to Next Generation EU. It also supports the Recovery and Resilience Facility, which aims to create a greener, more digital and resilient European Union.

The Digital Education Action Plan is a key enabler to realising the vision of achieving a European Education Area by 2025. It contributes to achieving the goals of the European Skills Agenda, the European Social Pillar Action Plan and the '2030 Digital Compass: the European way for the Digital Decade'.

HYPERLINK:

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0624



4.2. DigComp 2.0, 2.1, 2.2 The Conceptual Reference Model for the Digital Competence Framework for Citizens

DigComp 2.0, 2.1, 2.2 The Conceptual Reference Model for the Digital Competence Framework for Citizens,

HYPERLINK: https://www.site.digcomptest.eu/

The DigComp framework identifies the key components of digital competence in 5 areas (Dimension 1). The areas are summarised below:

Information and data literacy: To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organise digital data, information and content.

Communication and collaboration: To interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity. To participate in society through public and private digital services and participatory citizenship. To manage one's digital presence, identity and reputation.

Digital content creation: To create and edit digital content To improve and integrate information and content into an existing body of knowledge while understanding how copyright and licences are to be applied. To know how to give understandable instructions for a computer system.

Safety: To protect devices, content, personal data and privacy in digital environments. To protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion. To be aware of the environmental impact of digital technologies and their use.

Problem solving: To identify needs and problems, and to resolve conceptual problems and problem situations in digital environments. To use digital tools to innovate processes and products. To keep up-to-date with the digital evolution.

There are 21 competences that are pertinent to these areas, their titles and descriptors are outlined in Dimension 2.Taken together, Dimension 1 and 2 form the conceptual reference model. Additional Dimensions outline Proficiency levels (Dimension 3), Examples of knowledge, skills and attitudes (Dimension 4) and Use cases (Dimension 5). The latest publication, DigComp 2.2, presents the consolidated framework.

4.3. DigComp ONLINE TOOL

DigComp HYPERLINK: https://digcomp.digital-competence.eu/

An online testing tool that maps your digital competencies using the Digcomp framework

Figure 10. DigComp

Digital Competence

- Digital competence areas
  - Information and data literacy
  - Communication and collaboration
  - Digital content creation
  - Safety
  - Problem solving

4.4. DigComp PUBLICATIONS

The DigComp Conceptual reference model:

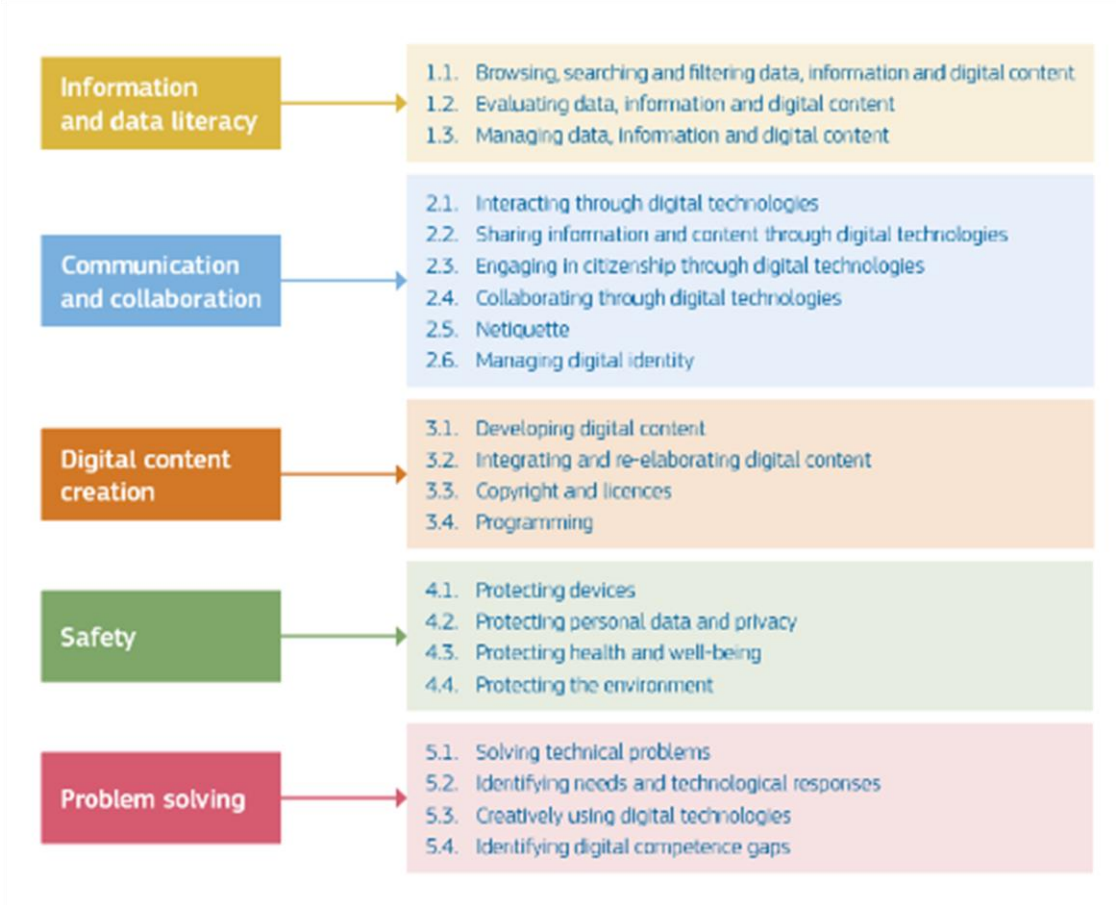


Figure 11. DigComp Conceptual reference model.

Publications

2022: DigComp 2.2: The Digital Competence Framework for Citizens - With new examples of knowledge, skills and attitudes

2017: DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use

2016: DigComp 2.0: The Digital Competence Framework for Citizens. Update Phase 1: the Conceptual Reference Model

2013: DigComp: A Framework for Developing and Understanding Digital Competence in

2012: Report on Online consultation Experts' views digital competence

2012: Digital Competence in Practice: An Analysis of Frameworks

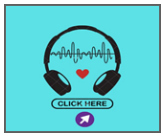
4.5.DIGITAL COMPETENCE FRAMEWORKS FOR TEACHERS, LEARNERS AND CITIZENS

Collected by UNESCO (2022):

Table 2: DIGITAL COMPETENCE FRAMEWORKS FOR TEACHERS, LEARNERS AND CITIZENS

Framework Title	Origin	Publisher year
DigComp 2.2	European Union	Publications Office of the European Union, 2022
DigCompEdu	European Union	Publications Office of the European Union, 2017
SELFIE for Teachers	European Union	European Commission, 2021
Digital Literacy Global Framework (DLGF)	Global	UNESCO Institute of Statistics, 2018
The Global Framework for Educational Competence in the Digital Age	Profutoro	Profuturo, 2020
Common Digital Competence Framework for Teachers (CDCFT)	Spain	National Institute of Educational Technologies and Teacher Training (Spain), 2017
Professional Development Framework for Digital Learning	South Africa	Department of Basic Education, South Africa, 2019
Professional Digital Competence Framework for Teachers	Norway	Norwegian Centre for ICT in education, 2017
Skills Framework for International Age (SFIA - 8)	SFIA	SFIA Foundation, 2000
Digital Competence Framework	Wales, United Kingdom	Education Wales (Welsh government, United Kingdom), 2022
International Computer Driving License (ICDL)	ICDL	ICDL Global, 2000
Digital Literacy Skills Framework (DLSF)	Australia	Australian Department for Education, Skills and Employment, 2021
Skilling the Australian Workforce for the Digital Economy - The Australian Workforce Digital Skills Framework	Australia	NCVER, 2019
Digital Teaching Professional Framework	England, United Kingdom	Education and Training Foundation,

Table 2: DIGITAL COMPETENCE FRAMEWORKS FOR TEACHERS, LEARNERS AND CITIZENS		
Framework Title	Origin	Publisher year
		England, United Kingdom
Defining the skills citizens will need in the future world of work	McKinsey	McKinsey & Company, Global, 2019
The International Society for Technology in Education (ISTE) Standards for students	ISTE	ISTE, Global, 2018
Quebec Digital Competency Framework	Quebec, Canada	Ministy of Education and Higher Education, Quebec, Canada, 2019
Common Framework of Reference for Intercultural Digital Literacies (CFRIDiL)	European Union	EUMade4LL, Erasmus+ (funded by the European Commission), 2019
Indonesian National Digital Literacy Framework	Indonesia	Bahasa, Indonesia, 2021
UNESCO ICT Competency Framework for Teachers (ICT CFT) Version 3	UNESCO	UNESCO, 2018
DQ (Digital Intelligence) Global Standard on Digital Literacy, Digital Skills and Digital Readiness	DQ Institute	DQ Institute, Global, 2019
Digischool: the Digital Literacy Programme	Kenya	UNESCO, 2018
British Columbia's Digital Literacy Framework	British Columbia, Canada	Province of British Columbia, 2013
USE, UNDERSTAND & ENGAGE: A Digital Media Literacy Framework for Canadian Schools	Canada	Mediasmarts, 2022
IC3 Digital Literacy	North America	Certiport, 2022
Microsoft Digital Literacy Curriculum	Microsofttt	Microsoft, 2022
National Digital Literacy Mission (NDLM) Scheme	India	Government of India, 2015
SkillsFuture - Skills Framework for Infocomm Technology	Singapore	Government of Singapore, 2022
ETF READY Model	European Training Foundation	European Training Foundation, 2022



4.6. UN Framework Convention on Climate Change

United Nations. (1992). UN Framework Convention on Climate Change – UNFCCC, 1992. Retrieved from https://unfccc.int/resource/docs/convkp/conveng.pdf

The UN Framework Convention on Climate Change (UNFCCC) sets out the basic legal framework and principles for international climate change cooperation with the aim of stabilizing atmospheric concentrations of greenhouse gases (GHGs) to avoid "dangerous anthropogenic interference with the climate system." (United Nations, 1992).

4.7. Sustainable Development Goals

United Nations. (2015). Sustainable Development Goals, Retrieved from https://sdgs.un.org/goals

In June 1992, at the Earth Summit in Rio de Janeiro, Brazil, more than 178 countries adopted Agenda 21, a comprehensive plan of action to build a global partnership for sustainable development to improve human lives and protect the environment.

In January 2015, the General Assembly began the negotiation process on the post-2015 development agenda. The process culminated in the subsequent adoption of the 2030 Agenda for Sustainable Development, with 17 SDGs at its core, at the UN Sustainable Development Summit in September 2015. 2015 was a landmark year for multilateralism and international policy shaping, with the adoption of several major agreements:

Sendai Framework for Disaster Risk Reduction (March 2015)

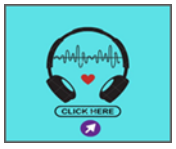
Addis Ababa Action Agenda on Financing for Development (July 2015)

Transforming our world: the 2030 Agenda for Sustainable Development with its 17 SDGs was adopted at the UN Sustainable Development Summit in New York in September 2015.

4.8. Paris Agreement on Climate Change (December 2015). Retrieved from https://climate.ec.europa.eu/eu-action/international-action-climate-change/climate-negotiations/paris-agreement_en

4.9. The Katowice package adopted at the UN climate conference (COP24) in December 2018 contains common and detailed rules, procedures and guidelines that operationalise the Paris Agreement. Retrieved from https://unfccc.int/process-and-meetings/the-paris-agreement/the-katowice-climate-package/katowice-climate-package

Some of the related SDGs: SDG 7 Affordable and Clean Energy, SDG 13 Climate Action, SDG 12 Responsible Consumption and Production



4.10. The European Green Deal

Striving to be the first climate-neutral continent. Retrieved from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

To overcome these challenges, the European Green Deal will transform the EU into a modern, resource-efficient and competitive economy, ensuring:

- no net emissions of greenhouse gases by 2050
- economic growth decoupled from resource use
- no person and no place left behind

The European Green Deal is also our lifeline out of the COVID-19 pandemic. One third of the €1.8 trillion investments from the NextGenerationEU Recovery Plan, and the EU's seven-year budget will finance the European Green Deal.

The first climate-neutral continent by 2050

At least 55% less net greenhouse gas emissions by 2030, compared to 1990 levels

3 billion additional trees to be planted in the EU by 2030.

4.11. European Climate Law

European Climate Law. (2021). Retrieved from https://climate.ec.europa.eu/eu-action/european-green-deal/european-climate-law_en

The European Climate Law was published in the Official Journal on 9 July 2021 and entered into force on 29 July 2021.

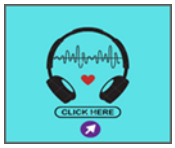
The European Climate Law sets a legally binding target of net zero greenhouse gas emissions by 2050. The EU Institutions and the Member States are bound to take the necessary measures at EU and national level to meet the target, taking into account the importance of promoting fairness and solidarity among Member States.

The Climate Law includes measures to keep track of progress and adjust our actions accordingly, based on existing systems such as the governance process for Member States' national energy and climate plans, regular reports by the European Environment Agency, and the latest scientific evidence on climate change and its impacts.

Progress will be reviewed every five years, in line with the global stocktake exercise under the Paris Agreement.

The Climate Law also addresses the necessary steps to get to the 2050 target:

- Based on a comprehensive impact assessment, the EU has set a new target for 2030 of reducing net greenhouse gas emissions by at least 55% compared to levels in 1990. The new EU 2030 target is included in the Law.
- The Law also includes a process for setting a 2040 climate target.



The Climate Law includes:

- a legal objective for the Union to reach climate neutrality by 2050
- an ambitious 2030 climate target of at least 55% reduction of net emissions of greenhouse gases as compared to 1990, with clarity on the contribution of emission reductions and removals
- recognition of the need to enhance the EU's carbon sink through a more ambitious LULUCF regulation, for which the Commission made a proposal in July 2021
- a process for setting a 2040 climate target, taking into account an indicative greenhouse gas budget for 2030-2050 to be published by the Commission
- a commitment to negative emissions after 2050
- the establishment of European Scientific Advisory Board on Climate Change, that will provide independent scientific advice
- stronger provisions on adaptation to climate change
- strong coherence across Union policies with the climate neutrality objective
- a commitment to engage with sectors to prepare sector-specific roadmaps charting the path to climate neutrality in different areas of the economy

REGULATION (EU) 2021/1119 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law')

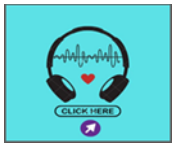
Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1119

4.12. Governance of the Energy Union and Climate Action

Retrieved from: https://climate.ec.europa.eu/eu-action/climate-strategies-targets/progress-made-cutting-emissions/governance-energy-union-and-climate-action_en

To help the EU reach its 2030 climate and energy targets, the Regulation on the Governance of the Energy Union sets common rules for planning, reporting and monitoring. The Regulation also ensures that EU planning and reporting are synchronised with the ambition cycles under the Paris Agreement.

Regulation retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ:L:2018:328:TOC&uri=uriserv:OJ.L_.2018.328.01.0001.01.ENG



4.13. REGULATION (EU) 2018/1999 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council

The national energy and climate plans (NECPs) were introduced by the Regulation on the governance of the energy union and climate action (EU)2018/1999, agreed as part of the Clean energy for all Europeans package which was adopted in 2019.

4.14. The National Plans

- The national plans outline how the EU countries intend to address
- energy efficiency
- renewables
- greenhouse gas emissions reductions
- interconnections
- research and innovation

This approach requires a coordination of purpose across all government departments and it provides a level of planning that will ease public and private investment.

The National Plans are retrieved from https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en

Latvia NECP (2020). Retrieved from https://energy.ec.europa.eu/system/files/2020-04/lv_final_necp_main_en_0.pdf

4.15. Latvia on Paris Agreement:

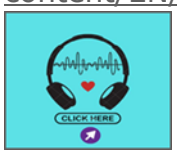
Par Apvienoto Nāciju Organizācijas Vispārējās konvencijas par klimata pārmaiņām Parīzes nolīgumu. Retrieved from https://likumi.lv/ta/id/288575-par-apvienoto-naciju-organizacijas-visparejas-konvencijas-par-klimata-parmainam-parizes-noligumu

(Ritchie, H., Roser, M. (2023). Latvia: CO2 Country Profile. Our World Data Retrieved from https://ourworldindata.org/co2/country/latvia)

4.16. Data protection in the EU

The General Data Protection Regulation (GDPR), the Data Protection Law Enforcement Directive and other rules concerning the protection of personal data.

Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02016R0679-20160504&qid=1532348683434



Examples of data not considered personal data

- a company registration number;
- an email address such as info@company.com;
- anonymised data.

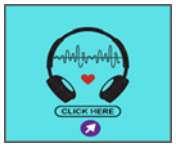
Figure 12. Source: Monicore at pexels.com

References:

Article 2, Article 4(1)and (5) and Recitals (14), (15), (26), (27), (29) and (30) of the GDPR

Article 29 Working Party Opinion 4/2007 on the concept of personal data

Article 29 Working Party Opinion 05/2014 on Anonymisation Techniques



4.17. Setting up a business website

Domain names

A domain name is a redirect from an Internet Protocol (IP) address, which is a series of digits such as 136.173.60.59 or 91.194.202.11. The best domain names act as a digital entrance to your shop and are easy to remember, such as europarl.europa.eu. Remember to keep it user-friendly and simple.

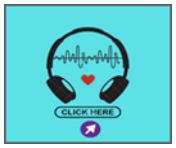
Once you have chosen the appropriate one for you, the next step is registering the domain name to ensure that it remains unique to your site. (EC, 2023).

Displaying contact and other essential information on your website

As a business, you are legally obliged to provide customers with the following information on your website:

- your identity, such as your trading name
- legal physical and e-mail address and telephone number; if different, the legal address of your establishment
- your legal status, legal form and, if you are registered in a trade or similar public register, the name of the public register for your activity and your registration number (plus your professional title and Member State in which it was granted, if the activity is based on a regulated profession)
- VAT identification number, if your activity charges VAT for the goods or services it provides
- details of any supervisory authority, if your activity is subject to a professional authorisation scheme
- link from your website to the Online Dispute Resolution platform, a service provided by the European Commission to easily solve issues with consumers
- general terms and conditions, terms of sale and other applicable information related to the sales transaction that you must provide to the customer during the ordering process
- privacy policy, cookie policy, and other policies applicable to personal data protection (EC, 2023).

If you are subject to professional qualifications, you must also comply with the requirements of the countries in which you provide services, which each national contact point Open as an external link can provide more information about. In this case, you should also provide details about your insurance or applicable financial guarantees, as well as a reference to the rules governing your profession and how to access them. If you already offer or want to provide your professional services abroad, visit our related section for more information. (EC, 2023).



4.18. Disclaimers and other legal notices

A disclaimer is a legal notice that is placed on your website in an effort to limit your liability from the outcome of the use of your site. The disclaimer is intended for general information and, although it cannot fully protect your website against legal actions, it does help in relation to:

- accuracy of content on your website
- potential copyright issues
- transmission of computer viruses

Almost anything you place on your website can be covered by using a disclaimer. The disclaimer is usually displayed on every page of your website (for example, in the footer of each page via a hyperlink). You can prompt the the user to read the full disclaimer when using your services.

Disclaimers depend on your discretion and can be revised by a legal expert, but can include elements such as:

- copyright notice (aiming to protect your intellectual property rights from copyright infringement by other people)
- data protection and privacy compliance (informing visitors to your website how you comply with the data protection and privacy rules in regards to their data)
- the use of cookies
- your liability related to the accuracy of information provided on the website (EC, 2023).

4.19. Avoiding unjustified geo-blocking

When you sell goods and services through your website, you cannot offer less favourable terms or deny customers' access to specific items simply because of their location or nationality, except in exceptional cases when a specific national law might require it. These practices are known as geo-blocking. (EC, 2023).

The geo-blocking regulation covers online and offline sales of tangible goods such as clothing, footwear or accessories, as well as certain online digital services (cloud services, data warehousing, website hosting). There are obligations you must observe when you set up your website to make sure that it avoids geo-blocking practices:

(EC, 2023).

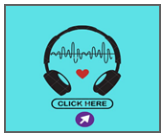
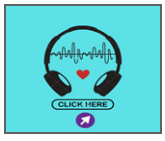


Table 3: Avoiding unjustified geo-blocking

Obligation	What does it mean?
Allow user access	You must not restrict access to your online shop or other online services only based on your customers' IP address, nationality or geographical location. However, provided you offer the due justifications, you can deny access where specific national law requires this.
Design forms to cover all applicable territories	When you provide forms for customers' billing addresses or contact details, you should allow them to fill their personal details in a format that is not limited to a specific country or region. On the other hand, delivery address formats can be limited only to those countries where you provide shipping.
Do not redirect users	You must obtain your customers' consent explicitly before redirecting them to another location-specific version of your online shop. In this case, you should also give them the option to return to the site they were initially on. You can have this consent saved under the customers' preferences. You should also enable customers to withdraw this consent at any time.
Do not change prices	You should not change product offers, commercial conditions or pricing in your online shop automatically based on your customers' geographic details such as IP address, residence, or means of payment.
Make no distinction between similar payment methods	If your online shop accepts a specific means of payment such as debit or credit cards from the same card association, you should enable this means for all customers as long as the cards were issued in the EU/EEA. You cannot automatically decline a means of payment only because it was issued in a certain territory

(EC, 2023).



4.20. Making your site usable and accessible

4.20.1. E-accessibility helps make websites easier to navigate for people with disabilities, the elderly, and those living in places that are still developing technologically. The World Wide Web Consortium (W3C) has published a guide to essential components for web accessibility to help you develop a website that complies with e-accessibility regulations. If you have already developed your website, you can use this guide to determine its level of e-accessibility.

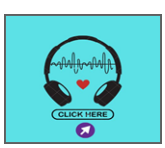
Once you have developed or updated your website according to W3C guidelines and evaluated it to determine its level of e-accessibility, you can display a distinctive icon on your website to advertise that conformity.

You can also see how the European Union implements web accessibility requisites in the Europa Web Guide.

4.20.2. Usability refers to how easy it is to navigate through your website, the way your site arranges and displays information and how comfortable it is for users to interact with it. Better usability increases search engine rankings, the number and quality of visits, and can lead to a better conversion rate, which can include the number of people who purchase something once they visit your website.

The main elements of web usability are:

- **responsiveness**, meaning that your site works well on computers, tablets and smartphones
- **total website loading time**, which should take a maximum of 2 to 3 seconds
- **visibility of the site's main sections**, easily identifiable through menus with clear sections
- **visibility of access to the homepage**, with links on the main menu section or in the header
- **link visibility**, though easily identifiable cues that stand out from the general text, including underlining
- **positioning of contact information** in a clear and visible space
- **a clear sitemap**, which helps to classify information and improve search engine rankings
- **breadcrumbs**, which show users the section and subsection of the website that they're looking at so they can orient themselves



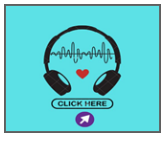
- **number of clicks from the homepage**, which is ideally no more than 3 clicks to the deepest part of the site
- **browser operability**, meaning that your site functions properly on any browser, across multiple operating systems and types of devices

There are many tools to help you correct any web usability errors on your site – including loading time, use of images and programming errors. The European Commission has established a set of usability tests to aid you in improving your website.

4.21. Check also the EU and national legislation on the topics:

- **Data Protection**
- **Intellectual property rights**
- **Legal notice and copyright**
- **Cookies and similar technologies**
- **Sensitive information on Europa websites**
- **User content moderation**

Figure 13: Source Sanjay Sawan t@pexels.com



4.22. Selling online using third-party platforms

To set up your online business, you can also set up an online shop using third-party platforms, which is any software developed externally to you or your main website provider. Another alternative would be to list your products on well-known marketplaces. Keep in mind that some of your basic obligations in running a website still apply if you chose this option. (EC, 2023).

4.23. E-commerce third-party platforms

An e-commerce platform is a software programme or application that will allow your business to sell goods and services online by helping you manage your website and other operations such as marketing, sales, and logistics. Here are some of the things you should look at when choosing this type of solution: (EC, 2023).

4.24. Setup simplicity: look at the different templates offered by each platform to find what best suits your business and brand. (EC, 2023).

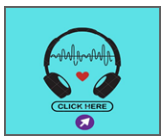
4.25. Easy and secure browsing: choose a solution that will give your customers a high-level user experience. You should also check that security levels are in place for the payment processing features of the e-commerce platform. (EC, 2023).

4.26. Multiple integrations: look for a wide variety of integrations with the software and marketing tools that you might be already using or will consider adding in the future. (EC, 2023).

4.27. SEO features: Search engine optimisation (SEO) is the process by which you can improve the quantity and quality of the traffic to your website from search engines. Your business should be easy to find in customers' searches, so the platform must allow you to implement some of the most common tools for organic growth in rankings, such as using your own domain name, or collecting customer feedback and reviews. (EC, 2023).

4.28. Mobile-first approach: a growing number of customers use their smartphones or tablets for online shopping, and this is why the platform's adaptability to mobile devices should be an important factor when you decide on your choice. (EC, 2023).

4.29. Monitoring tools: choose a platform that will allow you to easily monitor the performance of your online shop in terms of sales volumes, preferred payment means, or number of orders. (EC, 2023).



4.30. Technical support: find an e-commerce platform that is highly ranked by other businesses in terms of customer support (EC, 2023).

4.31. Payment options for your customers: consider the payment options, such as direct debit or credit cards, you want to offer your customers and make sure the platform you choose will enable your online shop to use them. (EC, 2023).

4.32. Pricing: consider the costs involved in using one platform or another. E-commerce platforms offer a variety of pricing schemes, ranging from monthly subscriptions to rates per transaction, flat rates, additional costs for add-ons or features, so you should weigh carefully the pricing options that best suit your business model. (EC, 2023).

4.33. Marketplace platforms

If using a third-party e-commerce platform is too much effort for you or you want to expand into an additional sales channel, consider selling through a marketplace.

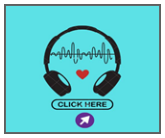
Marketplaces are another type of e-commerce sites that connect sellers with buyers and follow the offline model of traditional department stores. All transactions on a marketplace are managed by its operator and you can use this channel to reach customers who are interested in your products or services. (EC, 2023).

Some of the advantages offered by online marketplaces are:

- reduced marketing costs
- instant access to international markets
- transparent competition with similar businesses
- increased trust and security for customers
- no interruptions in operation
- predictability in terms of stock, prices and availability
- handling of order payment and processing
- assistance to both sellers and buyers throughout the whole sales process (EC, 2023).

4.34. Platform to Business Regulation (P2B)

The European Commission has introduced new regulations to increase transparency and fairness on online platforms. These rules address the obligations of online intermediation and search engine providers (including e-commerce, social media, online app distribution and collaborative marketplaces), who act as gateways to businesses' access to markets and consumers. (EC, 2023).



4.36. The new **Platform to Business (P2B) Regulation** provides solutions to problems encountered by businesses using platforms as part of their work, such as:

- lack of predictability and justifications in the platforms' terms and conditions
- unjustified suspension and termination of businesses' accounts
- unclear policies and ranking rules
- discrimination in favour of platforms' own products or services
- limitation of businesses' freedom to offer better conditions outside the platform
- platforms' ineffective complaint handling and redress mechanisms (EC, 2023).

4.37. The Observatory on the Online Platform Economy was created to monitor the evolution of the online platform economy and the implementation of the P2B Regulation.

REGULATION (EU) 2019/1150 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 June 2019 on promoting fairness and transparency for business users of online intermediation services

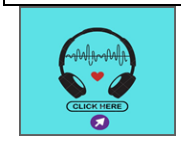
4.38. Setting up an online shop

4.38.1. Dealing with online payments

A major part in the online sale process belongs to payments, which can include credit or debit cards, bank transfers, prepaid cards or some other means. A good payment provider will offer you a secure payment environment and a single interface to the payment methods you decide to use and will enable you to operate across borders.

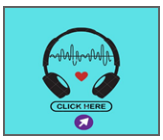
When you enter new markets, it's important to look at the payment methods that are accepted locally. To the best of your ability, try not to discriminate based on location and provide payment options that customers are the most used to. (EC, 2023).

EU Directive on Payment Services
EU Directive on privacy and electronic communications
EU General Data Protection Regulation (GDPR)
EU Directive on the liability for defective products
EU Directive on the liability for defective products - modification
EU Directive on consumer rights
EU Directive on the sale of consumer goods and associated guarantees



4.39. ConsumerLawReady.eu Open as an external link is a portal created by the EU to bring SMEs up to speed on important aspects of EU consumer law. You can find training courses and discover more information about how your country applies the common EU rules on unfair commercial practices and what your obligations are in the EU country where you trade.

Figure 14: Source Karolina Grabowska at pexels.com



5. Sustainable Hospitality Digitalisation Theoretical Framework

The theoretical framework of sustainable digitalization in the hospitality industry aims to provide theoretical insights into the components and tools of digitalization that would equip you with the necessary understanding of the concept.

The definition of digital transformation by Solis (2016) is: "the investment in and development of new technologies, mindsets, and business and operational models to improve work and competitiveness and deliver new and relevant value for customer and employees in an ever-evolving digital economy". The definition outlines the importance of innovativeness, strategic human resource management, and technology integration. Within the hospitality industry, digital transformation requires action in four main aspects:

5.1. Digital Transformation:
1) Framing digital challenge,
2) Focus investment,
3) Engaging the organization,
4) Sustaining transformation (Prihanto & Kurniasari, 2019).

According to Bumann & Peter (2019), the digital transformation framework consists of six components, namely:

- **THE DIGITAL TRANSFORMATION FRAMEWORK:**
- STRATEGY
- ORGANIZATION
- PEOPLE
- CUSTOMER
- TECHNOLOGY
- CULTURE (Bumann & Peter, 2019)

- **Strategy -** successful digitalization starts with building sophisticated digital long term and short term development strategy. The digitalization aspect of hospitality enterprises should be implemented in corporate, as well as business and functional level strategies. Well formulated digitalization strategy is the cornerstone of digitalization success.

- **Organization** - the most important factor in implementing the digital strategy is organizations' set up, partnership networks, collaborative spirits. If

organization is flexible, collaborative, it can quickly respond to changes in the environment and implement digitalization tools at much faster rate.

- **People** - the employees, their knowledge, skills, competencies and determination is critical factor for digitalization implementation. The employees should be willing and capable of learning, improving, and committed to personal and professional development.

Figure 15. Source: Polina Zimmerman at pexels

- **Customer** - customers have become more aware of digitalization tools and request more hybrid interaction channels. Customers want to interact with the organization via traditional and digital means, and while doing so, customers provide organizations with the data and customer insights.
- **Technology** - one of the aspects of hospitality industry digitalization is the organizations capabilities, ability and strategy to acquire, use and adopt new technologies. The flexibility, speed and innovation is crucial aspects.
- **Culture** - the hospitality organizations' culture also plays important role in digitalization process. The digitalization process requires strong digital leaders, commitment from the higher levels of management and freedom given to employees to experiment.

In conclusion, the sustainable hospitality digitalization framework is composed of multidimensional and complex structures, and digitalization should be the priority in strategic, business, and functional levels of organizational management.

6. Definitions: Theory Review

In this chapter we will be looking into the definitions regarding sustainability per se, SDG, digitalisation, and the application and implication of all of them into the hospitality industry.

The aim is to give you – the reader – an insight into the terminology definitions of sustainability, hospitality, and digitalisation from a theoretic perspective.

7. Sustainability

While we maybe as consumers today on a daily notion naturally adheres to various social etiquettes and behave and act sustainably in terms of preserving and saving the natural resources, we otherwise require and demand for our modern lifestyle, the terminology of sustainability in fact is of a relatively resent origin.

To help understand the definition of sustainability, one can therefore apply the usage of an expert on linguistic understanding.

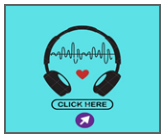
Thus, if you applies the usage of Oxford Languages in determining an overall definition, they say; "Avoidance of depletion of natural resources in order to maintain an ecologic balance" (https://languages.oup.com/google-dictionary-en/)

Though, to understand the terminology in a more broader and practical applied fashion by today standards, one can turn to the most commonly applied definition for sustainability as how UN back in 1987 defined via its Brundtland Commission report "Our common future" as "meeting the need of the present without compromising the ability of future generations to meet their own needs" (http://www.un-documents.net/our-common-future.pdf)

Today, there are almost 140 developing countries in the world seeking ways of meeting their development needs, but with the increasing threat of climate change, concrete efforts must be made to ensure development today does not negatively affect future generations. (https://www.un.org/en/academic-impact/sustainability)

Thus, the most noticeable difference between the former and the latter definition is that while the former can be applied universally, the latter however, is backed up by an encore of actions on how to achieve the abovementioned latter credo.

Thusly, UN's definition on sustainability is sustained by its actions via its SDG scheme, Sustainable Development Goals.



8. Sustainable Development Goals

The concept of sustainable development has become a widely recognized goal for human society in the 21st century. The idea of sustainable development came to light in 1987 with the publication of "Our Common Future," which firmly established sustainable development as a critical component of international development. Because inequalities that had been anomalies were increasing within and among nations, increasing poverty, especially in developing countries, depleting the ozone layer and causing global warming, depleting natural resources and endangering some species of animals and plants, and causing water and air pollution, and so forth, sustainable development came about as an effort to change the way of thinking about the planet. (Haijan & Kashani, 2021)

What are the Sustainable Development Goals

In an agreement the member nations of the UN in 2015 adopted a series of standards and objectives "as a universal call to action to end poverty, protect the planet, and to ensure that by 2030 all people enjoy peace and prosperity". (United Nations, 2015) LINK: (https://www.undp.org/sustainable-development-goals)

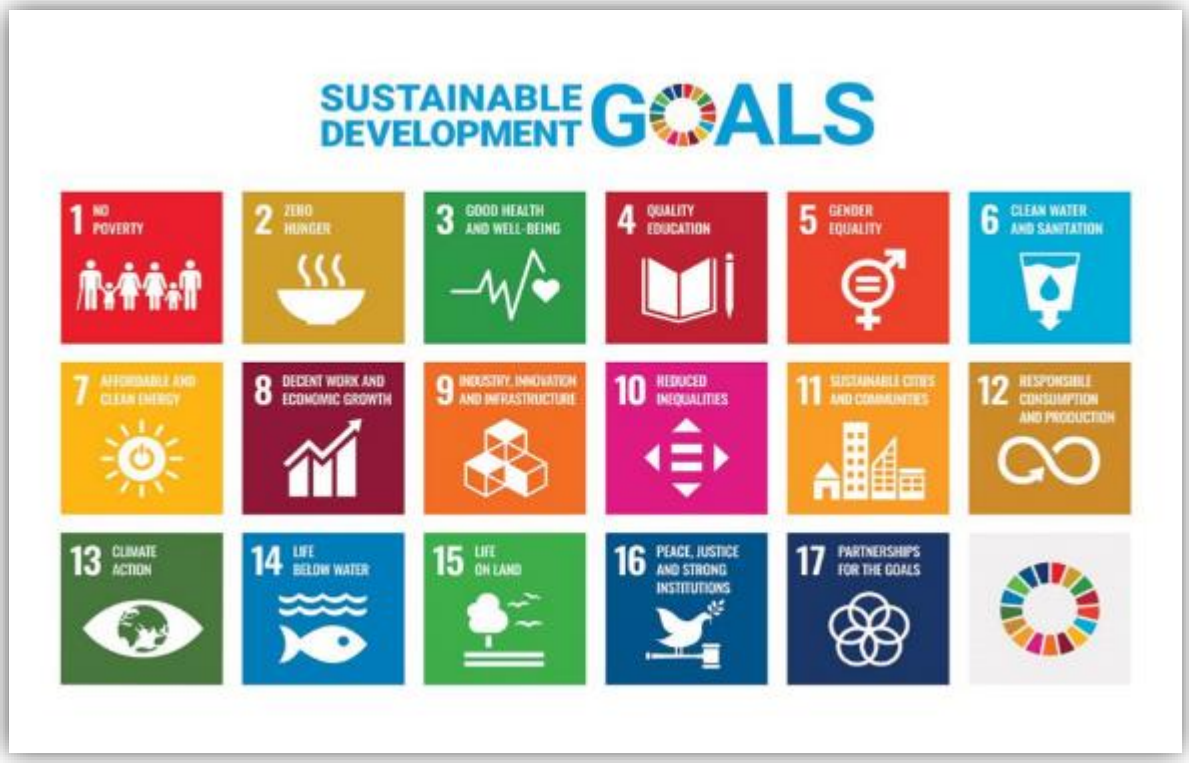
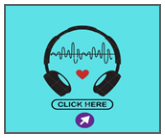


Figure 16. Source: United Nations.



8.1. The Objective of SDGs

This path towards sustainable development is known as the 2030 Agenda for Sustainable Development Goals. This agenda includes 17 Sustainable Development Goals, or SDGs, which set out quantitative objectives across the social, economic, and environmental dimensions of sustainable development – all to be achieved by 2030. The goals provide a framework for shared action "for people, planet and prosperity," to be implemented by "all countries and all stakeholders, acting in collaborative partnership." 169 targets accompany the 17 goals and set out quantitative and qualitative objectives to be achieved by 2030. These targets are "global in nature and universally applicable, taking into account different national realities, capacities and levels of development and respecting national policies and priorities." (United Nations, 2015).

The SDGs update the Millennium Development Goals (MDGs), which commenced a worldwide attempt in 2000 to challenge the indignity of poverty. The MDGs created measurable, universally agreed-upon targets for tackling excessive poverty and starvation, preventing lethal sicknesses, and expanding primary schooling to all young people, among other development priorities. (Haijan & Kashani, 2021, p.1-21)

Figure 17. Source: SDGs. https://sdg.gdrc.org

The SDGs has benefitted the both the public knowledge on sustainability as a concept and laying the building ground for further augmentation of the empiric understanding of them as seen in the next model.

9. Hospitality

Hospitality as a trade and terminology can finds its trace and origin back to the dawn of ancient civilisation and to ever since mankind found the ability of crafting wine out of grapes to be served in tavernas or inns as a commercial opportunity.

The etymological roots of the term hospitality can be identified as being Medieval Latin "hospes" (guests); "hospitari" (be a guest); and "hospitabilis" (put up as a guest) (American Heritage Dictionary, 2007)

The definition of the commercial modern era styled hospitality can be seen through the scope of societal development (Hepple, Kipps and Thomsom, 1990) by identifying four characteristics in its modern sense:

1) It is conferred by a host on a guest, who is away from home.

2) It is interactive, involving the coming together of a provider and a receiver.

3) It is comprised of a blend of tangible and intangible factors.

4) The host provides for the guest' security, psychological and physiological comfort.

Figure 18. Source: Leeloo Thefirst at pexels

This indicates or highlight that hospitality imply a reciprocal relationship with certain imposed obligations on the guest, however equally vice versa.

From a historical perspective two types of hospitality can thusly be identified (Carol A. King – 1995 – Viewpoint – What is hospitality – Elsevier Science Vol. 14)

1) Private hospitality: acts by individuals towards individuals in a private setting, such as the home.

2) Commercial hospitality: meals, beverages, lodging, and entertainment provided for a profit.

The separation of these two definitions can in our modern world seem somewhat blurred given the appearance of digital options e.g., Airbnb and other similar

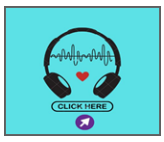
digital platforms. Through such "sharing economy" platforms individuals can via the individual countries incorporated short terms legislations commercially rent out part of/or all parts of their house against a profit.

By providing their digital services via its platform, Airbnb is offering a shift of paradigm away from the classic perception of the two abovementioned hospitality definitions by acting as intermediary rather than as an actual host or provider. Equally, this platform might have moved away from its original concept of private hosting to a private person in a single entity towards a more commercialisation approach in which the receiver/guest will experience no human contact nor hosting facilitation other than a digital guidance to how to entering the rented entity given that more and more entities being offered on Airbnb are only being done so via professional landlords with multiple entities and in doing so are pushing the boundaries for long-term housing seekers in various larger urban areas on a global scale into jeopardy.

Figure 19. Source: PhotoMIX Company at pexel

On the very same notion, the hospitality industry is also being contended with the ongoing tete-a-tete with the might of the OTA's as they as seen in the case of Airbnb merely acts as digital intermediaries rather than hosts. No matter, both platform providers can be considered acting harmfully onto the real hospitality providers disruptively.

Figure 20. Source: Proxyclick Visitor Management System at pexels



10. Sustainable Hospitality

While hospitality comprises, an all-encompassing terminology applied all operating business parts within the industry, framing an actual definition on sustainable hospitality, though since research on sustainable hospitality still is in its infancy, the understanding is made more compliant by applying the widening term "tourism" as reference and focal point instead.

10.1. SUSTAINABLE TOURISM

Sustainable tourism refers to sustainable practices in and by the tourism industry. It is an inspiration to acknowledge all impacts of tourism. Both positive and negative. It aims to minimize the negative impact and maximize the positive ones.

Figure 21. Source: Amina Filkins at pexels

Negative impacts to a destination include economic leakage, damage to the natural environment and overcrowding to name a few.

Positive impacts to a destination include job creation, cultural heritage preservation and interpretation, wildlife preservation, landscape restoration and more.

Sustainable tourism is defined by the UN Environment Program and UN World Tourism Organisation as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities."

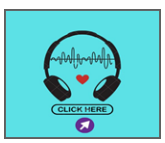
Additionally, they say that sustainable tourism "refers to environmental, economic, and socio-cultural aspects of tourism development, and a suitable balance must be established between these three dimensions to guarantee it long-term sustainability" (UNEP & UNWTO, 2005).

10.2. THE GLOBAL SUSTAINABLE TOURISM COUNCIL (GSTC)

Conjointly, **The Global Sustainable Tourism Council (GSTC**) have devised a serial of industrial Criteria and indicators in an effort to create a common understanding of sustainable tourism that when applying them into a hospitality corporation should lead to among others the following:

Figure 22. Source: Quang Nguyen Vinh at pexels

- Serve as the basis for certification for sustainability
- Serve as basic guidelines for businesses of all sizes to become more sustainable, and help businesses choose sustainable tourism programs that fulfill these global criteria
- Provide greater market access in the growing market for sustainable products, serving as guidance both for travelers and for travel agencies in choosing suppliers and sustainable tourism programs
- Help consumers identify sound sustainable tourism programs and businesses
- Serve as a common denominator for information media to recognize sustainable tourism providers
- Help certification and other voluntary programs ensure that their standards meet a broadly accepted baseline
- Offer governmental, non-governmental, and private sector programs a starting point for developing sustainable tourism requirements
- Serve as basic guidelines for education and training bodies, such as hotel schools and universities
- Demonstrate leadership that inspires others to act (Global Sustainable Tourism Council (GSTC), 2023).



11. Digitalisation

The literature that measures the digital transformation is wide and, given the complexity and pervasiveness of the phenomenon, it is not easy to adopt an unequivocal definition of digitalisation. (Calvino, F., Criscuolo, C., 2019)

The most simplistic form of definition of digitalisation can be found by via Oxford Learners Dictionary that put forward this general definition "the process of changing data into digital form that can be easily read and processed by a computer". (Oxford University Press, 2023).

DIGITALIZATION (DIGITALISATION)–
THE PROCESS OF CHANGING DATA INTO DIGITAL FORM THAT CAN BE EASILY READ AND PROCESSED BY A COMPUTER
(Oxford University Press, 2023)

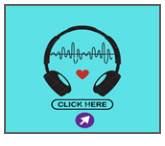
Though since this definition only rudimental addresses the complexity of the transformative process, one must apply a more business approach in order to understand it in depth.

"Digitalisation is the incorporation of digital technologies into business/social processes, with the objective of improving them. Digitalisation is transformative. It changes how corporations interact with their customers and often their revenue stream". (Scrive.com, 2023).

DIGITIZATION OR DIGITALIZATION ?

DIGITIZATION: For starters, digitization is creating a digital (bits and bytes) version of analog/physical things such as paper documents, microfilm images, photographs, sounds and more. So, it's simply converting and/or representing something non-digital (other examples include signals, health records, location data, identity cards, etc.) into a digital format which then can be used by a computing system for numerous possible reasons.
Digitization is the automation of existing manual and paper-based processes, enabled by the digitization of information; from an analog to a digital format.
(I-scoop.eu, 2023)

In business, digitalisation therefore most often refers to the enabling, improving, or transforming of either business operations, functions, processes, or models by leveraging digital technologies and a broader usage and context of digitised data,



turned into intelligence and actionable knowledge, with a specific benefit in mind. (I-scoop.eu, 2023).

Thus, via the means of IOT and Big Data, one can devise systems of engagement and systems of insight, leveraging digitised data and processes without being hampered or cluttered by paperwork clogging.

DIGITALISATION

In short, "digitalisation is the generic term for digital transformation of society and the economy. It describes the transition from an industrial age characterised by analogue technologies to an age of knowledge and creativity characterised by digital technologies and digital business innovation

(Innolytics, 2023)

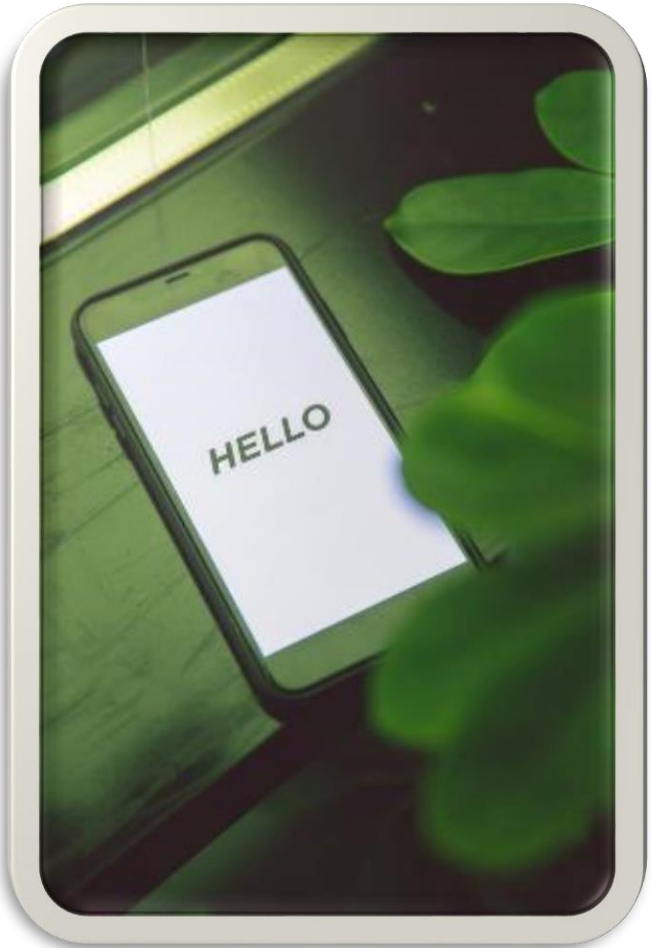
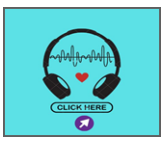


Figure 23. Source: Polina Zimmerman at pixels.com

Hence digitalisation equally has the meaning of going beyond the realm of business by referring to the ongoing adaptation of digital technologies across all possible societal and human activities.

Digitalisation therefore ultimately means the usage of digital technologies and of data (digitised and natively digital) in order to create revenue, improve business, replace/transform business processes (not simply digitise them) and in doing so creating an environment for digital business, whereby digital information is at its core.



12. Sustainable Digitalisation

SUSTAINABLE DIGITALISATION

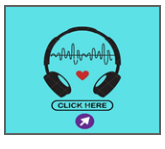
"Sustainable digitalisation, which incidental equal is known as sustainable digital transformation, as **a concept refers to the process of digitalising the economy in a long-lasting, green, and organic way. Sustainable digitalisation aims to support and enable…twin transition to a green a digital economy by building on its key strength: Innovative SMEs and their business ecosystems".** (European DIGITAL SME Alliance, 2023).

Sustainable digitalisation is a process whereby societies digitise themselves in a way that safeguards natural resources, respects the environment and people. It is about the transformation of organisations, people and societies that must take place in such a way that they have not yet made the shift to digital. (European Digital SME Alliance, 2023).

Today, digital transformation must offer solutions under the umbrella of sustainability, i.e., it must ensure a balance between what it means to take that step towards connectivity and economic growth, with care for the environment and social welfare, protecting the natural resources of the future. This is the only way to talk about sustainable digitalisation. (Telefonica, 2023).

The concept of digital sustainability is defined as encompassing the wide range of issues and concerns that contribute to the longevity of digital information. Digital sustainability, it is demonstrated, provides the context for digital preservation by considering the overall life cycle, technical, and socio-technical issues associated with the creation and management of the digital item. (Bradley, K., 2007, 56, 148–163.)

The introduction and usage of sustainable digitalisation is all part of the digital era, which equally is referred to as the "Forth Industrial Revolution (4IR)" and in which the notion is all on the development of new technologies. If you look apart from the individual effects, emphasis is on economic factors e.g., innovation gains, generation of new sales and value growth opportunities while equally addressing higher productivity output and increased efficiency in processes. In this sense, efficiency improvements are crucial for reducing resource consumption. (Fuchs, H. 2019).

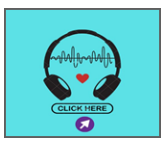


13. Sustainable Hospitality Digitalisation Toolkit

The reasoning and aim of any given project of this sort, is to enhance access to digital training and qualifications for all students within the field of hospitality management studies, supported by pooling of resources, providing initial and/or continuing training to the lectures and educators inside the line of hospitality management educations, and strengthening further the key competences in initial and continuing VET, in particular digital skills, green skills, and employability.

The project should incorporate the following objectives:

- Develop the Sustainable Hospitality Digitalisation Guidebook for initial and continuous VET Learners.
- Provide practical guidelines "Pedagogy of Sustainable Hospitality Digitalisation" to VET Educators and coaches of initial and continuous professional hospitality education.
- Produce a digital course "Sustainable Hospitality Digitalisation Toolkit" with teaching and learning resources for initial and continuous VET education and professional field workshops.
- Produce series of webinars to demonstrate how to use the resources and the course by the educators and learners from the two perspectives and produce reviews on related sustainable digitalisation subtopics.
- Improve VET educators' knowledge about hospitality digitalisation and approaches to embed digitalisation in the units.
- Mobilise social capital to raise awareness and promote the need to improve digital and digitalisation skills in Hospitality VET education and in the hospitality industry.
- Improve the intellectual and digitalisation competence of the project participants. (Sustainable Hospitality Digitalisation Toolkit, Hotel School, 2023).



14. Sustainable Hospitality Concept and Sustainable Hospitality Process

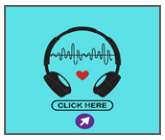
When defining sustainable hospitality concept and processes, one must first and foremost dwell on the contents of what a hospitality concept and processes comprises of. They can be defined as being bringing together the strategic and creative outline on how to realise an operating hospitality venture. It should piece together the various soft and hard detailed elements, to give strategic guidance, and to outline the how and why of any given hospitality concept to all relevant stakeholders, based on a clearly defined brand value and characteristics.

Equally, one must define and emphasise the understanding difference between sustainability and financial sustainability, as they conceptually are not necessarily intertwined with each other. However, the perception of sustainable hotel concept combines the two by implementing them into the realm of the triple bottom line as described by John Elkington:

Figure 24. Elkington, J. Tripple Bottom Line

The TBL comprises of these three dimensions the combined forms the structure of understanding the definition of sustainable hospitality concept:

- The environmental dimension (planet) consists of the regulation of execution of processes and products to improve one's environmental impact – the business carbon footprint.
- The social dimension (people) is about the way in which social equity and corporate governance are defined and followed within the entity business and about the inclusion of the wider community and local culture.
- The economic dimension (profit) regards the way in which the entity business organises its position in the marketplace to actively develop its sustainable profile by using its economic stability and profitability for continuous improvement.



The reasoning for applying sustainable hospitality concept can be measured by the achievement you will align this.

- You will be using your resources more effectively
- You will device a business culture that will enhance the morale, motivation, and satisfaction of your employees.
- You will through sustainable initiatives opening a dialogue with the wider inner and outer community.
- You will through sustainable business practices improve your branding image and enhancing your revenue potential on the long run.

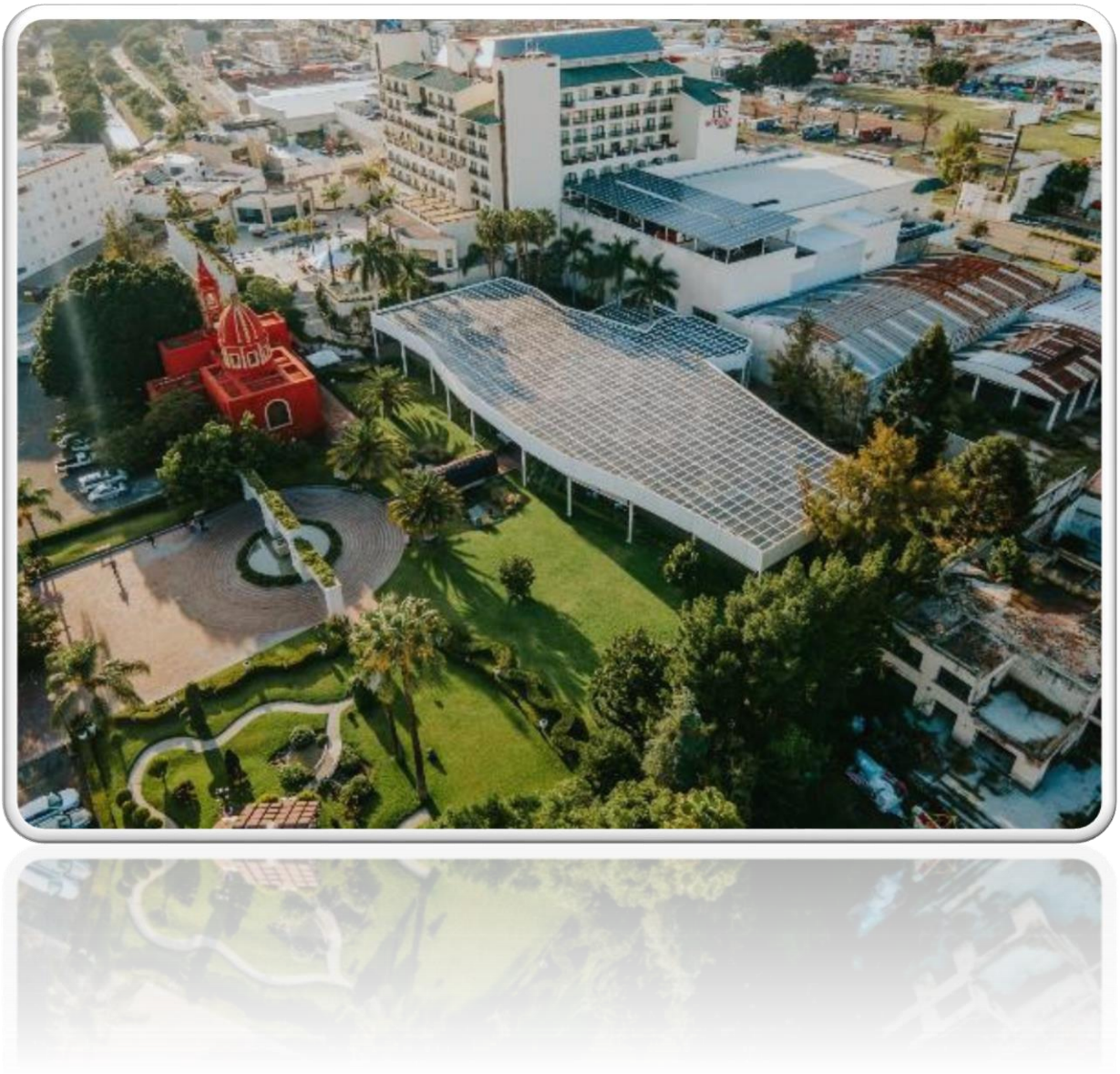


Figure 25. Source: Amar Preciado at pexels.com

15. Digital Skills

Before getting started it is important to find out what is understood by digital, digitalization and green skills and we need to find out what it means to have a certain skill.

The understanding of what define skills and the two categories can be useful as a frame for identifying if the employees in a specific context in a specific company possess the needed skills to carry out the required tasks or upgrading is needed.

Figure 26. Source: Mikael Blomkvist at pexels.com

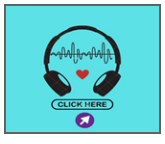
Considering several definitions, we can define skills as "the power acquired to perform a task properly using time, energy, and knowledge. (Skilltype.com, 2023).

Skills can be grouped in two categories: general skills cover the ability to take part in the daily work at a workplace (meetings, self-management, teamwork etc.) and special skills cover knowledge-based functional skills as certain tasks including educational knowledge and training.

It is important to be aware of the European focus on educating people. Policies, educational programs, and funding is essential in this work and students, employees and companies can benefit from this in their process of taking the right decisions on improving the workforce and the company's ability to move in a sustainable direction.

An overall policy/pillar in the European Union is the Pillar of Social Rights.

Skills for jobs in a green and digital economy no matter what industry or country you live in. Below you will an overview of all the actions taken by EU. Of course, they can be transferred to countries outside the EU as a framework.



The green and digital transitions as accompanied by demographic trends are transforming how we live, work and interact. We want to ensure people have the skills they need to thrive. The Skills Agenda aims to improve the relevance of skills in the EU to strengthen sustainable competitiveness, ensure social fairness and build our resilience. It does this through 12 "actions".

A PACT FOR SKILLS

(European Commission, 2020)

A Pact for Skills

- Strengthening skills intelligence
- EU support for strategic national upskilling action
- Proposal for a Council Recommendation on Vocational Education and Training for sustainable competiveness, social fairness and resilience
- Rolling out the European university's initiative and upskilling scientists
- Skills to support the green and digital transitions
- Increasing STEM graduates and fostering entrepreneurial and transversal skills
- Skills for Life
- Initiative on Individual Learning Accounts
- A European approach to micro-credentials
- New Europass Platform
- Improving the enabling framework to unlock Member States' and private investments in skills (European Commission, 2020).

Digital Competence	Digital competence can be broadly defined as the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society.	Redecker, C., DigCompEdu. (2017) referring to source DigComp Framework https://ec.europa.eu/jrc/digcomp

16. Digitalisation Skills

The next question appearing is the question: How to find out about the needed skills in different job positions in the hospitality industry? This question will be reviewed in the section "Digitalisation competences required in for hospitality qualifications (including culinary arts)". First, we need to find out what type of skills is covered by digital, digitalization and green. Digital skills and digitalization skills are difficult to define in since a lot of different understandings appear when trying to find a common understanding. A hint can be found in the Jason Bloombergs article:

In fact, it appears that Gartner is not of one mind on its definition of digitalization, as a recent Brookings Institute report quotes an entirely different one. "Digitalization, according to Gartner, Inc., is the process of employing digital technologies and information to transform business operations," according to the report Digitalization and the American Workforce by Mark Muro, senior fellow; Sifan Liu, data analyst; Jacob Whiton, research assistant; and Siddharth Kulkarni, former research analyst; all from the Brookings Institution. Kulkarni is now data science manager at Adobe. According to this definition, **digitalization is more about business operations than either social interactions or business models – although clearly all of these notions are interrelated. (Blumbergs, 2018)**

The Brookings report, in fact, focuses on how digitalization impacts people. "Digitalization is transforming the world of work," according to the report. "The acquisition of digital skills has now become a prerequisite for individual, industry, and regional success." (Blumbergs, 2018)

As organizations implement 'digital technologies' – which in this context really means computers and other information technology – people's jobs change. Imagine factory workers putting down their hammers and lathes and instead using computer-controlled equipment, for example. According to the Brookings report, such change is at the heart of digitalization.

Automation is a major part of the digitalization story, whether it be shifting work roles or transforming business processes generally. In fact, for many people, digitalization applies primarily to such processes. "Digitalization … increases process efficiency and improves data transparency, and of course, it should help boost your top line," explain Georg Tacke, CEO, and Annette Ehrhardt, Global Head of Communications & Marketing Senior Director, Simon-Kucher & Partners . "If you operate an online platform, then your company may already be 80 percent digitalized, and you can gain more efficiency or create more customer value by going the remaining 20 percent of the way." In this example, implementing the technology behind such an online platform isn't the digitalization step per se – it's shifting the business process to such a platform. It seems, therefore, that Gartner's definition that ties digitalization to business operations is on point, as such operations consist of business processes that digital technologies can transform. (Blumbergs, 2018)

Digital Transformation: Beyond Digitalization

Digitalization, however, is quite distinct from digital transformation.

An organization might undertake a series of digitalization projects, ranging from automating processes to retraining workers to use computers. Digital transformation, in contrast, is not something that enterprises can implement as projects. Instead, this broader term refers to the customer-driven strategic business transformation that requires cross-cutting organizational change as well as the implementation of digital technologies. (Blumbergs, 2018) Digital transformation initiatives will typically include several digitalization projects, but executives that believe that there is nothing more to digital transformation than digitalization are making a profound strategic mistake. **In reality, digital transformation requires the organization to deal better with change overall, essentially making change a core competency as the enterprise becomes customer-driven end-to-end. Such agility will facilitate ongoing digitalization initiatives but should not be confused with them. (Blumbergs, 2018)**

17. Green Skills

Coming up with one definition of green skills is also nearly impossible. One way of understanding green skills is looking at how UNIDO (United Nations Industrial Development Organization) defines it. (Arthur Charles, 2022).

Four groups of work tasks that are especially important for green occupations:

WORK TASKS THAT ARE ESPECIALLY IMPORTANT FOR GREEN OCCUPATIONS:

ENGINEERING AND TECHNICAL SKILLS
SCIENCE SKILLS
OPERATION MANAGEMENT SKILLS
MONITORING SKILLS (Arthur Charles, 2022)

- **Engineering and technical skills:** hard skills encompassing competences involved with the design, construction and assessment of technology usually mastered by engineers and technicians. This know-how is needed for eco-buildings, renewable energy design and energy-saving research and development (R&D) projects.

- **Science skills:** competences stemming from bodies of knowledge broad in scope and essential to innovation activities, for example physics and biology. These skills are especially in high demand in each stage of value chains and in the utility sector, which provides basic amenities such as water, sewage services and electricity.

- **Operation management skills**: know-how related to change in organizational structure required to support green activities and an integrated view of the firm through life-cycle management, lean production and cooperation with external actors, including customers. Such skills are important, for example, for sales engineers, climate change analysts, sustainability specialists, chief sustainability officers and transportation planners.

- **Monitoring skills:** technical and legal aspects of business activities that are fundamentally different way from the remit of engineering or of science. They refer to skills required to assess the observance of technical criteria and legal standards. Examples are environmental compliance inspectors, nuclear monitoring technicians, emergency management directors and legal assistants.

In addition to these skills, a range of soft skills are also considered to be increasingly important, not only for green skills, but generally for "skills of the future", including also those necessary for the Fourth Industrial Revolution. **Skills**

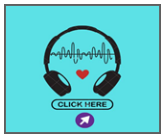
related to design thinking, creativity, adaptability, resilience, and even empathy, are regarded as critical.

However, it is important to agree on a common understanding of in the specific business to be able to move in the same direction in all departments. (Deloitte, 2022).

Green skills are those that enable the environmental sustainability of economic activities, such as skills in pollution mitigation and waste prevention, environmental remediation, sustainable procurement, energy generation and management, etc. 'Core' green skills (such as recycling) are most directly related to these sustainability-promoting activities; 'ambivalent' green skills (such as fleet management) may or may not be used for sustainability and 'adjacent' green skills (such as biology) can support acquisition of core and ambivalent green skills. (Linkedin Economic Graph,2022. Global Green Skills Report 2022).

Green economy — an economy that operates safely within planetary environmental boundaries, notably with regards to a stable climate and healthy ecosystem biodiversity.

A 'green' job (technically, occupation representative) is an occupation representative that cannot be performed without extensive knowledge of green skills. Skills are used as a signal for whether the greening of the economy is the main/primary focus of the occupation representative, in any sector where the occupation representative may exist. 'Green' jobs are those occupation representatives that have the highest green skills intensity, to capture the fact that green knowledge needs to be extensive. – E.g., sustainability specialist, solar consultant.



18. Digitalisation Competences Required in for Hospitality Qualifications Including Culinary Arts

The next question appearing is the question: How to find out about the needed skills in different job positions in the hospitality industry?

ESCO (EUROPEAN SKILLS, COMPETENCES, QUALIFICATIONS AND OCCUPATIONS) IS THE EUROPEAN MULTILINGUAL CLASSIFICATION OF SKILLS, COMPETENCES AND OCCUPATIONS.

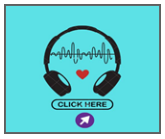
18.1. What is ESCO? ESCO (European Skills, Competences, Qualifications and Occupations) is the European multilingual classification of Skills, Competences and Occupations.

ESCO works as a dictionary, describing, identifying and classifying professional occupations and skills relevant for the EU labour market and education and training. Those concepts and the relationships between them can be understood by electronic systems, which allows different online platforms to use ESCO for services like matching jobseekers to jobs on the basis of their skills, suggesting trainings to people who want to reskill or upskill etc. (European Commission, 2023)

ESCO provides descriptions of 3008 occupations and 13.890 skills linked to these occupations, translated into 28 languages (all official EU languages plus Icelandic, Norwegian, Ukrainian, and Arabic). The aim of ESCO is to support job mobility across Europe and therefore a more integrated and efficient labour market, by offering a "common language" on occupations and skills that can be used by different stakeholders on employment and education and training topics. (European Commission, 2023)

Digitalisation presents numerous opportunities for hospitality companies and professionals – this opportunity increases over time because customers embrace the use of technology and see it increasinsgly as a win-win deal that not only keep costs lower but also adds value to the customer experience and make the customer journey smoother and more efficient. Examples can be hotels that use AR to inform their customers about local sights, transportation or restaurant guidance or reception—less check-in. That is why developing digital hospitality competencies is required and will become more important. (Carlisle, S., Ivanov, S., Dijkmans, C., 2021).

"As these more digitally savvy tourists enter the travel market, it allows companies to stay permanently connected with their customers, track their preferences over



time (Buhalis et al., 2019) and build close relationships and loyalty" (Asperen et al., 2018).

Technology presents unique solutions for restaurants to differentiate themselves and for owners to run their businesses more efficiently. In turn, it leaves more time and energy to focus on servicing guests with more unique dining experiences. Also, big data can offer guest insights that empower hotel and restaurants to personalize their offers in a much more customer-centric way.

Companies such as restaurants in the hospitality sector enjoy significant benefits from digitalization competencies. Digitalisation involves the use of sustainable and efficient methods that help support an organization's market position, improve customers service, simplify the booking process, and increase the number of bookings. (De Peuter-Rutten, J., 2023).

It is very difficult to answer exactly which skills are the most important and relevant to master. However, according to a large mixed-methods study of the European tourism industry with 1668 respondents, key digital skills include online marketing and communication skills, social media skills, MS Office skills, operating systems use skills and skills to monitor online reviews. (Carlisle, S., Ivanov, S., Dijkmans, C., 2021).

Digital competencies can be anything from as simple as following digital news and having an increased social presence on SOME platforms to more technical competencies such as the internet of things, big data, Covid-19-driven touch-free solutions within ordering and payment, table or room reservation system, delivery apps, mobile integration, QR codes, SEO, CRM, automated purchasing systems, augmented reality. (EHL Insights, 2023).

Olsen et al. (2014, p. 568) found that companies invest in the collection and measurement of customer data but few resources are used to use the data to optimize the organisation and its services and they argue that internal knowledge sharing can help solve this issue. (Carlisle, S., Ivanov, S., Dijkmans, C., 2021)

Several experts in the field of hospitality have proposed a general list of which digitalization competences the sector should strive to obtain. However, it has to be said that it can be difficult and even counter-productive to claim to be able to come up with a set list of generalizable competences that all actors in the hospitality sector need to have as the various market-, organizational- and cultural contexts that hospitality actors operate in differ. One of the competences that have been stressed several times within tourism in the postmodern workplace is **the self-learning competence**: "This skill is necessary to deal with continuous digital innovations and flexibility in the face of constant change and training. **(This**

skill includes permanent training, adaptability, and flexibility)." (Touroogle Company, 2022).

It is interesting to notice that the quote argues that digitalization is understood as a constant. That is why hospitality managers need to prioritize constant resources and attention to digitalization of their organisations. Many change management models see change as a temporary process with a start and an ending. However, it might be better to switch to change management models that see change as something – a permanent nature of doing digital business.

18.2. THE MOST PROMINENT NEW SKILLS REQUIRED IN THE NEW CONCEPT OF THE TOURISM INDUSTRY

The most prominent new skills required in the new concept of the tourism industry are:

1. Self-learning capacities; This skill is necessary to deal with continuous digital innovations and flexibility in the face of constant change and training. (This skill includes permanent training, adaptability, and flexibility).

2. Skills for conducting E-business: Includes all the necessary skills for online branding, marketing, distribution, data collection, and analysis.

3. Having a good understanding of artificial intelligence, virtual reality, and augmented reality technologies in all tourism sectors.

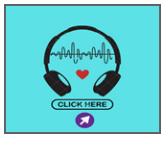
4. Other skills needed in the industry include storytelling skills, creativity, and creating a unique customer experience. (Touroogle Company, 2022).

It should be pointed out profession-specific knowledge (about attractions, hotels, food) is still required. (Touroogle Company, 2022).

The World Economic Forum (2016) notes that the most in-demand occupations did not exist ten or even five years ago in many countries. Today, tourism management has become inseparable from technology and communications, and the availability of appropriate digital skills in tourism organizations is crucial. (Touroogle Company, 2022).

ICT integration in high-level decision-making processes is still rare in many tourism organizations. (Touroogle Company, 2022).

Increasing company data volume regarding the number of channels, volume, speed, and variety has significantly created the need to change skills.



Digitalization throughout the tourism ecosystem will help drive the business to build resilience in a post-COVID-19 era. For those tourism sectors that seek automation, the removal of staff can seriously damage the tourist experience and reduce satisfaction while reducing costs. (Touroogle Company, 2022).

The challenge is, how can we use technology in the tourism industry to get the best output? Given the nature of the hospitality industry, it seems unlikely that technology can replace human labor, but it can affect their working formula. (Touroogle Company, 2022).

The travel and tourism industry is one of the industries in which interaction with the consumer is most important. Technological advances allow tourism organizations to get to know their customers better. (Touroogle Company, 2022).

Finally, it should note that every tourism organization must make a digital transformation apart from its long-term policies and programs. (Touroogle Company, 2022).

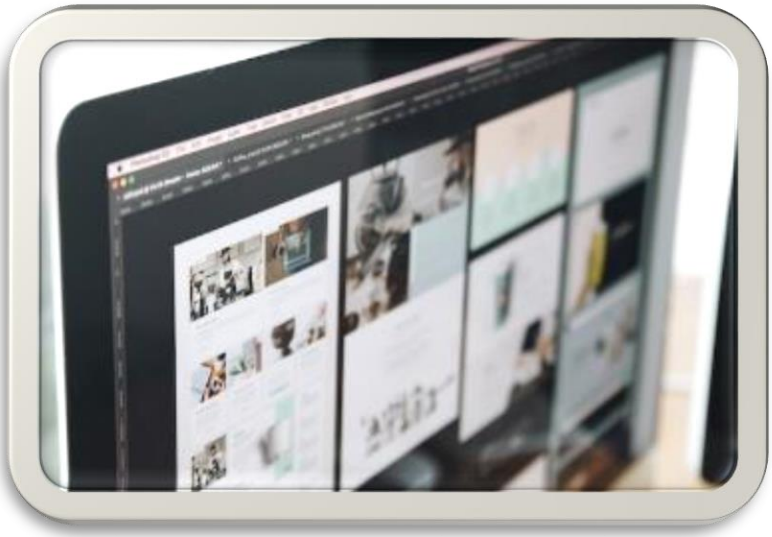


Figure 27. Source: Tranmautritam at pexels.com

The digital transformation strategy in organizations should pay attention to reforming the organizational culture, optimizing the processes by training the tourism industry employees, and implementing more flexible approaches. (Touroogle Company, 2022).

19. Enhancing Digital Skills and Competences for the Digital Transformation: Digital Education Action Plan 2021-2027

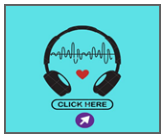
In any digital transformation case, it is key to investigate whether current theory applies to reality or whether there is a gap and to investigate not just the digital media but also how the exact case-specific user group interact with the media. To understand digitalisation, we must study the users. "Customer do not see mobile phones as mere channels. For them mobile phones are a lifestyle." (Brian Solis, 2016)

Not only can most hospitality professionals see the clear evidence that many external market changes and developments are digitally driven, they can also experience the immediate effects it has on their own practice in their own workplace and how it ideally simplifies processes. During Covid-19, restaurants introduced more QR codes replacing printed menu cards. On top of preventing the spread of Covid-19, this has clear benefits from a company perspective such as easier change and updates of menus because it can be done digitally without having to print new menus. This digital transformation has clear financial benefits for the restaurant as the electricity costs are limited as guests use their own smart phones – unless they charge them at the restaurant. Also, it has clear sustainable benefits from less printing. However, in order to be digitally sustainable, restaurants must consider to source green electricity from their supplier. (Intelity, 2016)

"A few years ago, InterContinental Hotels completely replaced print Bibles with digital versions loaded on Kindle e-readers. In the long term, the move could prove to be highly efficient. Guests can access a variety of reading material from the devices for expanded entertainment options rather than buying and replacing new books." (Intelity, 2016)

The European Centre for the Development of Vocational Training (Cedefop, 2018) states that technological changes are the major driver of organsiational change. **According to Cedefop's "European skills and jobs survey" about 85% of all EU jobs need at least a basic digital skills level. However, it is not sufficient to only focus on digital skills. It is also required more and more to possess a combination of cognitive and socio-emotional skills such as co-operation, learning- and communication skills (Cedefop, 2018, p. 13).**

Within organizational communication, the notion of the communicative constitution of organizations (CCO) is at the center of a growing theoretical understanding. CCO scholarship is based on the idea that communication is not



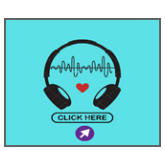
just an instrument, and that organization emerges in and is sustained and transformed by communication. (Schoeneborn, D., Vásquez, C., 2017).

On par with CCO, it can be argued that the hospitality organisation emerges in, is sustained and transformed by the digital transformation of work. This means that enhancing digital skills means enhancing not just tools and instruments but also mindsets, perspectives and processes. Digital transformations are not limited to isolated tools and functions but offers a formative opportunity to re-design the whole notion of the organisation and hospitality as we know it. (Busulwa, R., Pickering, M., Mao, I., 2022).

Digital transformation is a powerful force as it has a constituting effect which means that it is not limited to transforming hospitality tools but also has the potential to re-imagine and recreate all areas of hospitality and even hospitality mind sets. To explain the power and the importance of digital transformation, it may be helpful to consider the social constructionist view of the organisation in which (digital) communication (re-)constructs the perception of the organisation. The same way, digital communication and digital transactions exchange information, it also shapes the hospitality organisation. Digital transformation tranforms the role and tasks of hospitality actors in everything from who takes orders in McDonalds and who does the check-in at the airport to who drives the metro. (Busulwa, R., Pickering, M., Mao, I., 2022).

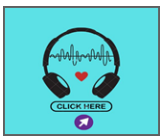
This digital transformation of hospitality has at least two obvious consequences for businesses. Businesses can either cut employee costs or they can transfer the role of the employee and set the employee free to perform a different task that cannot yet be substituted by robots. Much of the change and innovation in most sectors, markets and organisations comes from digital transformation. To give a few hospitality examples, just think of OTAs such as hotels.com, booking.com and trip.com or Airbnb, Über, Trustpilot.com and Tripadvisor.com. The examples show that newcomers in the hospitality industry seem to capitalize on their digital skills and all the opportunities a lot more than existing companies. It could perhaps be argued that market newcomers experiment more with their digital skills than already established companies which rely on older business models and habits. Perhaps existing companies perceive digitalization as to difficult to fully embrace because of all the changes it brings along whereas new companies do not have an existing foundation and thus have to build everything from scratch and in this way perceive digital transformation much more positively with a higher interest in a constitutive understanding of the digital transformation and organisation relation.

"Effectively delivering on this digital transformation imperative requires new or enhanced organization capabilities such as digital innovation (e.g., see Warner



and Wäger, 2019; Nambisan et al., 2017), digital customer engagement (e.g., see Eigenraam et al., 2018), digital customer experience management (e.g., see Weill and Woerner, 2013), and more." (Busulwa, R., Pickering, M., Mao, I., 2022).

Figure 28. Source: Pixabay at pexels.com



20. Developing Digital Competence for Employability in the Hospitality industry: Engaging and Supporting Stakeholders with the Use of DigComp 2.0, 2.1, 2.2.

To join DigComp-related Communities of Practice (CoPs):

There are two CoPs to support implementation of DigComp in Member States – **the DigComp CoP and the Digital Skills Certification CoP.**

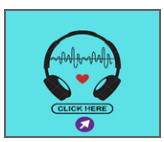
Both of these are hosted by All Digital, which offers different interest points on DigComp from policy, research, education and training to employability and human resources development, inclusion projects and others. DigComp CoP and Digital Skills Certification CoP hosted by All Digital. The CoPs are free and open to all stakeholders to join.

DigComp was first published in 2013, as a reference framework to support the development of digital competence of individuals in Europe. DigComp describes which competences are needed today to use digital technologies in a confident, critical, collaborative and creative way to achieve goals related to work, learning, leisure, inclusion and participation in our digital society. (European Commission, 2018).

Stakeholder management and engagement offers a large pool of resources to tap into if companies can motivate stakeholders to participate in the value creation process. Here, it helps to be a purpose-driven company, to have a compelling cause apart from profits. Sustainability lends itself to be that stakeholder engaging factor. Research among millennials seem to offer evidence that millennials are very motivated by sustainability and that they have a strong stake in empowering the green agenda. **"87% [of millennials] would be more loyal to a company that helps them contribute to social and environmental issues."** (Fischer, D., 2018).

Millennials are born digital which means they are trained in searching for information via smart phones about issues and they will have the internet and social media at their disposal to share sustainability flaws and gaps they might identify about companies trying to green wash. "Companies need to be careful about simply choosing a social problem to look good and meaningful on their website." (Fischer, D., 2018).

The fast pace of digitalisation is problematic because it makes strategic planning and linear strategizing difficult. "Digitisation and Web 4.0 is redefining jobs and is



also creating new ones, which requires new competences and skills (Hsu, 2018). This leads to the important question of how digital skills in tourism organisations are currently covered and what the expectations are for the future." (Carlisle, S., Ivanov, S., Dijkmans, C., 2021).

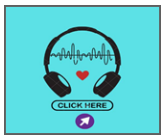
Organisations and workers have to adapt and even that is in many cases not enough because many organisations and jobs simply do not exist in the near future. (Carlisle, S., Ivanov, S., Dijkmans, C., 2021).

A way to make the orgsanisation more able to sustain could be to develop digital competence. This requires an organizational set-up and architecture that support not just employees but also the organisation's key stakeholder groups enabling stakeholders to work together on the same digital platforms. (Carlisle, S., Ivanov, S., Dijkmans, C., 2021).

"According to Langford et al. (2019), the future of the travel experience should be a seamless blend of talent and technology where machines are tasked to do more of the computer-based work, thus freeing humans to provide better service experiences and more meaningful connections and enabling large companies to interact with their clients in similar ways as small businesses who really know their customers." (Carlisle, S., Ivanov, S., Dijkmans, C., 2021).

The notion of the post-modern organisation argues that work more and more often does not only take place internally in the organization. The borders of what we refer to as the organisation has become much more muddy and unclear as value creation increasingly takes place in a network-structured co-creation process with stakeholders which is not limited to the previous boundaries of the organisation. The digital network offers the possibility to connect, empower and structure the value creation process between the organisation's key stakeholders. However, one of the challenges with developing digital competence among stakeholders is the power of economies of scale and scope as smaller stakeholders sometimes refrain from building digital competences and systems because of their limited scale and scope.

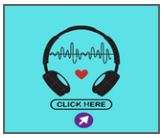
During the recent years, the young generation of hospitality students and professionals seem to have institutionalised the use of digital products and taken on a digital lifestyle. If this notion is true, it supports their own employability because it can be argued that they can approach work with a more digital mindset. However according to the paper titled Self-confidence and digital proficiency by Gómez et al, "there is no evidence about the sociological and biographical determinants that influence subjects' self-perception of their level of digital skills,



particularly among young people, since this generational group is generally associated with a high level of digital skills." (Gomez, Orti, Kuriz, 2022).

The paper points out that home-schooling during Covid-19 revealed a general inequal gap between young people's rather high self-perception of their digital competences and their actual real digital competences. To be able to nurture and build digital self-confidence, we must first try to understand that the lack of digital self-confidence means that people feel vulnerable and insecure. **According to Gómez et al, "digital vulnerability is mediated by acquired cultural patterns over the use of technology."** (Gomez, Orti, Kuriz, 2022).

Figure 29. Source: Anna Shvet at pexels.com



21. The Development of Self-confidence and Respect to Green, Digital and Digitalization Skills

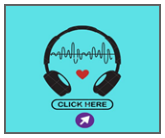
Self-confidence can be defined as "a feeling of trust in one's abilities, qualities, and judgement" (Oxford University Press), 2023). It is thus fair to argue that it is fundamental with a certain level of self-confidence to function professionally as the profession of hospitality demands that its professionals can make use of their abilities, qualities, and judgement in numerous situation such as servicing guests and making decisions in a hotel reception. A typical blind spot and misunderstanding can be that a hospitality professional can possess a good general level of self-confidence and at the same time lack self-confidence in green, digital and digitalization skills.

There are many explanations to this, one being that green, digital and digitalization skills have previously in most cases not been a core part of the curriculum in hospitality education or practice which means that both organisations and professionals have had to adjust their routines and practices which requires time, patience and resources which often are lacking in a faced-paced, efficient hospitality environment.

The faced-paced organizational environment is not the only learning barrier and self-confidence challenge. Also, the rapid evolvement and fast-paced change of digital competences means that today's required digital competences quickly become outdated by the requirements of tomorrow's reality which can demotivate management from investing in digital technology and skills and employees from investing their time and efforts into the green and digital area of their work area. The high level of turbulence can make hospitality employees refrain from wanting to work with digitalization and thus lose self-confidence.

Like digital skills, green skills are also part of what can be defined as a wicked problem or challenge because of the lack of straight-forward solutions and strategies. Green skills are part of a highly complex area as sustainability is hard to isolate. Often is has many implications that can be hard to predict and foresee. More and more professionals have now realized that the green and the digital evolution is here to stay and cannot be ignored. Realizing that this turbulent rapid change-perspective is here to stay means that hospitality professionals have to accept that they have to embrace digitalization not as an end result but more as an eternal process, movement and organizational way-of-life.

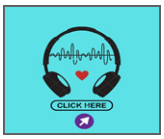
That is why it can be argued that to build more self-confidence, learners and their teachers and managers must accept:



1. the fact that the green and digital trend is a train that you have to get on the sooner the better.

2. That a focus on the process rather than the end result can help build more self-confidence among hospitality professionals.

Figure 30. Source: Manuel Geissinger at pexels.com



22. Definition: Pedagogy of Sustainable Hospitality Digitalisation

Pedagogy is the teaching of children, or dependent personalities. **Andragogy** is the facilitation learning for adults, who are self-directed learners. **Heutagogy** is the management of learning for self-managed learners. Below is a table comparing Pedagogy, Andragogy, and Heutagogy, recreated in an accessible format from Teach Thought. (UIS.edu, 2023).

User Generated Education

Education 3.0 and the Pedagogy (Andragogy, Heutagogy) of Mobile Learning

The evolution of the web from Web 1.0 to Web 2.0 and now to Web 3.0 can be used a metaphor of how education should also be evolving, as a movement based on the evolution from Education 1.0 to Education 3.0. (Usergenerated education.com, 2023).

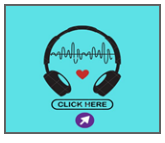
Most schools are still living within and functioning through an Education 1.0 model. They are focusing on an essentialist-based curriculum with related ways of teaching and testing. (Usergenerated education.com, 2023).

Similar to Web 2.0, Education 2.0 includes more interaction between the teacher and student; student to student; and student to content/expert. Some educators have moved into a more connected, creative Education 2.0 through using cooperative learning, global learning projects, shared wikis, blogs and other social networking in the classroom. (Usergenerated education.com, 2023).

Education 3.0 is a connectivist, heutagogical approach to teaching and learning. The teachers, learners, networks, connections, media, resources, tools create a unique entity that has the potential to meet individual learners', educators', and even societal needs. Many resources for Education 3.0 are literally freely available for the taking. (Usergenerated education.com, 2023).

There is an increasing emphasis on using transformative learning approach through pedagogies to make Higher Sustainability Education (HSE) more effective. (Taimur, S. Motoharu, O., 2022). The authors of that book mention this approach also with the perspective of the focus for vocational (VET) pedagogy for sustainable hospitality digitalisation.

At the same time, digitalisation in VET concerns the purposeful integration of digital technology in educational processes in order to efficiently achieve learning outcomes.



Digital pedagogy finds optimal ways to complement traditional ways of teaching in the classroom with modern technologies that allow significantly greater access to educational content and encourage collaborative learning and teaching, both in physical and virtual environments. (EC, 2020)

Significantly, the COVID-19 pandemic suddenly raised the question of how to effectively organise and implement entire educational process in a virtual environment. This shift posed new challenges for teachers and trainers such as how to make intensive use of digital tools and teach in completely virtual environments which has been particularly tricky when it comes to moving practical learning online. (EC, 2020)

The Pedagogy of Mobile Learning

With the idea that pedagogy is in line with a instructivist-essentialism method of teaching-learning, mobile learning in this category typically falls into the dissemination of content knowledge via apps. [In my opinion, there are way too many apps developed for education fall into this category, with start-ups trying to take advantage of the use of iDevices in educational settings.] Their goal is to directly teach students content knowledge or a skill whereby they can repeat and/or be tested on the content provided to them through interacting with the apps. (Usergenerated education.com, 2023).

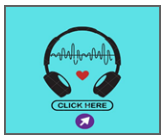
The Andragogy of Mobile Learning

Again, although Andragogy has been described for teaching adult learning, we can extract his basic principles and apply them to the Andragogy of Mobile Learning for most age groups. Many project-based learning characteristics (authentic, real world problems; networked learning; use of collaborative digital tools) would fit under the category of the andragogy of mobile learning. (Usergenerated education.com, 2023).

The Heutagogy of Mobile Learning

User Generated Education

The evolution of the web from Web 1.0 to Web 2.0 and now to Web 3.0 can be used a metaphor of how education should also be evolving, as a movement based on the evolution from Education 1.0 to Education 3.0. I discussed this in Schools are doing Education 1.0; talking about doing Education 2.0; when they should be planning and implementing Education 3.0.



In a heutagogical approach to teaching and learning, learners are highly autonomous and self-determined and emphasis is placed on development of learner capacity and capability.

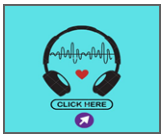
The Heutagogy of Mobile Learning

Creating a heutagogical-based mobile learning environment is in line with some of the recommendations from the ECAR National Study of Undergraduate Students and Information Technology, 2011 report:

Use technology in more transformative ways, such as participatory and collaborative interactions and for higher-level teaching and learning that is engaging and relevant to students' lives and future plans. Use technology more to extend learning beyond the classroom.

The learners in a heutagogy of mobile learning environment:

- Determine what they want to learn and develop their own learning objectives for their learning, based on a broad range of desired course outcomes.
- Use their own mobile learning devices and technologies to decide how they will learn.
- Form their own learning communities possibly using social networking tools suggested and/or set up by the educator. Possible networks, many with corresponding apps, include: Facebook, Twitter, Edmodo, Instagram, Blogging sites, Youtube, etc.
- Utilize the expertise of the educator and other members of their learning communities to suggest and introduce content-related resources.
- Utilize the expertise of the educator and other members of their learning communities to suggest Web 2.0 and other online tools for that the students could possibly use to demonstrate and produce learning artifacts.
- Demonstrate their learning through methods and means that work best for them. It could include using their mobile devices to Blog, create Photo Essays, do Screencasts, make Videos or Podcasts, draw, sing, dance, etc.
- Take the initiative to seek feedback from the instructor and their peers. It is their choice to utilize that feedback or not.
- Some general learning activities that have the potential to be introduced by the education using a heutagogical approach include:
- Forming their Own Interest-Driven Personal Learning Networks (PLNs)
- Curating Online Resources
- Designing Apps or Games
- Developing a broad array of possible course assignments from which a learner can choose.



23. Educational Approach

Understanding Europe's educational approach is based on the promotion of key competences for a participatory teaching and learning culture. Through our inclusive and diversity-oriented educational formats, which are created by and for young people, participants are empowered to become active citizens committed to a pluralistic and open Europe. (Understandingeurope.org, 2023).

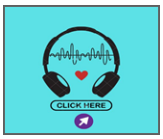
Innovations in pedagogy and learning environments

'[…] pedagogies are not technical tools that can navigate easily through different environments, but ideas and strategies used by professionals able to adopt and adapt them to the needs of learners. (EC, 2020).

A range of pedagogies exists and here we focus on those most relevant to VET and explore how digital technologies may support them: embodied, experiential, blended and game-based learning89. They are not mutually exclusive but can be 'organised and combined in different ways to enhance their effectiveness and to create unique approaches to teaching and learning90.' Furthermore, it is important to note that pedagogies should not be seen in isolation from other dimensions of teaching and learning, notably quality management within schools and the creation of communities of practice. (EC, 2020)

At its core, VET is a form of embodied and experiential learning. Embodied learning emphasises the use of the body in educational practice in order to connect the physical, the emotional and the social. It is at the core of vocational training, because the applications of the psychomotor and physical aspects of activity and performance are central. A student cannot learn to be a good cook without the embodied learning of how an ingredient would affect the flavour of the food, or become a hairdresser without the embodied knowledge of how different kinds of hair (curly, coarse…) will turn out when cutting/curling/colouring it. With regard to digital learning, this raises important questions for the place of simulations such as augmented and virtual reality in supporting VET. (EC, 2020).

Experiential learning is learning through reflection on doing. It has a clear and obvious fit with VET that includes learning in workplaces or simulated environments. Various digital technologies can support experiential learning, and some have been in use for some time and are well established (e.g. video-based teaching and learning – see box below) and flight simulation, which enables highly realistic experiential learning at lower cost and risk than the real thing. Hardware and software is highly sophisticated but, for this reason, also expensive. Such technology has wide application, such as in the health sector in simulating health care93, and in the timber industry in sawmill operation94. Most recently,



virtual reality has emerged to enable more immersive simulation, as in the case of motor vehicle or industrial spray painting. (EC, 2020).

An increasingly popular form of experiential learning in VET is project-based learning. This is a learner- centred approach involving active exploration of real-world challenges through projects organised around a key question or challenge. Project-based learning is valuable in teaching not only technical but also key competences which have become increasingly important in the labour market, a role emphasised by European institutions. Competence-based approaches such as project-based learning98 are well understood in vocational education, and fit adult and part-time learners particularly well. (EC, 2020).

Educational psychology refers to the study of how people tend to learn and retain information. It involves studying the differences in the learning methods of every individual, and the various teaching methods and instructional processes used. Educational psychologists study the childhood and adolescent learning processes and consider the external factors and behavioral aspects that can affect how a student learns. (BORDIA, D., 2022).

Educational psychology aims to improve the teaching processes and help teachers learn how learning takes place and what teaching methods should be used to promote learning in classrooms. It also helps teachers use innovative learning methods to improve the way education is imparted in classrooms. (BORDIA, D., 2022).

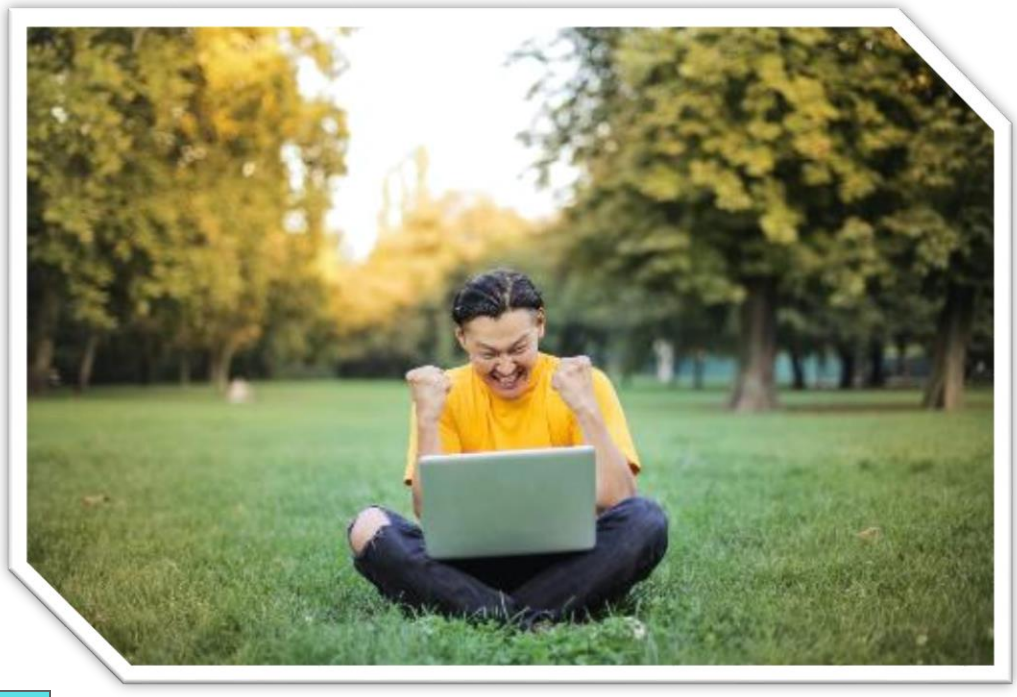


Figure 31. Source Andrea Piacquadio at pexels.com

24. Educational Methodology

Educational methodology refers to the peculiar way of implementing functions and activities oriented to the attainment of educational objectives. (Gento, S, 2015).

Methodology refers to the overarching strategy and rationale of your research project. It involves studying the methods used in your field and the theories or principles behind them, in order to develop an approach that matches your objectives. (Scribbr, 2023)

Methods are the specific tools and procedures you use to collect and analyze data (for example, experiments, surveys, and statistical tests). (Scribbr, 2023)

Teaching methodology means the usage, the employment, of some method(s); **whereas teaching "a method"** means using that one particular method/way... Explanation: teaching methodology is teaching the science of methods, while teaching methods is teaching ways of doing something.

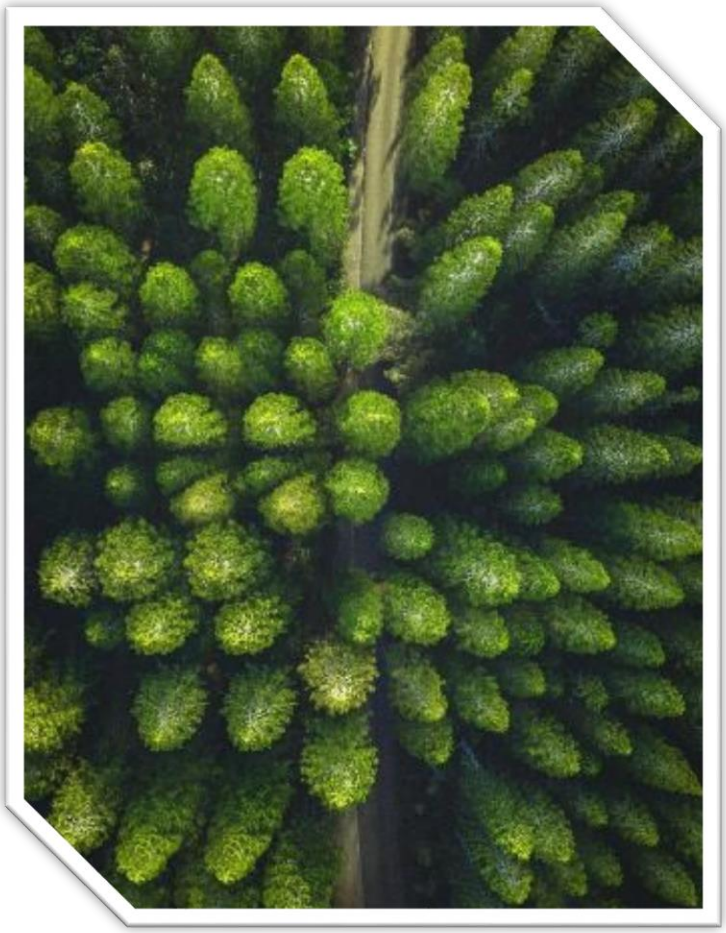


Figure 32. Soiurce Lukas Rodriguez at pexels.com

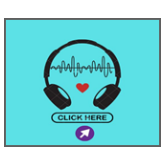
25. Educational Method

Pedagogy is a teaching method, and it is adopted by a teacher, which involves teaching styles, theory, assessment and feedback. (Nanjundaswamy, C., et al., 2021).

Pedagogy depends on various factors such as the social system, the content of information, and the receiver. An individual expresses the pedagogy of teaching by referring to the educator, style of delivery on the content to the class. While a trainer plans a lesson, he will consider **various methods** to deliver the knowledge and information influenced through his effective training preferences, experience, and choice of context. There are several reasons behind his decisions to use effective pedagogical principles, and overtime every educator adopts his/her pedagogical principles. Pedagogy methods broadly classified into:

- Teacher-centric pedagogy
- Learner-centric pedagogy
- Learning-centric Pedagogy
- Interactive or Participative pedagogy

Sustainable Learning is an innovative idea to create and increase sustainable courses and methodology of learning and teaching that infuse in the learner the skills and outlook to prosper in the complex and challenging state of affairs and positively contribute to make the world a better place. (Nanjundaswamy, C., et al., 2021). The transformation in education via the development of ICT is overwhelming in the continuation of revolutionary support of the internet and utilization of network-linked devices. Accordingly, unique instructional and educational modalities have emerged, raising new situations and scenarios to shape different stages of training. Contemporary modalities for virtual training include the Massive Open Online Courses (MOOCs) platform, which utilizes ICT on e-materials, e-books, videos and e-transcript facilitating learning. (Nanjundaswamy, C., et al., 2021). These methods have been advantageous in their adaptability and remote utilization at any time and to increase the prospects of ubiquitous learning without any restriction on place and time. The limitation of these methodologies lies in the lack of interactions in a course, perhaps in a learner's motivation. (Nanjundaswamy, C., et al., 2021). Further, e-learning, ICT-based modalities are mechanisms to improve access to education. Using such technological tools, the learner develops innovative solutions to the most prominent issues and problems that arise in the society. According to "United Nations Educational, Scientific and Cultural Organization (UNESCO)," "Education for sustainable development aims to give people the skills and knowledge to find solutions to economic, social, and environmental problems.



26. Educational Tool

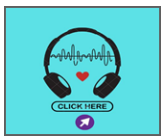
Digital Tools	Digital technologies used for a given purpose or for carrying out a particular function of e.g. information processing, communication, content creation, safety or problem solving	(Redecker, C., DigCompEdu., 2017)

Learning hub	A learning hub is a technology-rich learning environment with both physical and virtual components that provide formal and informal opportunities for learners to come together with peers, teachers, and other experts in their field. Here, individuals can access relevant knowledge and information, enlist support from educators and other learners, and, in so doing, develop new opportunities to improve their livelihoods	(EC, 2020).

Innovation is the use of new or significantly redesigned teaching and learning tools, methods or environments (such as digital learning tools, MOOCs or virtual reality) or new organisational methods (for example using a new app or software to interact with employers) aimed at improving the quality of VET in response to environmental sustainability and social and economic needs. (EC,2023).

Digital assessment tools and credentials

Innovative learning and teaching extends to novel ways of enhancing the whole assessment process; from the design of assessment tools and processes, to the delivery of assessments and the evaluation and subsequent reporting of student performance. Within this context, digital assessments can provide innovative solutions for assessing students' skills in order to identify progress, challenges and needs186, although anecdotal evidence suggests that their popularity amongst teachers varies187. The nature of summative assessments are changing with new and innovative (digitally enabled) approaches, e.g. allowing internet access for examinations in a given subject. ePortfolios, in which a student can gather a collection of documents representing their achievements (i.e. transcripts, video or audio recordings etc.), are increasingly being used for formative and summative assessments, and can be implemented through e-learning management systems such as Mahara and Moodle. The ETF reports that although few examples of ePortfolios are known in VET, Finland, with one of the highest performing



education systems, is shifting away from traditional summative assessments toward more individualised forms of assessments that ePortfolios can support. (EC, 2020).

27. Toolkit

Toolkit:

Definition meaning

a collection of tools or other useful equipment typically kept in a box or case;

a collection of expert skills, knowledge, procedures, or information for a particular topic or activity;

(Dictionary.com, 2023).

28. Teaching

A digital pedagogy specialist is a professional that collaborates with faculty, staff, and students to employ technological solutions in the realisation of teaching and learning aims (EC, 2020)

Educator

In the context of DigCompEdu, the term "educator" is used to generically refer to any person involved in the process of teaching or transmitting knowledge. In particular, it refers to teachers at all levels of formal education, ranging from pre-primary, primary and secondary, to further and higher education (e.g. university lecturers), to vocational and adult education, and including initial training and continuous professional development. It may, by analogy, also be used to describe people involved in providing training in non-formal and informal settings, e.g. social workers, library staff, parents providing home schooling, etc. (Redecker, C., DigCompEdu., 2017)

A teacher is a person who provides education for students in formal education, i.e. within an educational institution. Since the term is often taken to only refer to school education (i.e. ISCED1-3), for DigCompEdu the wider term "educator" is used. Redecker, C., DigCompEdu., 2017)

Teaching uncertainty competences entails providing learners with the tools to manage knowledge uncertainty in a complex world, more specifically by teaching learners to appraise, tolerate and reduce uncertainty. (EC, 2020).

The model aims to establish sustainable learning and development of students through imbibing digital literacy about teaching & learning. In addition, each student is actively involved with faculties to design, develop & deliver resources for teaching & learning.

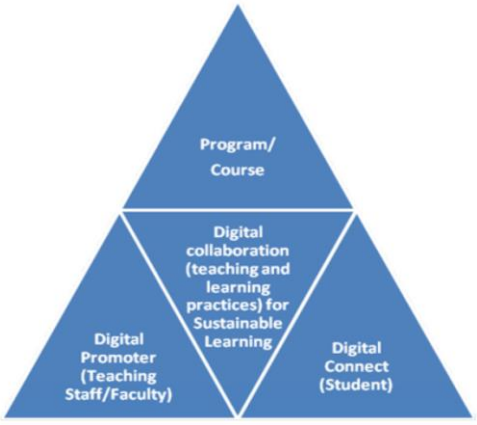
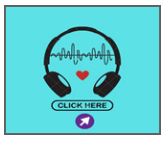


Figure 33. Conceptual Model of Digital Collaboration and Sustainable Learning. Source: Nanjundaswamy, C., et al., 2021).



29. Learning

Active learning is a form of instruction that emphasises seeking information, organising it in a meaningful way and having the chance to explain it to others during interactions with peers and instructors, which involves a cycle of constant activities and feedback373. Many studies have shown the positive effects of active learning on student attitudes, skills and learning outcomes374. Forms of active learning include project-based, problem-based or inquiry-based learning also described below. (EC, 2020).

Blended learning involves the way e-learning is combined with traditional classroom methods to create a new hybrid teaching methodology. (EC, 2020).

Discussion-based learning enables student involvement through instructor-directed questions and student participation. This requires that students contribute and learn from each other in an environment that is directed by prepared instructors. (EC, 2020).

Embodied learning is a way to teach while involving the whole body, for example teaching maths while throwing small bags of sand to each other (EC, 2020).

Experiential learning is the process of learning through experience, which includes for example hands-on learning. (EC, 2020).

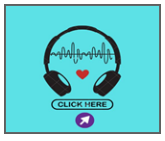
Inquiry-based learning is a learning and teaching method that prioritises student questions, ideas and analysis, and can include case studies, group projects, research projects and fieldwork. (EC, 2020).

Lab-based learning is learning which occurs in a laboratory and is particularly well tailored to experiential and project or problem-based learning. (EC, 2020).

Problem-based learning is a learning method which involves having students solve real-world problems as a driving force for the curriculum. (EC, 2020).

Project-based learning (PBL). PBL is a learner-centred approach in which learners engage in active exploration of real-world challenges and problems by involvement in a projects organised around a driving question or challenge. (EC, 2020).

Self-determined learning "A process in which learners take initiative for identifying learning needs, formulating learning goals, identifying learning e-sources, implementing problem-solving strategies, and reflecting upon the learning processes to challenge existing assumptions and increase learning capabilities." (The concept is related to the concepts of self-directed and self-regulated learning. Of these three it is the most demanding on the level of learner autonomy. Since such a high level of autonomy may be too ambitious for some learning and teaching contexts or learner groups, in DigCompEdu the concept of



self-regulated learning is given preference. Redecker, C., DigCompEdu., 2017) referring to Blaschke, 2012; http://www.rtschuetz.net/2014/12/self-directed-vs-self-determined.html).

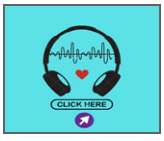
Self-directed learning is a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, and choosing and implementing appropriate learning. (EC, 2020).

Self-regulated learning refers to learning that is guided by metacognition (thinking about one's thinking), strategic action (planning, monitoring, and evaluating personal progress against a standard), and motivation to learn. "Self-regulated" describes a process of taking control of and evaluating one's own learning and behaviour. (Wikipedia) The concept is related to the concepts of self-directed and self-determined learning. Since the latter two require a higher degree of autonomy, not feasible in all educational contexts, for DigCompEdu the concept of "self-regulated learning" is given preference. Redecker, C., DigCompEdu., 2017)

Service-based learning (SBL). SBL is an educational approach that combines learning objectives with community service in order to provide a practical and progressive learning experience while responding to societal needs. (EC 2020).

Game-based learning

Digital gaming is already a relatively popular tool in training and extracurricular learning and has been successful at engaging people with negative experiences of 'traditional' pedagogies. It therefore has a potentially good general fit with VET, although it seems relatively under-utilised so far. Gaming has proven useful in developing key competences. VET's engagement with these competences to date in terms of programme/qualification design has been highly variable and gaming may offer cost-effective ways of improving their incorporation into curricula – games aimed at developing certain key competences could be 'sector- neutral' and hence used across most VET programmes. In respect to technical/occupation-specific skills, the development costs of gaming (to replicate the types of immersive experiences that are likely to engage young learners especially) might restrict their application to certain skill sets in certain sectors of industry and commerce. (EC, 2020).



30. Relevant Educational Approaches in Pedagogy of Sustainable Hospitality Digitalisation

To create an online learning platform for sustainable hospitality digitalization, a starting point for creating learning activities (in addition to the Five Stage Model from Gilly Salmon) should be The Digital Competence Framework for Citizens (Vuorikari, Kluzer & Punie), 2022). The framework introduces five areas in which digital competencies are separated.

1) Information and Data Literacy
2) Communication and Collaboration
3) Digital Content Creation
4) Safety
5) Problem Solving

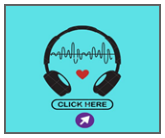
The five areas are further divided into 21 subareas. When creating learning activities these subareas become good starting points. For instance in Communication and Collaboration the first subarea is Interacting through digital technologies. Thus e-learning activities should be created to enhance skills within the learning management system but also within communication tools relevant to hospitality organizations (according to Lave and Wenger's concept of situated learning).

An e-learning activity within Interacting through digital technologies could be an assignment where the learners are expected to login to the LMS, find a document stating the groups they have been divided into by an e-moderator, and to meet online in a Skype meeting with their group. The purpose of the meeting could be to get introduced to each other, define common values and create a contract for the group. Such an e-learning activity would have to be scaffolded. For learners who have never done a Skype meeting before there would have to be links to materials (e.g. videos) introducing Skype, showing them how to create a user and how to set up a meeting. There would also have to be a structure for how to introduce yourself in a proper way to the group and there would have to be a template for a group contract. An e-learning activity such as this would be working on stages one and two in the model by Gilly Salmon (Salmon, 2013).

Higher sustainability education & transformative learning

The authors of the book when considering the pedagogy for vocational (VET) also takes notes on the approaches already defined and recommended for Higher Education Digitalisation Pedagogy leading to sustainability.

The interdisciplinary nature of HSE demands change as moving towards sustainability is not possible with the current (transmissive) approaches (Moore, 2005), as these approaches do not equip students to deal with complex and



profoundly challenging sustainability issues (Sterling, 2010). It is time to change the educational culture to enable the transition towards a sustainable world by shifting the ways of thinking and learning to be more connective, systemic, holistic, and ecological (Sterling, 2001). This shift requires moving from a teacher-centered transmissive approach to a learner-centered transformative approach. (Taimur, S. Motoharu, O., 2022).

Mezirow, one of the most significant thought leaders in the field of transformative learning, defined transformative learning as:

"a process by which we transform our taken-for-granted frames of reference…to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and options that will prove more true or justified to guide action" (Mezirow, 2000, p. 7–8), (Taimur, S. Motoharu, O., 2022).

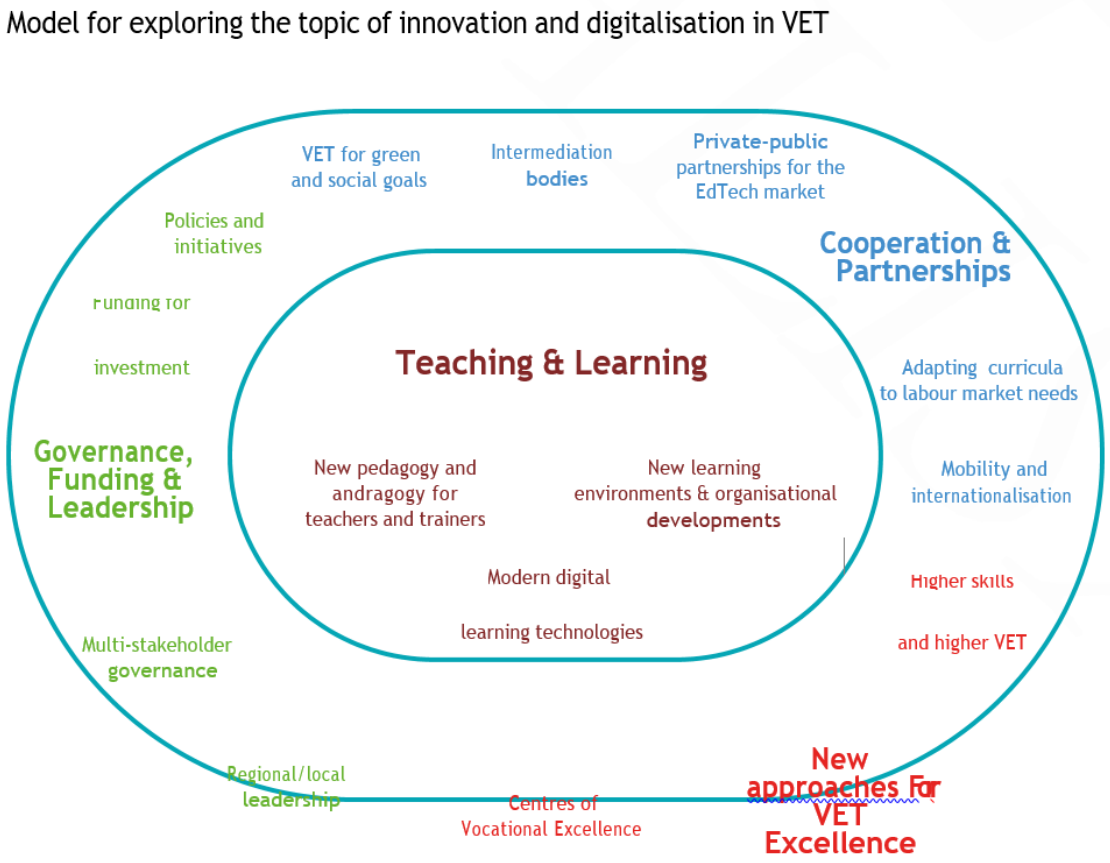
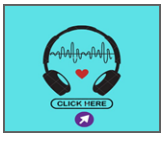


Figure 34. Model for exploring the topic of innovation and digitalisation in VET. Source: EC, 2020.

VET linked to innovation and digitalisation has evolved in recent years, but more progress is still required to build the capacity of VET systems to embed innovation and digitalisation. Innovation and digitalisation in particular have the potential to assist the development of CVET and VET at higher levels where it is important to expand capacity to respond to developments in the labour market. (EC, 2020).



31. Educational Theories and Theoretical Concepts in Pedagogy of Sustainable Hospitality Digitalisation

Situated learning: Learning is always situated in a context of social relations and human artifacts. In this sense learning should be closely linked to practice since competencies are not abstract and constant abilities but rather linked to the situation in which they are applied (Dolin, 2020 p. 78-80).

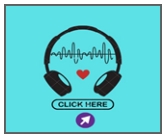
Scaffolding: A concept introduced by Lev Vygotsky meaning support adapted to the individual learner to lead him or her into their zone of proximal development. Vygotsky introduced the zone of proximal development as a zone where learners can do things with help. A zone beyond the zone of achieved development (which is where the learners are with no scaffolding (Dolin, 2020 p. 75-78)

LMS: an abbreviation for Learning Management System which is a communication system for online Learning. In this project the LMS Moodle has been chosen.

E-tivities: online learning activities (Salmon, 2013)

E-moderator: According to Gilly Salmon (Salmon, 2013) a teacher should moderate online. It can be understood as facilitation in an online setting. The role of the e-moderator changes in the fives stages of her model:

1) Access and motivation
   a. Role of the e-moderator: Welcoming and encouraging
   b. Technical support: Setting up system and accessing
2) Online socialization
   a. Role of the e-moderator: Familiarizing and providing bridges between cultural, social and learning environments
   b. Technical support: Sending and receiving messages
3) Information exchange
   a. Role of the e-moderator: Facilitating tasks and supporting use of learning material
   b. Technical support: Searching, personalizing software
4) Knowledge construction
   a. Role of the e-moderator: Facilitation process
   b. Technical support: Conferencing
5) Development
   a. Role of the e-moderator: Supporting, responding
   b. Technical support: Providing links outside closed conferences



32. Pedagogic Teaching and Learning Methods in Pedagogy of Sustainable Hospitality Digitalisation

Teaching

To plan for and implement digital devices and resources in the teaching process, so as to enhance the effectiveness of teaching interventions. To appropriately manage and orchestrate digital teaching interventions. To experiment with and develop new formats and pedagogical methods for instruction.

Guidance

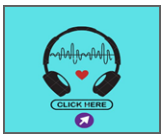
To use digital technologies and services to enhance the interaction with learners, individually and collectively, within and outside the learning session. To use digital technologies to offer timely and targeted guidance and assistance. To experiment with and develop new forms and formats for offering guidance and support.

Collaborative learning

To use digital technologies to foster and enhance learner collaboration. To enable learners to use digital technologies as part of collaborative assignments, as a means of enhancing communication, collaboration and collaborative knowledge creation.

Self-regulated learning

To use digital technologies to support self-regulated learning processes, i.e. to enable learners to plan, monitor and reflect on their own learning, provide evidence of progress, share insights and come up with creative solutions. (Redecker, C., DigCompEdu., 2017)



33. Hybrid Learning

Hybrid learning occurs when some learners are present in a physical class room while other learners attend online (e.g. through conference software) (Mossawar-Rahmani & Larson-Daugherty, 2007). It is our recommendation that the online platform of this project be developed as online learning with both synchronous and asynchronous e-tivities. Hybrid learning is not recommended within the above definition for this project. Hybrid learning should not be confused with blended learning (Garrison, 2017 p. 100-108). In blended learning asynchronous learning activities and synchronous activities are blended. Some happen in class (face-to-face) and some online. In class all learners are physically present (so therefore no hybridity). Blended learning could be a solution for learners in this project, but it is very important to consider the needs of students (at school) vs. employees in the industry. For employees, an online course with synchronous and asynchronous e-tivities is recommended.

Synchronous e-tivities are online learning activities that learners must attend at the same point in time. This could be following a live webinar or working in your study group.

Asynchronous e-tivities are online learning activities that can be worked on independently of the presence of other learners. Examples could be solving quizzes, watching video material etc.

Figure 35. Source Ben Walsham at pexels.com

34. Pedagogic Skills for Pedagogy of Sustainable Hospitality Digitalisation

Inside the realm of learning and teaching pedagogy, one would normally recognize that there are five pedagogical approaches to being applied as to augment, elevate and stimulate students quest for learning in a lecturing situation or environment.

Figure 36. Source: Suvin, C. (2021).

1. Constructivist: An approach that has learners actively involved in learning. They try to construct knowledge, in contrast, to passively receiving it from a facilitator.

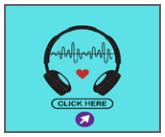
2. Collaborative: In this approach, the learners learn in groups, share their experiences, experiment, and create a co-learning environment.

3. Inquiry-Based: The inquiry-based approach is active learning where learners probe each other, discuss problems and scenarios, pose questions, and try to solve them. Its problem-based and project-based learning fits in this category.

4. Integrative: This approach allows students to connect what they learn with the real world. The approach makes learning more meaningful, and students improve their subject knowledge too well.

5. Reflective: The practice fosters self-learning, self-observation, and self-evaluation. The faculty does it with the help of projects, lessons, assessments.

However, in an educative world that to a greater extend today acknowledge Student-Centered Learning (SCL) as the more primal approach to convey learning, the skillset to transfer the learning equally requires a certain portion of pedagogical skills among the those conveying it, e.g., lectures, coaches and so forth.



First and foremost, in order to being successful in bringing forward a sustainable hospitality digitalisation toolkit, one has to realize that focus should still remain on the lectures taking centre stage none the less when it comes to knowledge transfer.

Equally, vitals and prerequisite skills for the process to becoming successful is the ability among the responsible lectures to understand and convey knowledge to the students via the usage of digital means, besides also endeavouring the right didactic skillset in terms of how to convey knowledge and learning in a meaningful and relevant fashion to the student they lecture on the subject.

Finally, a skillset that could be decisive in order bringing forward pedagogy of sustainable hospitality digitalisation with a vengeance, is the lectures practical knowledge on how to implement it into both lecturing and the real world in where it in general must stand its litmus test.

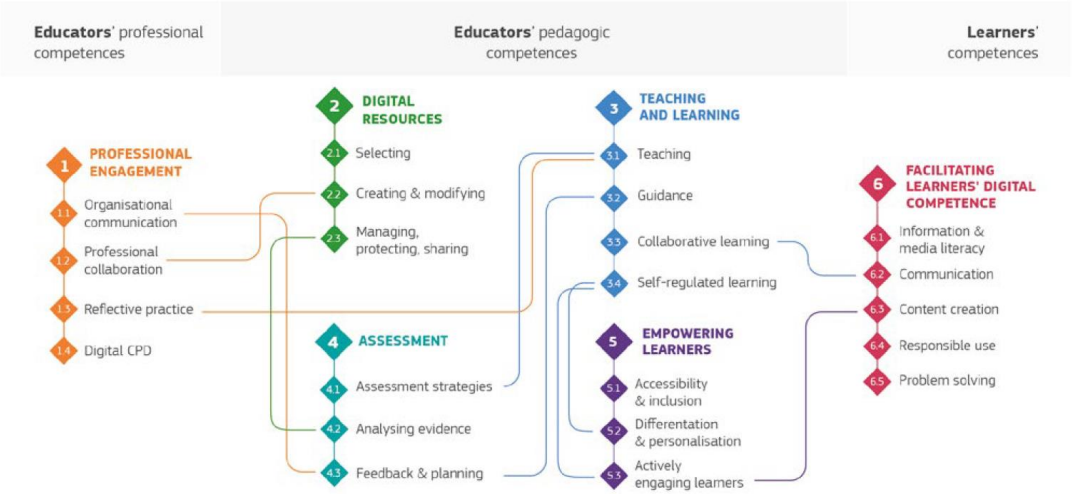


Figure 37. Source: THE DIGCOMPEDU FRAMEWORK (Redecker, C., DigCompEdu., 2017).

The European Framework for the Digital Competence of Educators (DigCompEdu) responds to the growing awareness among many European Member States that educators need a set of digital competences specific to their profession in order to be able to seize the potential of digital technologies for enhancing and innovating education.

The six DigCompEdu areas focus on different aspects of educators' professional activities:

Area 1: Professional Engagement: Using digital technologies for communication, collaboration and professional development.

Area 2: Digital Resources: Sourcing, creating and sharing digital resources.

Area 3: Teaching and Learning: Managing and orchestrating the use of digital technologies in teaching and learning.

Area 4: Assessment: Using digital technologies and strategies to enhance assessment.

Area 5: Empowering Learners: Using digital technologies to enhance inclusion, personalisation and learners' active engagement.

Area 6: Facilitating Learners' Digital Competence: Enabling learners to creatively and responsibly use digital technologies for information, communication, content creation, wellbeing and problem-solving. (Redecker, C., DigCompEdu., 2017).

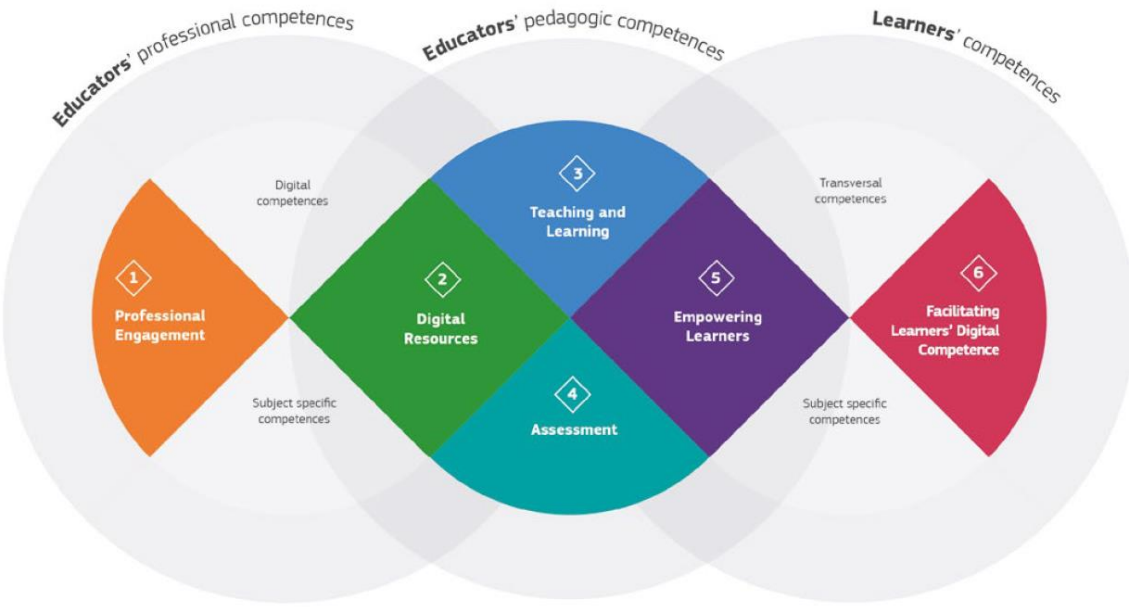


Figure 38. DIGCOMPEDU AREAS AND SCOPE. Source: Redecker, C., DigCompEdu., 2017.

The core of the DigCompEdu framework is defined by Areas 2-5. Together these areas explain educators' digital pedagogic competence, i.e. the digital competences educators need to foster efficient, inclusive and innovative teaching and learning strategies. Areas 1, 2 and 3 are anchored in the stages characteristic of any teaching process, whether supported by technologies or not. The competences listed in these areas detail how to make efficient and innovative use of digital technologies when planning (Area 2), implementing (Area 3) and assessing (Area 4) teaching and learning. Area 5 acknowledges the potential of digital technologies for learner-centred teaching and learning strategies.

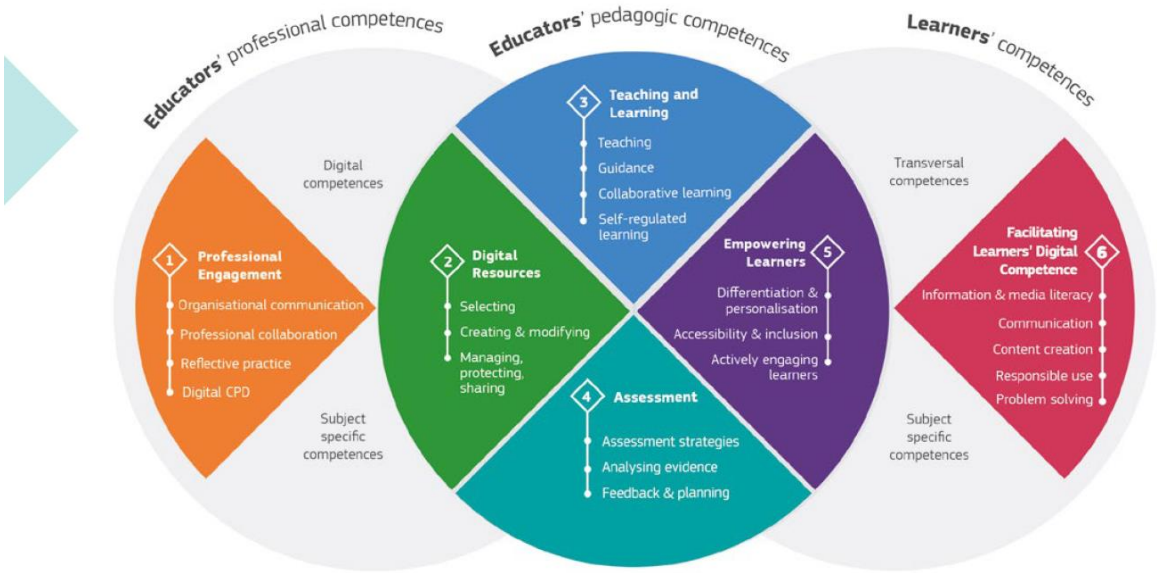


Figure 39. SYNTHESIS OF THE DIGCOMPEDU FRAMEWORK. Source: Redecker, C., DigCompEdu., 2017.

Professional Engagement

Educators' digital competence is expressed in their ability to use digital technologies not only to enhance teaching, but also for their professional interactions with colleagues, learners, parents and other interested parties, for their individual professional development and for the collective good and continuous innovation in the organisation and the teaching profession. This is the focus of Area 1.

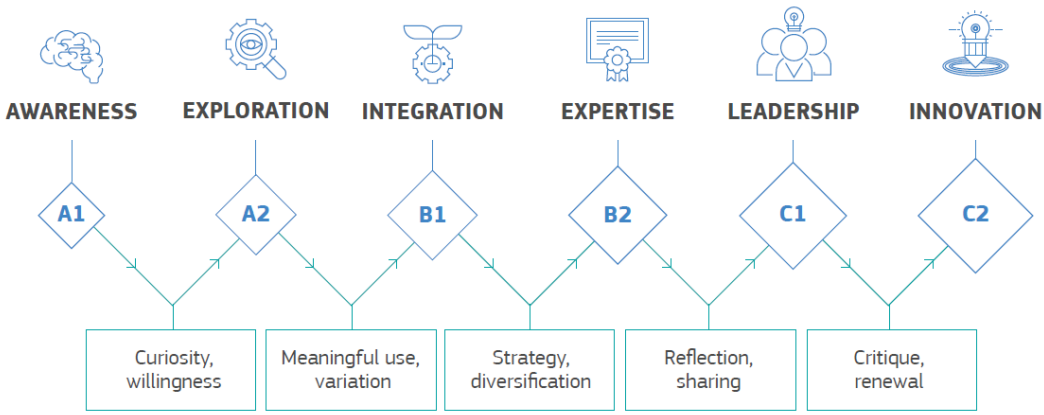
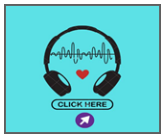


Figure 40. DIGCOMPEDU PROGRESSION MODEL. Source: Redecker, C., DigCompEdu., 2017)



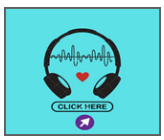
35. Digital Skills (for Pedagogy of Sustainable Hospitality Digitalisation)

As previously stated The Digital Competence Framework for Citizens (Vuorikari, 2022) could be a good starting point for defining learning goals and also for creating synchronous and asynchronous e-tivities in the LMS Moodle. There is a self-assessment tool at http://mydigiskills.eu/ that we recommend all learners do before engaging with the online learning module. Based on the self-assessment learners should be able to choose which parts of the learning module they would like to engage in. Building the learning modules around the five areas of The Digital Competence Framework for Citizens would strengthen the individual learners ability to choose their own learning path in the online module.

There are several digital skills needed to design the learning modules in the learning management system Moodle. We strongly recommend all learning designers to be thoroughly introduced to Moodle and its many possibilities for creating different types of e-tivities. It is very important that learning designers know how to upload, edit and download different types of files, such as videos, text, pictures etc.

We also recommend learning designers be introduced to video creation tools, so they may create their own learning videos. This could be from simple videos such as power points with added speak to more complex videos created from story boards and using actors – or even video interviews with employees demonstrating digital skills in a work place. It is crucial that learning designers understand the conference software to be used in the courses. How does the software work and what possibilities does the software offer? Can learners be split into groups (as in break out rooms)? Can everyone share their screen with each other? Is there a chat function? How does it work? All these aspects and more must be well investigated before the courses are designed.

There are several digital skills needed to e-moderate and deliver technical support to learners during online courses. Being thoroughly introduced to Moodle is important, for instance how do you assign a learner to a group? How do you provide feedback to an assignment that a learner handed in to Moodle? As for the designers, it equally important for the e-moderator to understand how the conference software functions. It is a possibility to divide the role of being e-moderator and supplying technical support into different people if this makes better sense. We have good experience with creating a forum in Moodle for technical difficulties. Often learners are quick to help each other with video formats that will not upload and other such issues.



36. Competencies and Practical Methods on Embedding Digitalisation in VET Hospitality Courses, Further Hospitality Professional Workshops in Working Environments

First, the meaning of the abbreviation ESDGC must be clear. It means Education for Sustainable Development and Global Citizenship. A worldwide plan negotiated in a Unesco context aiming to focus on education and training of all citizens in the world – the global citizen – as a tool to achieve the SDGs (Sustainable development goals). SDG 4 is in focus because we need to strengthen the education and learning/reorientation. (UNESCO, 2022).

To be able to plan learning activities promoting sustainability there has to be another focus beside direct skills needed to work with digitalization in the hospitality industry. No matter if you are a teacher, learner or employee in the industry.

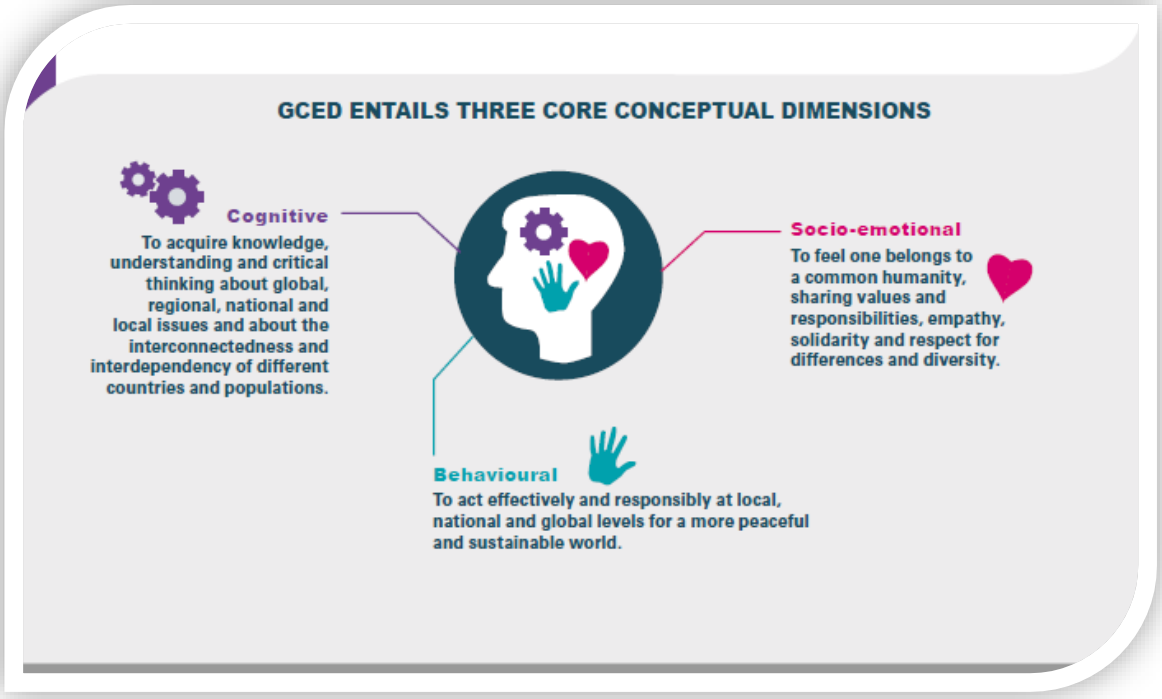


Figure 41. Source: UNESCO, 2022

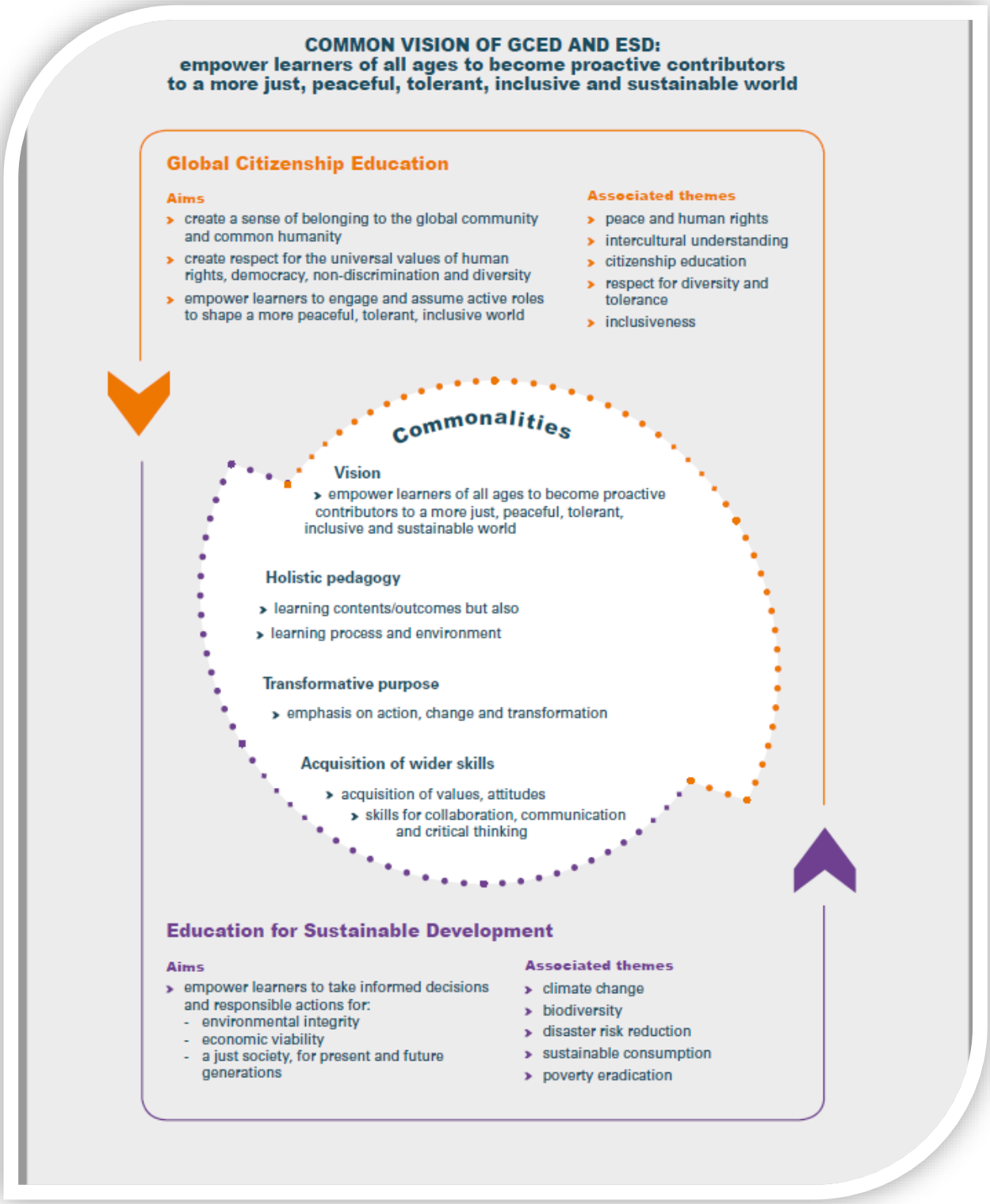


Figure 42. Source: UNESCO, 2022

The Metaphor of Embedding

The metaphor of embedding describes the process of integrating a desirable element deeply into a system. It is built firmly into the system, as opposed to merely being bolted on to it. The embedded element, however, is still discernible and it does not immediately transform the system, although it may well improve its function.

Embedding is a strategy that opens up possibilities for transforming the education system from within by paving a way to an interdisciplinary curriculum, issue-based learning and whole-school approaches.

The metaphor of infusion, on the other hand, describes the process of a desirable essence permeating and transforming the milieu in which the system operates.

When infusion refers to the process of dissolving flavours from plant material, an infusion is also the name for the resultant liquid or solution. In this sense, infusion is a strategy for ESD integration that is deeper than embedding and is an ultimate solution. (UNESCO MGIEP, 2017, p.18).

Embedding is about reorienting subjects into serving a more socially and globally relevant purpose: that of contributing to a sustainable, just and peaceful world, with young people motivated, prepared and empowered to address persistent and emerging local and global challenges. (UNESCO MGIEP, 2017, p.19).

Embedding, therefore, strategically promotes double-purpose learning, where students acquire subject knowledge and skills and, at the same time, learn how to contribute to a sustainable transformation of society – they learn to live together with a deep respect for the environment and dignity for all. (UNESCO MGIEP, 2017, p.19).

UNESCO MGIEP, 2017, p.19, refer to the model 'Responses to the challenge of sustainable development', adapted from Sterling 2004 as cited in Lotz-Sisitka et al (2015) p.73:

Table 4: Responses to the challenge of sustainable development

Responses to the challenge of sustainable development		Corresponding ESD mainstreaming strategies
(a) Denial I	It's a hype that will go away	No action
(b) Bolt on	Add a 'green aspect' to a curriculum or a programme	Adding on
(c) Built in	Important enough to integrate in all we do	**Embedding**
(d)Whole system redesign	We need to rethink the very foundations of what we currently do	Infusion

Integration

Workers and managers must unite and learn digital skills together collectively in a shared community of practice.

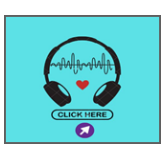
Digital learning starts with adapting the organizational structure and understanding the roles of coworkership to form fruitful learning communities of practice. The purpose of this chapter is to make learning courses effective by reflecting on the roles of managers and employees before digitalization courses and workshops take place in order to achieve sustainable, digital learning.

Would it not be nice, if you could just send employees on a short course in digitalization and then – BANG – they would obtian digital tranformation? Unfortunately, this is not a sustainable way of digital transformation for employees or organisations.

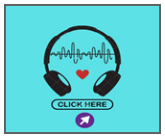
Often the idea of learning is understood a bit similar to organizational change - as a short process with a beginning and an ending – as a challenge that can be managed and controlled by top management. However, digitalisation is a special animal that for many reasons is here to stay and provides numerous opportunities and challenges for all divisions of the organisation. The digital transformation that the hospitality sector is undergoing is best understood as not a single wave of change but a constant reality.

If we accept that digitalisation should be regarded as a permanent state of change and development, this notion matters to the way we design and plan how hospitality employees ought to learn how to implement digital tools in their work life. If hospitality companies want to develop, they have to abandon and adjust traditional, hierarchical ways of structuring the organisation. Because digitalization can be charactersised as a constant change, it pays to design an organizational structure that embraces the opportunities of change. Whereas hierarchical structures are good at maintaining status quo in the orgsanisation, decentralized, dynamic network structures are better at welcoming digital change in the organisation. The so-called new model of IT nurtures the dynamic and lively ongoing change of IT in the hospitality sector. (GPi online, 2020).

When designing a learning course about digitalization in the hospitality industry, it is worth re-considering the process of learning. Instead of opting for a classic course with a start and and ending in which learners often only remember a minimum of the course objectives, it can be argued that it makes more sense to support and nurture habits and processes in practice in a way that makes it more do-able for employees to embrace digital learning and make sustainable digital change in the long run. That means that learning managers need to worry more about what happens after the course? How can we make sure that learners can succeed not just during the course but AFTER the course is over? What are the employee roles when learning how to digitalize? How can we teach employees and hospitality actors continuous, life-long learning?



There can be many answers to these two key questions. Some of these answers can be found in the theory of coworkership taking its departure in the Scandinavian organizational communication research and also in the theory called Communities of Practice by Etienne Wenger. (Wenger-Trayner, E. and B. 2015).



37. Resources in Pedagogy of Sustainable Hospitality Digitalisation

Digital Resources	The term usually refers to any content published in computer-readable format. For the purposes of DigCompEdu, a distinction is made between digital resources and data. Digital resources in this respect comprise any kind of digital content that is immediately understandable to a human user, whereas data need to be analysed, treated and/or interpreted to be of use for educators.	(Redecker, C., DigCompEdu., 2017)

Digital resources, or digital sources, refer to any type of information or media that is stored or transmitted in a digital format, such as on a computer or the internet. This can include text documents, images, audio and video files, and data sets. Digital resources are increasingly important in academic research, as they allow for quick and easy access to a wide range of information from various sources. (Studysmarter.co.uk, 2023).

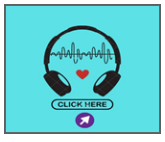
When designing a course there are many things to take into consideration. The didactical relationship model offers a framework for learning designers to consider (Hiim & Hippe, 2011). There are six interrelated categories in the model to be considered:

1) Learning conditions

What previous knowledge do learners have? What will be new for them? What are their interests? Are there special needs for some learners that need be addressed? To make sure teaching is adapted to our group of learners it is essential to map the learning conditions. This is also one of the reason for our recommendation that the online learning module be structured around The Digital Competence Framework for Citizens (Vuorikari, 2022). This allows for learners to self-asses (http://mydigiskills.eu/) and provides teachers with valuable knowledge of learners' digital skills.

2) Setting

Settings are factors either increasing or decreasing the possibilities for learning. It is vital for the learning outcome to assess the settings while designing the module. What software will be available to us besides Moodle (e.g. for video creation, conferences etc.)? Will the learners be spread out in different organizations or will they meet in a class room?



3) Goals

The learning goals are essential for designing the module and the e-tivities. Learning goals should be defined as knowledge, skills and competencies that the learners should have achieved when completing the course. The European Qualifications Framework (EQF) should be considered to ensure the right level of learning in the different partner countries.

4) Content

The contents of learning could be cases, theoretical models, statistical databases etc. It is in other words what the teaching is about. Teachers and/or learning designers choose certain content for the learners – but sometimes learners also have an influence on the content. If the digital skills required are organization specific (such as specific booking systems etc.), the learning module should preferably be adapted to learners from specific organizations.

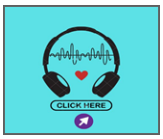
Digital Content	Any type of content that exists in the form of digital data that are encoded in a machine-readable format, and can be created, viewed, distributed, modified and stored using digital technologies. Examples of digital content include: web pages and websites, social media, data and databases, digital audio, such as mp3s, and e-books, digital imagery, digital video, video games, computer programmes and software. For the DigCompEdu framework, digital content is divided into digital resources and data.	Redecker, C., DigCompEdu. (2017)

5) Learning process

When designing learning it is necessary to consider it as a process in time. What are the learners expected to do? What are the teachers expected to do? Are learners working individually? In groups? Etc.

6) Assessment

Assessment can be made on the learning process, on the learning goals, and on the level of learning achieved by the learner. It is essential to consider elements of assessment into the design of the online learning module. Should there be evaluations on learners levels of understanding certain contents of the courses (e.g. by multiple choice quizzes) during the courses? How would teacher feedback or peer-to-peer feedback be integrated? And in which e-tivities? Is there going to be an assessment like an exam at the end? Or a certification?



38. Sources in Pedagogy of Sustainable Hospitality Digitalisation

Digital Environment	A context, or a "place", that is enabled by technology and digital devices, often transmitted over the internet, or other digital means, e.g. mobile phone network. Digital environments are usually used for interaction with other users and for accessing and publishing user-created content. Records and evidence of an individual's interaction with a digital environment constitute their digital footprint.	Redecker, C., DigCompEdu. (2017)

Digital resources, or digital sources, refer to any type of information or media that is stored or transmitted in a digital format, such as on a computer or the internet. This can include text documents, images, audio and video files, and data sets. Digital resources are increasingly important in academic research, as they allow for quick and easy access to a wide range of information from various sources. (Studysmarter.co.uk, 2023).

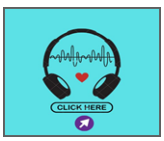
Within the realm of digital resources, we can split items into two categories: **internet resources and offline digital resources. (Studymaster.co.uk, 2023).**

Internet Resources

- Websites
- Blogs
- Forums/ Chatrooms
- Search engines
- Online libraries and databases

Offline Digital Resources

- Photos/ Images
- Videos
- Audio recordings (Studymaster.co.uk, 2023).



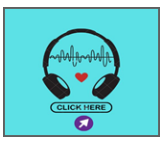
Offline Digital Resource Examples

- **P**hotos/ Images: Photos and other kinds of images are digital because they are comprised of pixels. Images can be created through photography (taking photos with a camera) or using creative programs like PhotoShop or AutoCAD.
- Pixels are tiny colorful squares that, when purposefully arranged together, create digital images. Every pixel in an image is assigned a number which tells the computer what color it should be.
- Video: Videos are created using electronic technology such as smartphones or video cameras. The resulting videos are processed and stored as sequences of 1s and 0s in binary code (as mentioned earlier in the article). (Studymaster.co.uk, 2023).

Digital Resources Examples

Examples of Digital Resources	
Type of Resource	**Examples of Digital sources**
Online Databases	JSTOR, ProQuest, EBSCO
E-books	Kindle, Nook, iBooks
Digital Archives	Internet Archive, Library of Congress Digital Collections
Social Media	Twitter, Facebook, Instagram
Online News Sources	CNN, BBC, New York Times
Online Videos	YouTube, Vimeo, TED Talks
Online Journals	PLOS One, Nature, Science
Web-based Tools	Google Drive, Dropbox, Canva

(Studymaster.co.uk, 2023).

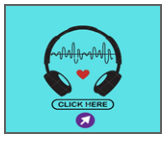


39. Systems in Pedagogy of Sustainable Hospitality Digitalisation

Digital Services: Services that can be delivered through digital communication, e.g. internet, mobile phone network, that might include delivery of digital information (e.g. data, content) and/or transactional services. They can be either public or private, e.g. e-government, digital banking services, e-commerce, music services (e.g. Spotify), film/TV services (e.g. Netflix). (Redecker, C., DigCompEdu., 2017)

The term **digital system** refers to elements such as hardware, software and networks and their use. There may be many different components that make up one system; for example, a computer has a central processing unit, a hard disk, keyboard, mouse, screen etc. A peripheral device is a digital component that can be connected to a digital system, for example, a digital camera or printer. (Digitaltechnologieshub.edu.au, 2023*).* Digital systems are designed to store, process, and communicate information in digital form. They are found in a wide range of applications, including process control, communication systems, digital instruments, and consumer products. The digital computer, more commonly called the computer, is an example of a typical digital system. A computer manipulates information in digital, or more precisely, binary form. A binary number has only two discrete values — zero or one. Each of these discrete values is represented by the OFF and ON status of an electronic switch called a transistor. All computers, therefore, only understand binary numbers. Any decimal number (base 10, with ten digits from 0 to 9) can be represented by a binary number (base 2, with digits 0 and 1). The basic blocks of a computer are the central processing unit (CPU), the memory, and the input/output (I/O). The CPU of the computer is basically the same as the brain of a human. (Oreilly.com, 2023).

The system chosen for the course is the Learning Management System (LMS) Moodle. Moodle is a piece of software that allows learning designers and e-moderators to build and complete personalized learning environments. Moodle allows for setting up different pages with different e-tivities in them. The e-tivities can be open to completion in any order or they can be designed in a consecutive process where one e-tivity must be completed before the next opens to the learner. In this way the LMS supports access to learning content and allows for learning processes to be designed. Moodle supports different types of e-tivities such as quizzes, video materials, chats, forums, peer-to-peer feedback, questionnaires, wikis etc.



40. The Meaning of 8 Learner Styles in Pedagogy of Sustainable Hospitality Digitalisation

People disagree on how many styles exist. For example, Neil Fleming, a New Zealand teacher, in 1987 established his popular VARK model, which includes:

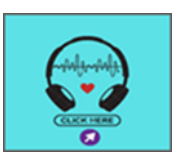
- Visual learners
- Auditory learners
- Reading/Writing learners
- Kinesthetic (physical) Learners

Human behavior specialist Scott Black took Harvard professor Howard Gardner's research and put it into practical use, creating one of the first measurable and predictable ways of determining a person's overall learning style. The process starts with your fingerprints, amazingly enough. Within 24 to 48 hours, Black can produce a 36-page report that identifies eight different intellects and how you personally process visual, auditory and kinesthetic information. Verma, E. (2023).

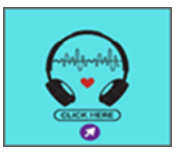
Here are **eight learning styles** as proposed by some scholars when different words are used (the sequence can vary):

Table 5: Eight learning styles

	Learning Style	Explanation
1	The Linguistic Learner or Verbal Learners (aka Linguistic Learners)	The linguistic learner is one who learns best through linguistic skills including reading, writing, listening, or speaking. (Verma, E, 2023).
2	The Naturalist or Natural/ Nature Learners	The naturalist learns by working with, and experiencing, nature. If this sounds a lot like a scientist, it's because that's how scientists learn. The naturalist loves experiences, loves observing the world around them, and captures the best information or knowledge through experimentation. (Verma, E, 2023).
3	The Musical or Rhythmic Learner or Aural (audio) Learners	The musical or rhythmic learner is one who learns using melody or rhythm. This would be like a musician learning how to play by listening to a piece of music or a drummer who hears beats in his head and on the street from arbitrary sources before putting it together in the studio. But it can also be a person who learns best while humming, whistling, toe-tapping, tapping their pencil on the desk, wiggling, or listening to music in the background. For this person, music isn't a distraction but instead actually helps the learning process. (Verma, E, 2023).
4	The Kinesthetic Learner or Physical (tactile) Learners	The Kinesthetic learner is a person that learns best by actually doing something.

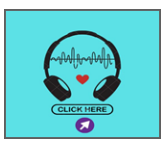


		These people are also scientific in nature and must interact with objects in order to learn about them (or learn about them in the best way possible). (Verma, E, 2023).
5	The Visual or Spatial Learner or Visual (spatial) Learners	A visual or spatial learner is a person who learns best if there are visual aids around to guide the learning process. For example, someone who can learn best from diagrams, pictures, graphs would be a visual or spatial learner. These people tend to be technically-oriented and enter engineering fields. An example of this type of learner would be a person who becomes a computer engineer or programmer. But, the best students are those that are visual or spatial learners. Why? **Because being proficient in programming and IT requires that you be a strong visual or spatial learner.** **Almost everything having to do with computers is conceptual and so it relies on graphical or visual representations of components that can't actually be seen (e.g. bytes). (Verma, E, 2023).**
6	The Logical or Mathematical Learner or Logical (analytical) Learners	The logical or mathematical learner must classify or categorize things. They also tend to understand relationships or patterns, numbers and equations, better than others. **These are obviously engineers, scientists, mathematicians, and other technical professions. (Verma, E, 2023).**
7	The Interpersonal Learner or Social Learners (aka Linguistic Learners)	The interpersonal learner is someone who learns by relating to others. Often, these people share stories, work best in teams, and compare their ideas to the ideas of others. In a sense, others help them think of new ideas of their own. They are often naturally good leaders as well as team players. You often see these people in various fields of psychology or social sciences. (Verma, E, 2023).
8	The Intrapersonal Learner or Solo Learners	The intrapersonal, as opposed to interpersonal, learner is someone who works and learns best when they are alone. They set individual goals that are challenging, but not impossible. They are also motivated by internal forces, rather than external ones. They are often introverted individuals, but not always. **These people often enter creative fields, become entrepreneurs, and sometimes small business owners. But, they are usually in fields or industries that allow them to work without direct supervision. (Verma, E, 2023).**



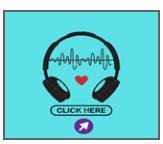
41. Practical Cases on Embedding Digitalisation in Sustainable Hospitality VET Learning: Summary

The updates will be available after launching the Sustainable Hospitality Digitalisation Course in the six countries of the project partners in 2023.



42. Practical Case on Embedding Digitalisation in Sustainable Hospitality VET Learning in Latvia

The updates will be available after launching the Sustainable Hospitality Digitalisation Course in HOTEL SCHOOL Hotel Management College, Latvia in 2023.

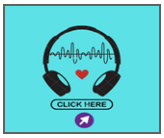


43. Practical Case on Embedding Digitalisation in Sustainable Hospitality VET Learning in Denmark

The updates will be available after launching the Sustainable Hospitality Digitalisation Course in Dania Academy, Denmark in 2023.

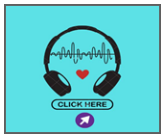
44. Practical Case on Embedding Digitalisation in Sustainable Hospitality VET Learning in Spain

The updates will be available after launching the Sustainable Hospitality Digitalisation Course in Spain in 2023.



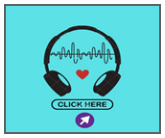
45. Practical Case on Embedding Digitalisation in Sustainable Hospitality VET Learning in Cyprus

The updates will be available after launching the Sustainable Hospitality Digitalisation Course in Cyprus in 2023.



46. Practical case on embedding digitalisation in Sustainable Hospitality VET Learning in Italy

The updates will be available after launching the Sustainable Hospitality Digitalisation Course in Italian Hospitality School in Italy in 2023.



47. Practical case on embedding digitalisation in Sustainable Hospitality VET Learning in Sweden

The updates will be available after launching the Sustainable Hospitality Digitalisation Course in Sweden in 2023.

48. Review of Good and Best World Practices on Embedding of Digitalisation: Summary

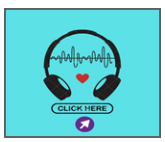
In this part of the handbook, we would like to present some of the best practices from around the world when it comes the digitalization processes of the hospitality sector. It is important to stress, that the processes and practices described are strongly connected to the overall development of digitalization and cannot therefore be separated from general development that affect most business sectors. Developments in what is commonly know as "bleeding edge technologies" such as AI, VR, AR and such are to a very certain degree driven by technological developments in other business sectors and subsequently merged into the operation of hotels, tourism operators and other actors from with in the hospitality sector.

Initially, we will investigate the overall influences of embedding digitalization in the hospitality sector to gain a overall view of the technologies and best practices affecting the sector in general. After this we will take a closer look at different regions around the world and describe how they approach the embedding of the digital opportunities provided to them. Obviously, the embedding process/maturity will vary depending on digital matureness and cultural differences, which will have a significant impact on the veracity of technological adaptability.

- In the subchapter we will present you, the reader, with an overall view of the most recent developments worldwide concerning the embedding of digitalization in the hospitality sector.
- In subchapter we will look at China. We have chosen the Chinese market as a separate unity, as the rate of technological development is in a rapid development here. Many of the tendencies described by using the Chinese marked as an example will therefore apply to the Asian region as a whole
- In subchapter we will focus on the American market with a special focus on the North American marked in particular. Historically, the development of technological advances hailed from the American hospitality industry which justifies a subchapter with this focus.

In their recent rapport on the development of the current state of digitalization worldwide, Harvard Business Review clearly sets the stage for the overall trend dominating the increasing focus on digitalization – Covid19:

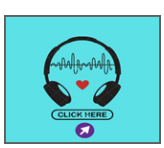
"Yet in this year's survey—the third annual one by Harvard Business Review Analytic Services—an astounding 95% of executives report an increased



importance of a digital transformation strategy within their industry—the highest percentage recorded to date. What could explain the increase? In a word, Covid-19. The global pandemic has darkly underscored the imperative to use technology as a lever to change how organizations achieve their goals. Covid-19 has put our digital transformation strategies to the test. The widening gap between those who are able to swiftly and successfully respond to change—and those who aren't—is validating the value of a digital transformation strategy. In other words, the hype is real." (HBR, 2022).

As with developments described previously in the other material from this project, Covid19 is – and was – the event that instigated the imperative for companies from all business sectors to go digital in a way never seen before. The first step in defining a best practice framework is thus to come to terms with the changed reality post Covid19 – you either go digital or you go bust! This off course also transcends into the world of hospitality where companies like the Swedish tech start up Digital Guest (see more on www.digitalguest.com) made a business model of helping hotels in making their customer service 100% digital through the means of a simple digital process. Following the lockdowns this company, alongside several other inherently tech companies, have aided especially the hotel sector in going way more digital than previously. And this seems to suggest a pattern, that the technological development affecting seem to stem from without the hospitality sector rather than from within. Take for example the revolution that Social Media (SOME) had on the hospitality sector, where large SOME entities such as Facebook and YouTube led the way in changing how hotels, tourism operators handled their marketing efforts, but also how this technological revolution completely changed how operators – big and small – from within the hospitality sector engaged with their guest. From almost 0% digital interaction with guest, social media radically forced the sector into accepting that customers service was not necessarily something that occurred in the psychical sphere but also had to be conducted online in order to satisfy the ever increasingly tech savy customers.

Alongside the business sector Covid19 also altered the educational sector permanently. Millions of school children, alongside with students from universities and other educational institutions, went from psychical to virtual attendance. For most, this shift happened over night as the Pandemic slowly but surely shut down societies and institutions around the world. This in term also affected how many of us worked during Covid19, as having a home office and doing meetings online became commonplace in most companies. This still holds very much true, as a vast number of employees still prefer working at home, and companies still have to adjust their culture and leadership style accordingly (HBR, 2022). Online meetings in particular have been, and still is, a challenge to hotels who have relied



heavily on conference activities, as more and more conference guest are moving their meetings online, and thus negating the need for a psychical conference room. The questions remains if conference guests will still prefer physical meetings in the future, or if the virtual alternative will become more alluring to companies. A fact is, that going digital holds many advantages for companies, especially when considering the savings in cost that this entails.

Besides Covid19 the general technological development - especially within the area of "bleeding edge technologies" – have enhanced the imperative for business to become more digitally inclined. This development in technologies cannot stand alone but must be accompanied by a culture and strategy change within the company. In their recent rapport on the digitalization of the hotels industry, Hotel Tech Rapports states clearly that a prerequisite for a successful digitalization of hotels the must consider:

"Digital transformation is not just about technology investment but refers to the ways organizations restructure themselves to adapt and alter corporate culture to empower innovations that leverage technology and take their businesses to new levels of growth… Digital transformations involve some digitization of assets and/or increased use of technology, but for a transformation to be successful, it must holistically involve cultural and operational changes as well. This might mean a change in leadership, the adoption of a new business model, evolving the company culture, or reassessing how the company delivers value to its customers."

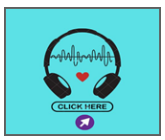
Source: Hotel Tech Rapport, 2022

In order to accomplish this successfully, hotels (and other hospitality companies by default) must consider the following elements in order to gain the full potential of a digital transformation (Hotel Tech Rapport, 2022):

- Step 1: Pick a specific goal for your digital transformation efforts and adhere loyally to it throughout the whole process such as – higher customer satisfaction, increase revenue, decrease costs ects.

- Step 2: Make sure to measure the progress of this goal and set standards for achieving it.

- Step 3: Respect the cultural changes that accompany the technological shift. Technology cannot be separated from the cultural reality that it has to thrive in. If you introduce the most sophisticated booking system in the business, but your employees are not able to understand it's functionalities (or even worse it's importance), failure is sure to occur! (LM, 2022)



Sum up best practices worldwide:

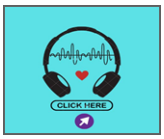
- Go digital or go away: The Covid19 pandemic fuled the necessity for actors from the hospitality sector to restructure the way of operating their businesses into being more technologically driven. The mantra during Covid19 became "go digital or go away". The first best practice advice is therefore to consider whether your company has shifted it's business model to become more digitally inclined. If not, this might warrant difficulties in remaining competitive in the near future as the technological imperative will gain increasing momentum.

- In a drive towards becoming more digitally run companies from the hospitality sector MUST adapt a holistic approach that involves considerations concerning how to integrate the change so that it aligns with the strategy and culture of the company. Going digital will not yield the results that you expect if your employees are not onboard.

- The cultural aspect mentioned above will also help to determine whether or not you will choose to further your digitalization efforts. Technological proficiency lies not only in a company's abilities to use the latest technological possibilities, but also in understanding and accepting the need to digitalization – now and in the future.

As mentioned in the beginning of this chapter it is quite a daunting task to generalize on the technological development in the whole world, as both cultural and technical differences play a vital role. One must however acknowledge that for example Covid-19, which is mentioned as a crucial game changer for the advancement of tecnological development within the hospitality sector (and indeed several other sectors aswell) was a global phenomenon which affected all parts of the globe. Lastly, it should be stressed that digitalization is imperative for all business sectors as a means to achieve future competitiveness. As the EIB (European Investment bank) conclude in the rapport on the digital age:

"Digitalisation is associated with better firm performance. Digital firms tend to have higher productivity than non-digital firms, have better management practices, be more innovative, grow faster and create higher-paying jobs. A major barrier that is specific to Europe is an unfavourable firm-size distribution. There are many small firms in the European Union that do not invest in digital technologies. These firms consider labour market regulations, business regulations and the lack of external finance as major obstacles to investment, which may further exacerbate the delay in digital technology adoption." (EIB, 2020)



49. Good Practice on Embedding of Digitalisation: China

As in describing the development of digitalization worldwide was a task that had to be handled with precaution (due to culture, digital prowess ects) the same considerations must be taken when it comes to China. The sheer vastness of the country necessitates that precaution must be taken when trying to generalize. There is for example a vast difference in digital adaptability between the Shanghai region by the coast and the regions and cities in say upper Mongolia. In the West we usually think of China as one country but considering that we are talking about nearly 1/5 of the world's population, we need to acknowledge that vast differences within China will appear when dealing with digitalization.

By and large there seems to be 5 specific megatrends that drive the best practice efforts of digitalization in China (Mckinsey, 2021), and we will explore them below as a way of discussing best practice methods for the hospitality sector, as these megatrends affect all business in China alike.

Megatrend 1: The great retail integration

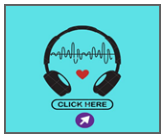
All though this might seem an odd place to start when dealing with the hospitality sector, the development within the retail sector in China does however hold a valuable lesson for operator within hospitality – the need for convenience and efficiency has been a driving factor in the success of the retail sector in China. Customers are affected by this development in their expectations, and the hospitality sector in China will have to adapt to the demands of their guests.

Megatrend 2: The virtualization of services

Fuled by the Covid-19 pandemic that kept China closed for more than 2 years, the virtual domain is ever increasing – especially within education, where digitalization has taken a massive leap in China. This is especially true for parts of rural China, where the demand for qualified teachers has been an on-going issue that was alleviated by the digital shift initiated by Covid-19. As mentioned before in the subchapter concerning the worldwide development, Covid-19 was by far the game-changer that hailed the shift to the digitalization of services, and in China this was especially evident. Again, this is a trends that hospitality business needs to adjust to in order to satiate the needs of their customers.

Megatrend 3: The mobility revolution

As with Megatrend number 1 concerning the retail industry, this is not directly related to the hospitality industry, however the ramifications of the mobility revolution will defiantly affect especially the restaurant sector in China. In short, the mobility revolution encompasses the shift to autonomously driven cars, that will replace the human factor in operating vehicles, and the use of drones for



example. This will open endless opportunities for the delivery of take-away in especially the major cities in China.

Megatrend 4: Digitalization of the social life

Anyone who has been to China recently will acknowledge that life is lead in two categories – the "real" world, and the virtual world. What is new here is that the two seem to be merging to an ever increasing degree, which means that hospitality companies no longer can view their services as being predominantly physical or virtual. Tourism attractions must for example adapt bleeding edge technologies such as Virtual Reality tours in the product portfolio in order to satiate the demands of their customers who themselves live in a cross road between the "real" and virtual world. The same holds true of Hotels, restaurant and event venues where virtual meetings will gain momentum on the Chinese market. And no, we are not thinking about your standard Zoom meeting with all that entails, but virtual meeting that approximate the "real"experience so much that you almost can't tell the difference!

Megatrend 5: IOT (Internet of things)

The degree to which hospitality companies in China can learn from especially manufacturing companies in using IOT technology as part of their business model will define how the stay competitive in the future. This holds especially true for the hotel and restaurant sector, where IOT technology can vastly improve the sustainability efforts of the whole sector in China.

In summary the 5 Megatrends describes above will define best practice for hospitality companies on the Chinese market. Not all sectors of the hospitality sector will be equally affected by the different Megatrends but taken the quantum leap that the digital development has taken in China during the past 15 years, it is safe to say that having a digital DNA is paramount for surviving on the Chinese hospitality market.

50. Good Practice on Embedding of Digitalisation: with the focus on USA

As with China, and the view of the development of digitalization worldwide, we also must start by saying that the same factors affect the digital development in the United States.

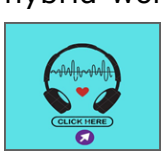
In general, the technological development across sectors – compared to Europe – seems to be better in the United States. As a recent rapport from the EIB (European Investment bank) concludes:

"The adoption of digital technologies in Europe is slow when compared to the United States. In this report, we review the evidence on where the EU and US corporate sectors stand in terms of digitalization activities using novel firm-level data sets… One key finding is that established EU firms lag their US peers in terms of digitalization activities". (EIB, 2020)

The rapport does however not stress in which specific areas within for example the hospitality sector that this difference is evident. Nor has it been possible to find reliable rapports or research on the specific conditions concerning the digitalization effort of the hospitality sector in the United States, but we assume that the same conditions that affect the global hospitality market in general will also be found in the American hospitality sector, such as the integration of "bleeding edge technologies".

One area, where especially hotels in the US needs to up their game, is however the shift caused by Covid-19 on the future of meetings. Until Covid-19 struck, the nature of meetings was predominantly viewed as a physical exercise, that generated a substantial part of hotels revenue streams, yet the post Covid-19 development has seen a shift in the behavior of the consumers preferences. This is however not only a trend affecting hotels in the United States, but something that needs to be addressed as a business opportunity from various parts of the hospitality food chain. In their rapport on the hospitality sector from 2023 Deloitte labels these new travelers as "laptop luggers", and clearly sets out the possibilities that they offer to the hospitality sector in general.

Many travel providers have recognized the ascent of this trend and are tailoring their offerings to meet the new needs of this group. Some airlines are rethinking their route maps to accommodate growing hybrid business models and leisure travel. 17 Hotel brands that predominantly catered to corporate travelers are investing in better remote-work infrastructure, changing room layouts for more in-room workspace, offering a wider range of services and activities, and so on, to lure the leisure traveler .18 Private rentals are anticipating longer stays and more international demand going forward and attribute it to rising remote and hybrid work. Laptop luggers present a lucrative opportunity for travel. And this



pattern could lead to a positive feedback loop, as more providers mold their offerings to attract this traveler, giving travelers more incentive to take advantage. (Deloitte, 2023).

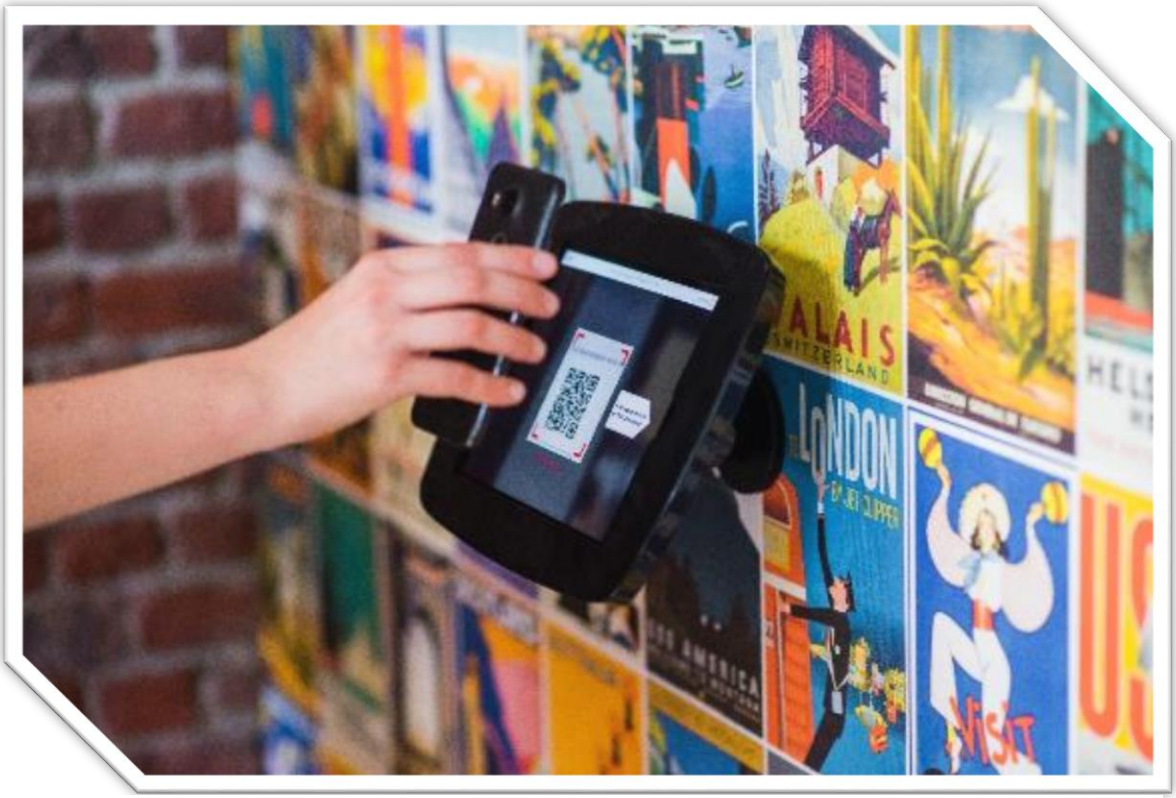


Figure 43. Ssource Proxyclick Visitor Management System at pexels.com

51. Good Practice on Embedding of Digitalisation: South America

In South America, as in most countries in the world, the restrictions of the pandemic hit the tourism sector almost like no other industry, and the need to find alternatives has led to digitalisation becoming one of the pillars of the recovery and reactivation of hotels and restaurants.

Among the challenges for the sector is investing in digital transformation processes that for many hotels, especially independent ones, were incipient before the pandemic. Apart from integrating solutions and hiring talent to develop their digital footprint, hotels can generate synergies with their peers, apply for government support or partner with technology providers (González, V, 2022).

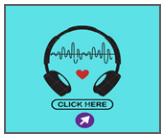
The hotel sector must take advantage of the data that emerges from digital interaction to understand this new consumer, driven by the rise of mobile devices and social networks, which includes tourists who travel for pleasure, but also those who travel for business or work. But the sector must also be prepared to deliver an experience that adapts to both the digital native, for whom searching for or booking a hotel on an app is no problem, and the traditional consumer who is just entering the digital sphere.

In this sense, alternatives such as Ayenda's have emerged that not only generate sales but also develop an entire digital presence to reach today's empowered consumer.

Ayenda is the largest Latin American hotel chain in the region by number of properties. With its motto of "just what you need", it offers standardised accommodation with a high level of basic services, affordable prices, a booking system through digital channels, and different locations in each destination. It currently operates in Colombia, Peru and Mexico.

Ayenda has 450 hotels in Peru, Colombia and Mexico, and its main challenge is to increase users' digital adoption and confidence levels when searching for and booking accommodation. "Regarding the current situation regarding digitalisation in the different South American countries where they operate, they see Mexico as a more adapted country where it is much easier for its citizens to download an app and book accommodation. In second place is Colombia, where more education is still needed in this type of digital skills. Finally, Peru is a country with great potential and opportunity for growth.

Olaclick is another good example of a startup that has helped with the integration and transformation in some areas of Latin America and focused on restaurants. Three European partners decided to expand and help with their business idea.



With the onset of the health emergency, they saw how small businesses were suffering more than digital ones. Restaurants were closing their doors. Consumer habits were changing completely, but most restaurants had no idea how to adapt to the changes brought about by the pandemic, they said.

Figure 44. Source: from Spanish team

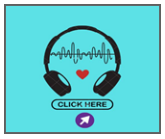
Olaclick is a simple platform that in just a few steps allows restaurants and small kitchens with home delivery to start selling at almost no cost and using the leading communication channel, WhatsApp.

"This allows businesses to develop their own commercial strategy, with their own sales channel, with control over margins and ensuring their future viability. Their online digital presence is ready in less than 10 minutes," says the Spanish co-founder during a visit to Miami (Cano, 2021).

In Latin America, 80% of restaurant orders are made by traditional telephone. According to the executive, his new platform allows the creation of ecommerce to reach the consumer directly.

Figure 45. Source: from Spanish Team

They operate mainly in Lima (Peru), but also in Brazil, Mexico and Colombia. Brazil currently accounts for 60% of the market.



52. Good Practice on Embedding of Digitalisation: India

Although it has accelerated since the pandemic's onset, technology integration has been relatively slow in the travel and hospitality industries compared to other sectors. However, this is no longer the case. Previously, just a handful of properties had innovative technology in their rooms, but today, Indian hoteliers have begun revamping their current hotel infrastructure to accommodate COVID-related social distancing and hygiene requirements to ensure the safety of both guests and employees.

The hospitality industry is getting smarter with the introduction of contactless check-in, QR-based menus and multi-channel communication, which were previously considered novelties. And speaking of technology, the AR/VR tour of accommodations is one of the game changers in hospitality, providing a digital environment for guests to visualise themselves before booking their holiday, resulting in a seamless experience for guests. In the coming months and years, we will witness an increase in technological features to facilitate a frictionless travel experience.

In addition, there is a growing need to be more environmentally friendly, preserve natural resources and reduce carbon emissions, and the adoption of green practices and sustainable trends, such as community living, is rapidly gaining ground. People are increasingly aware of environmental challenges. As a result, they are looking for alternative accommodation options, such as eco-villages, backpacker hostels, rural cottages, waste-free farms, etc. To this end, the hospitality sector, and in particular backpacker hostel brands, are offering experience-based stays that encourage a communal lifestyle for travellers.

There is no doubt that utilities are expensive in the hospitality sector. High expenses and unsustainable practices squeeze profit margins and jeopardise the financial health and long-term viability of the establishment. With the implementation of technologies such as smart equipment and sensors, the hospitality industry is rapidly streamlining operations, optimising costs through real-time monitoring and timely intervention in the event of problems. From machines to food trays, the use of innovative technology can help manage assets and inventory in real time, notify staff of service needs and enable long-term planning, all of which ultimately improve the guest experience

The forecast for investment and growth in 2021 in the Indian travel and tourism sector in India was a growth of 8.8% to reach INR 2,827.5 billion (USD 63.7 billion) (Gilani, V. ,November 2, 2022). So Indian hotels have a great opportunity to learn from the sector worldwide and invest early in a performance-based

sustainability system that will help the hotel to continuously improve its efficiency and performance.

The biggest challenge for the sector is that it is fragmented, with the exception of a few large players. Smaller hotels are unable to visualise the wider impact of their activities. With limited knowledge and capacity to invest in technological interventions, it is absolutely necessary for them to accurately calculate the cost and savings resulting from different interventions in order to maximise their ROI. Some good practices that have been implemented in India for the digitisation and sustainability of the hospitality industry include:

Rategain which is One of the world's largest processors of hotel bookings, pricing intelligence, and customer travel-intent, RateGain Founded in 2004 and headquartered in India, today RateGain works with Top 23 of 30 Hotel Chains, Top 25 of 30 Online Travel Agents and all the top car rentals including 8 Global Fortune500 companies. RateGain Travel Technologies Limited is a global provider of SaaS solutions for travel and hospitality that works with over 2200+ customers in over 100+ countries helping them accelerate revenue generation through acquisition, retention and wallet share expansion (RateGain Technologies Limited w.d.).

The main objective of this company and its practices is focusing on hospitality by helping companies accelerate revenue generation through acquisition, retention, and wallet share expansion.

Figure 46. Source: from Spanish team

It offers travel and hospitality solutions across a wide spectrum of verticals including hotels, airlines, online travel agents ("OTAs"), meta-search companies, vacation rentals, package providers, car rentals, rail, travel management companies, cruises and ferries.

The product developed by RateGain Technologies Limited:

- DHISCO Switch Connectivity: hotel distribution software helps to strengthen existing business or explore new market opportunities
- Guest Experience Management: is an award-winning provider of social media solutions for the hospitality industry
- Optima: a real-time Rate Intelligence Platform which empowers revenue managers to stay on top of competition and market trends.

- Parity+: it is a customizable and intuitive rate parity system for hotels, analyses their rate parity status quo, defines strategies to minimise revenue loss, and enhances brand reputation with the industry's only closed-loop rate parity solution.
- RezGain: it is a smart distribution channel manager with connect demand partners to the supply partners
- Smart Distribution: it is a disruptive platform that leverages AI to discover new demand and simplify and expedite mapping and channel setup.

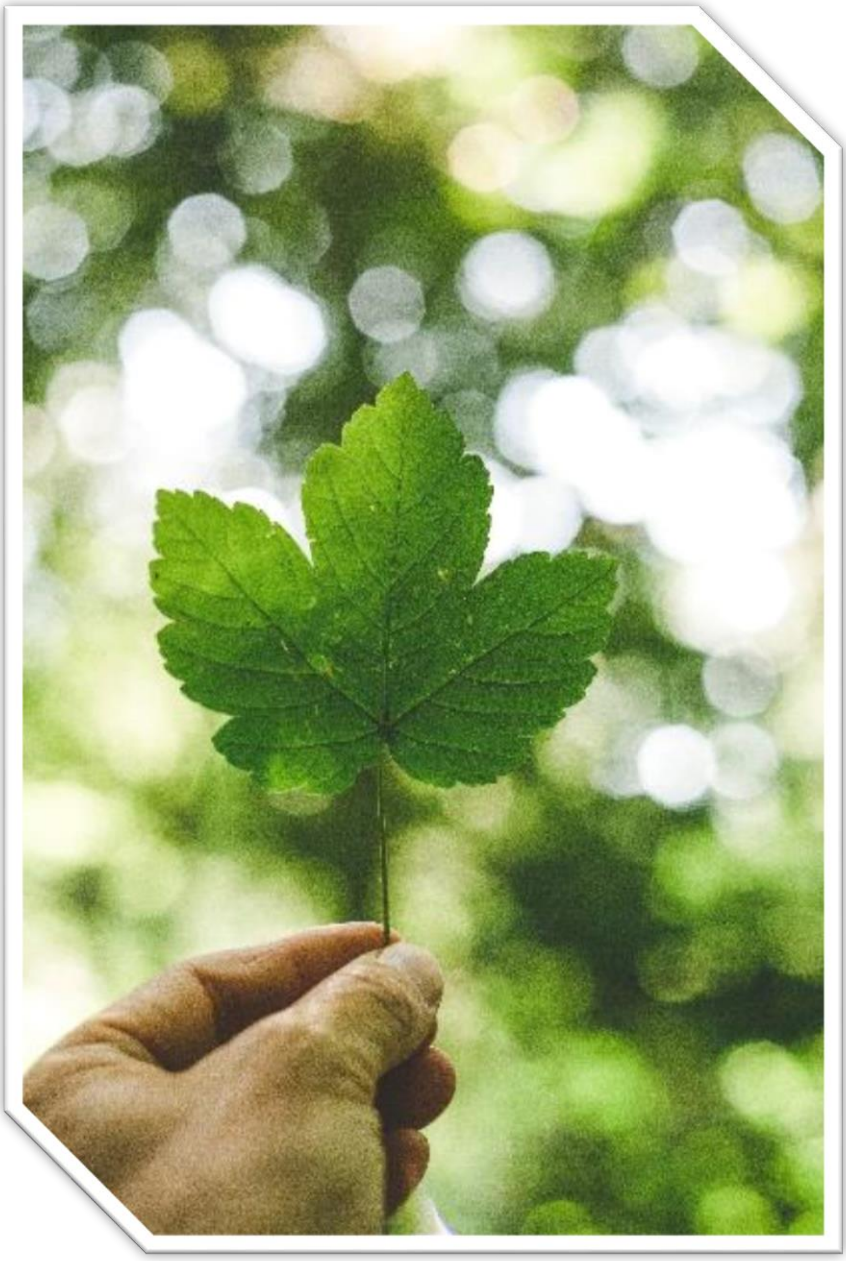


Figure 47. Source Markus Spiske at pexels.com

53. Good Practice on Embedding of Digitalisation: Europe

Tourism is a major economic activity in the European Union, contributing about 10 % to the European Union and hospitality is one of the sectors related to tourism.

The EU tourism and hospitality sector is also facing changes brought about by the digital revolution. Many customers nowadays plan and book trips, such as stays or flights on their own through online travel agencies, search engines and metasearch engines, and make increasing use of mobile technology and apps.

Some share their hotel and restaurant travel experiences through personal exchanges on social media platforms, travel blogs or commercial channels such as TripAdvisor.

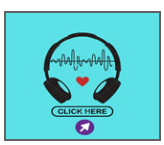
Most companies serving tourists and hospitality customers have understood the need to adapt their products to the changes in the functioning of the market and, as a result, have launched various online and automated services.

Many undertakings serving tourist needs also offer various online and automated services. Automation and robots are also used in the hospitality sector, for instance, to allow guests to check in, to answer customers' questions, to offer information on local attractions, weather or flights, or to offer virtual tours of a hotel. Some restaurants even use robots to serve food. Others have replaced their paper menus with tablets.

Also digital transformation has facilitated the transition to green tourism. Digital tools, for example: social media, chatbots, and digital assistants, facilitate the prevalence of information on the dimensions of sustainable development in tourism, dissemination of good practices in the field, and promotion of sustainable development objectives within the tourism and hospitality sector.

The global innovation landscape is changing rapidly due to the growing importance of digitalisation, intangible investment and the emergence of China.

Many of the leading digital technology companies are based outside Europe, mainly in the US or China. EU companies account for around 20% of the largest R&D companies, but are less frequently among the top global technology companies, in areas such as consumer electronics, cybersecurity, digital infrastructure and services. In this respect, EU companies lag behind in the adoption of digital technologies, particularly in the construction sector and for Internet of Things (IoT) technologies.



Another important data is that the adoption of digital technologies in Europe is slow compared to the US in the report "Who is prepared for the new digital age?" developed by the European Investment Bank called (European Investment Bank 2020)

In this report, data on the status of EU and US business sectors in terms of digitisation activities was reviewed and one of the main conclusions is that EU-based companies lag behind their US counterparts in terms of digitisation activities.

However, in Europe there are great initiatives on the integration of digitisation and sustainability in the hospitality industry, some examples are as follows:

Environmentally friendly travel packages in the Netherlands

In the Netherlands, the tourism sector uses Carmacal to measure its carbon footprint.

An evolution of traditional calculators, allowing tour operators to create environmentally friendly travel packages.

Carmacal is an innovative B2B tool that, under the CARMATOP project, has been developed primarily to enable tour operators to easily and intuitively measure the complete and detailed carbon footprint of their tour packages (Segittur 2022).

Figure 48. Source: from Spanish team

Unlike other calculators, which only measure general emission factors and focus primarily on air transport or accommodation, Carmacal allows the CO2 impact to be calculated holistically as it includes transport, accommodation and activities undertaken by the tourist at the destination. To use it, tour operators must purchase annual user licences and can access the tool through an online connection.

The tool allows operators to create travel packages based on sustainability criteria, in addition to the usual variables of price, quality and convenience:

- Mobility: allows the selection of the means of transport, from a total of twenty-five options, and its characteristics to obtain a more accurate prediction.

- Accommodation: provides a database of several hotel chains that estimate their impact on an individual and personalised basis and, if not included, offers

the possibility of categorising the accommodation and calculating an average value according to its characteristics.

- Activities: identifies the activities that have the greatest impact in terms of carbon dioxide emissions generation.

The initiative has been developed by ANVR, an association of Dutch tour operators that requires all its members to meet minimum requirements for sustainable practices.

It has received several global awards, being the winner of:

- Green Feathe 2015, for the best Dutch sustainable tourism initiative.
- Tourism for Tomorrow 2016, awarded by the World Travel & Tourism Council (WTTC,World Travel & Tourism Council)
- World Tourism Organization 2017 Award for Innovation in Research and Technology

Big Data & Analytics technologies in the accommodation of Barcelona and Berlin

Online tracking to optimise the management of tourist accommodation in the destination using Big Data & Analytics technologies.

The implementation of this tool for the accommodation sector was used in collaboration with a company specialising in web scraping technology to monitor the digital platforms of tourist accommodation and detect the supply of tourist accommodation being marketed in the destination (Segittur 2022).

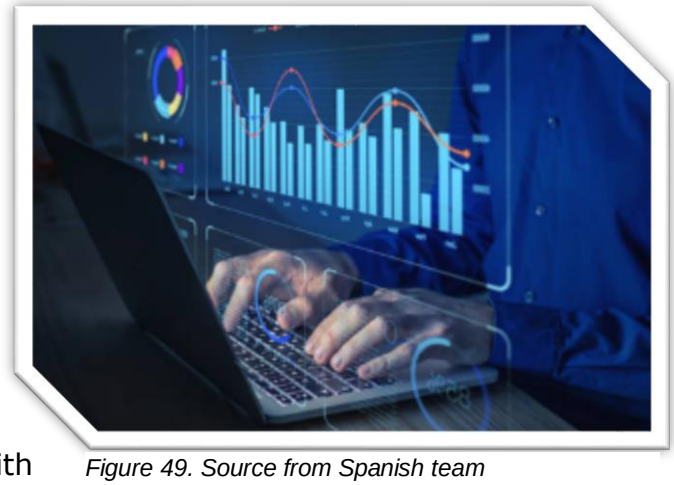
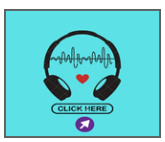


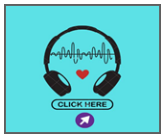
Figure 49. Source from Spanish team

The web scraping systems or software automatically perform real-time queries through the APIs of platforms such as Airbnb or HomeAway.

This extracted and compiled information is integrated into the same directory in order to subsequently compare the results obtained at a specific moment with the historical data stored in a platform or data warehouse. Finally, the information is updated for analysis and obtaining results.



The use of web scraping techniques is an innovative alternative for measuring and understanding the phenomenon of tourist accommodation, another alternative to hotels, as well as for identifying illegal dwellings and understanding the real impact of the regulation implemented in the destination in terms of tourist accommodation.



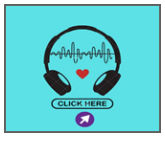
54. Good Practice on Embedding of Digitalisation: Other Countries

Romania – simulated training firms in initial VET:

The National Centre for TVET Development (NCTVETD) in Romania employs the concept of the simulated training firm in initial VET. The simulated training firm is an interactive method to learn and acquire entrepreneurship skills by integrating interdisciplinary knowledge. Students are asked to form groups that are coordinated by a teacher and create a virtual company with all the necessary staff and activities. They register the virtual company on the electronic platform called the Romanian Coordination Centre of Training Firms (ROCT) and simulate all the registration steps for a real company and its economic activities. They make internal and external transactions and simulate all activities regarding payments including social security, health insurance and taxes. The training firm simulation concept positions students as the main actors in all related activities and has become a highly successful approach to project-based work. (EC, 2020).

SOLAS, Ireland – a game-based approach to delivering further education and training SOLAS, the Further Education and Training Authority in Ireland has developed an innovation fund to support FET providers to engage with the industry and align their offer to the needs of reskilling and upskilling.

In this context, the Galway Roscommon Education and Training Board (GRETB) is currently leading an innovation project which aims to introduce a game-based approach to delivering further education and training to aquaculture. This project will provide digital resources to support the aquaculture industry to include an aquafarm simulator and a range of game-based resources. The simulator will use real-life occurrences to prompt applied problem solving and risk recognition. The game-based resources will encourage active problem solving accompanied by a point system to create a pathway to elevate learners to more complicated tasks reflecting the specialised theoretical content of units. These resources will inform the development of accredited on-the-job training and CPD opportunities within the industry, while also supporting the teaching and learning leading to accredited aquaculture awards which have already been developed in conjunction with Bord Iascaigh Mhara, the Irish state agency responsible for developing the Irish seafood industry.g (FET)



55. The Canvas of Skills, Competences to Provide Digital Courses

DigCompEdu distinguishes six stages or levels along which educators' digital competence typically develops. For each stage a role descriptor is provided which reflects the particular focus of digital technology use typical for the competence stage. These role descriptors also relate to an educator's relative strengths and roles within a professional community.

Newcomer (A1)

Newcomers are aware of the potential of digital technologies for enhancing pedagogical and professional practice. However, they have had very little contact with digital technologies and use them mainly for lesson preparation, administration or organisational communication. Newcomers need guidance and encouragement to expand their repertoire and to apply their existing digital competence in the pedagogical realm.[/collapsed]

Explorer (A2)

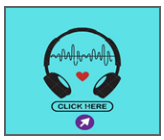
Explorers are aware of the potential of digital technologies and are interested in exploring them to enhance pedagogical and professional practice. They have started using digital technologies in some areas of digital competence, without, however, following a comprehensive or consistent approach. Explorers need encouragement, insight and inspiration, e.g. through the example and guidance of colleagues, embedded in a collaborative exchange of practices.

Integrator (B1)

Integrators experiment with digital technologies in a variety of contexts and for a range of purposes, integrating them into many of their practices. They creatively use them to enhance diverse aspects of their professional engagement. They are eager to expand their repertoire of practices. They are, however, still working on understanding which tools work best in which situations and on fitting digital technologies to pedagogic strategies and methods. Integrators just need some more time for experimentation and reflection, complemented by collaborative encouragement and knowledge exchange to become Experts.

Expert (B2)

Experts use a range of digital technologies confidently, creatively and critically to enhance their professional activities. They purposefully select digital technologies for particular situations, and try to understand the benefits and drawbacks of



different digital strategies. They are curious and open to new ideas, knowing that there are many things they have not tried out yet. They use experimentation as a means of expanding, structuring and consolidating their repertoire of strategies. Experts are the backbone of any educational organisation when it comes to innovating practice.

Leader (C1)

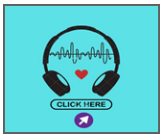
Leaders have a consistent and comprehensive approach to using digital technologies to enhance pedagogic and professional practices. They rely on a broad repertoire of digital strategies from which they know how to choose the most appropriate for any given situation. They continuously reflect on and further develop their practices. Exchanging with peers, they keep updated on new developments and ideas. They are a source of inspiration for others, to whom they pass on their expertise.

Pioneer (C2)

Pioneers question the adequacy of contemporary digital and pedagogical practices, of which they themselves are Leaders. They are concerned about the constraints or drawbacks of these practices and driven by the impulse to innovate education even further. Pioneers experiment with highly innovative and complex digital technologies and/or develop novel pedagogical approaches. Pioneers are a unique and rare species. They lead innovation and are a role model for younger teachers.

For each of the 22 competences, level descriptors and proficiency statements are provided that allow educators to understand their level of competence and their specific development needs.

Detailed information is available here: https://joint-research-centre.ec.europa.eu/digcompedu/digcompedu-framework/digcompedu-proficiency-levels_en



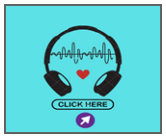
56. The Canvas of Skills to Design Digital Courses

Digital content creation

Table 6: Digital competences for Digital content creation, Source DigCompEdu (2017).

Progression		Proficiency statements
Newcomer (A1)	Making **little use** of strategies fostering digital content creation by learners	I do not or only very rarely consider how to foster digital content creation by learners.
Explorer (A2)	**Encouraging** learners to use digital technologies for creating content	I encourage learners to express themselves using digital technologies, e.g. by producing texts, images, videos.
Integrator (B1)	**Implementing** activities fostering digital content creation by learners	I implement learning activities in which learners use digital technologies to produce digital content, e.g. in the form of text, photos, other images, videos, etc. I encourage learners to publish and share their digital productions.
Expert (B2)	**Strategically** using a **range** of pedagogic strategies to foster digital content creation by learners	I use a range of different pedagogic strategies to enable learners to express themselves digitally, e.g. by contributing to wikis or blogs, by using ePortfolios for their digital creations. I enable learners to understand the concept of copyright and licenses and how to re-use digital content appropriately.
Leader (C1)	**Comprehensively** and **critically** fostering digital content creation by learners	I detect and counteract plagiarism, e.g. by using digital technologies. I critically reflect on the suitability of my pedagogic strategies in fostering learners'

		creative digital expression and adapt my strategies accordingly.
Pioneer (C2)	Using **innovative formats** for fostering digital content creation by learners	I guide learners in designing, publishing and licensing complex digital products, e.g. creating websites, blogs, games or apps. I reflect on, discuss, re-design and innovate pedagogic strategies for fostering digital expression and creation by learners.

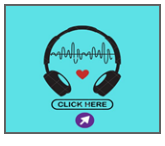


57. The Canvas of Skills to Deliver the Subject Content by Means of Digitalisation and about Sustainable Digitalisation Means

Creating and modifying digital content

Table 7: Creating and modifying digital content to deliver the Subject Content by Means of Digitalisation and about Sustainable Digitalisation Means on the basis of DigCompEdu (2017).

Progression		Proficiency statements
Newcomer (A1)	**Refraining** from modifying digital resources	I may make use of digital resources, but I do not usually modify them or create my own resources.
Explorer (A2)	Creating and modifying resources using **basic tools** and strategies	I use office software to design and modify e.g. worksheets and quizzes. I create digital presentations for instructional purposes.
Integrator (B1)	Creating and modifying resources using **some advanced features**	When I create digital resources (e.g. presentations), I integrate some animations, links, multimedia or interactive elements. I make some basic modifications to the digital learning resources I use to fit them to the learning context, e.g. editing or deleting parts, adapting the general settings. I address a specific learning objective when selecting, modifying, combining and creating digital learning resources.
Expert (B2)	Adapting **advanced digital resources** to a concrete learning context	I integrate a range of interactive elements and games into my self-created instructional resources. I modify and combine existing resources to create learning activities that are tailored to a concrete learning context and objective, and to the characteristics of the learner group. I understand different licenses attributed to digital resources and know the permissions granted to me as regards modifying resources.
Leader (C1)	Creating, co-creating and modifying resources according to the **learning context**, using **a range of advanced strategies**	I create and modify complex and interactive digital learning activities, e.g. interactive worksheets, online assessments, online collaborative learning activities (e.g. wikis, blogs), games, apps, visualisations I co-create learning resources with colleagues.
Pioneer (C2)	Creating **complex, interactive** digital resources	I create my own apps or games to support my educational objectives.



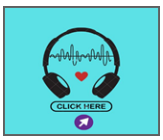
58. The Canvas of Skills to Instruct Learners How to Embed Digitalisation in the Studies, Assignments, in the Working Area

Self-regulated learning

Table 8: Competences of Self-regulated learning to Instruct Learners How to Embed Digitalisation in the Studies, Assignments, in the Working Area on the basis of DigCompEdu (2017).

Progression		Proficiency statements
Newcomer (A1)	Making **little use** of digital technologies for self-regulated learning	I do not or only very rarely consider how students could use digital technologies in self-regulated activities or assignments.
Explorer (A2)	**Encouraging** learners to use digital technologies in self-regulated learning activities	I encourage learners to use digital technologies to support their individual learning activities and assignments, e.g. for information retrieval or presenting results.
Integrator (B1)	**Implementing** digital technologies into the design of self-regulated learning activities.	I encourage learners to use digital technologies to collect evidence and record progress, e.g. to produce audio or video recordings, photos, texts. I use digital technologies (e.g. ePortfolios, learners' blogs) to allow learners to record and showcase their work. I use digital technologies for learner self-assessment.
Expert (B2)	Using digital environments to **comprehensively** support self-regulated learning	I use digital technologies or environments (e.g. ePortfolios, blogs, diaries, planning tools) to allow learners to manage and document all stages of their learning, e.g. for planning, information retrieval, documentation, reflection and self-assessment. I help learners in developing, applying and revising suitable criteria for self-assessment, with the support of digital technologies.
Leader (C1)	**Critically reflecting** on the digital strategies used to foster self-regulated learning	I reflect on the appropriateness of my digital strategies in fostering self-regulated learning and continuously enhance my strategies.

Pioneer (C2)	Developing **new** digital formats and/or pedagogic **approaches** for self-regulated learning	I develop new digital formats and/or pedagogical approaches to foster self-directed learning.



59. The Sustainable Hospitality Digitalisation Competence Framework for VET Educators

The Sustainable Hospitality Digitalisation Competence Framework for VET Educators is based in the DigCompEdu (Redecker, C., DigCompEdu., 2017) considering also DigComp 2.0., 2.1., 2.2.

Table 9: The Sustainable Hospitality Digitalisation Competence Framework for VET Educators, adapted from DigCompEdu by the authors.

1	Professional Engagement	
1.1.	Organisational communication	To use digital technologies to enhance organisational communication with learners, parents and third parties for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization To contribute to collaboratively developing and improving organisational communication strategies for ensuring sustainable hospitality digitalisation and devoted educational process of the community / organisation
1.2	Professional collaboration	To use digital technologies to engage in collaboration with other educators, sharing and exchanging knowledge and experiences and collaboratively innovating pedagogic practices for fostering sustainable hospitality digitalisation and devoted educational process of the community / organisation
1.3	Reflective practice	To individually and collectively reflect on, critically assess and actively develop one's own digital pedagogical practice and that of one's educational community for ensuring sustainable hospitality digitalisation and devoted educational process of the community / organisation
1.4	Digital Continuous Professional Development (CPD)	To use digital sources and resources for continuous professional development of self and involved participants and stakeholders for ensuring sustainable hospitality digitalisation and devoted educational process of the community / organisation
2	Digital Resources	
2.1	Selecting digital resources	To identify, assess and select digital resources for teaching and learning for ensuring sustainable hospitality digitalisation and devoted educational process of the community / organisation To consider the specific learning objective, context, pedagogical approach, and learner group, when selecting digital resources and planning their use for fostering sustainable hospitality digitalisation and devoted educational process of the community / organisation
2.2.	Creating and modifying	To modify and build on existing openly-licensed resources and other resources where this is permitted

	digital resources	for ensuring sustainable hospitality digitalisation and devoted educational process of the community / organization. To create or co-create new digital educational resources for fostering sustainable hospitality digitalisation and devoted educational process of the community / organisation To consider the specific learning objective, context, pedagogical approach, and learner group, when designing digital resources and planning their use for fostering sustainable hospitality digitalisation and devoted educational process of the community / organisation
2.3.	Managing, protecting and sharing digital resources	To organise digital content and make it available to learners, parents and other educators for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To effectively protect sensitive digital content for ensuring sustainable hospitality digitalisation and devoted educational process of the community / organisation To respect and correctly apply privacy and copyright rules for ensuring sustainable hospitality digitalisation and devoted educational process of the community/ organisation To understand the use and creation of open licenses and open educational resources, including their proper attribution for ensuring sustainable hospitality digitalisation and devoted educational process of the community / organization.
3.	Teaching and Learning	
3.1	Teaching	To plan for and implement digital devices and resources in the teaching process, so as to enhance the effectiveness of teaching interventions for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To appropriately manage and orchestrate digital teaching interventions for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To experiment with and develop new formats and pedagogical methods for instruction for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
3.2	Guidance	To use digital technologies and services to enhance the interaction with learners, individually and collectively, within and outside the learning session for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To use digital technologies to offer timely and targeted guidance and assistance for fostering sustainable

		hospitality digitalisation and devoted educational process of the community / organization. To experiment with and develop new forms and formats for offering guidance and support for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
3.3.	Collaborative learning	To use digital technologies to foster and enhance learner collaboration for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To enable learners to use digital technologies as part of collaborative assignments, as a means of enhancing communication, collaboration and collaborative knowledge creation for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
3.4	Self-regulated learning	To use digital technologies to support self-regulated learning processes, i.e. to enable learners to plan, monitor and reflect on their own learning, provide evidence of progress, share insights and come up with creative solutions.
4.	Assessment	
4.1.	Assessment strategies	To use digital technologies for formative and summative assessment for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To enhance the diversity and suitability of assessment formats and approaches for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
4.2.	Analysing evidence	To generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress, in order to inform teaching and learning for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
4.3.	Feedback and planning	To use digital technologies to provide targeted and timely feedback to learners for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To adapt teaching strategies and to provide targeted support, based on the evidence generated by the digital technologies used for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To enable learners and parents to understand the evidence provided by digital technologies and use it for decision-making for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.

5.	Empowering Learners	
5.1.	Accessibility and inclusion	To ensure accessibility to learning resources and activities, for all learners, including those with special needs for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To consider and respond to learners' (digital) expectations, abilities, uses and misconceptions, as well as contextual, physical or cognitive constraints to their use of digital technologies for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
5.2.	Differentiation and personalisation	To use digital technologies to address learners' diverse learning needs, by allowing learners to advance at different levels and speeds, and to follow individual learning pathways and objectives for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
5.3.	Actively engaging learners	To use digital technologies to foster learners' active and creative engagement with a subject matter for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To use digital technologies within pedagogic strategies that foster learners' transversal skills, deep thinking and creative expression for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To open up learning to new, real-world contexts, which involve learners themselves in hands-on activities, scientific investigation or complex problem solving, or in other ways increase learners' active involvement in complex subject matters for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
6.	Facilitating Learners' Digital Competence	
6.1.	Information and media literacy	To incorporate learning activities, assignments and assessments which require learners to articulate information needs; to find information and resources in digital environments; to organise, process, analyse and interpret information; and to compare and critically evaluate the credibility and reliability of information and its sources for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
6.2.	Digital communication & collaboration	To incorporate learning activities, assignments and assessments which require learners to effectively and responsibly use digital technologies for communication, collaboration and civic participation for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.

6.3.	Digital content creation	To incorporate learning activities, assignments and assessments which require learners to express themselves through digital means, and to modify and create digital content in different formats for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To teach learners how copyright and licenses apply to digital content, how to reference sources and attribute licenses for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
6.4.	Responsible use	To take measures to ensure learners' physical, psychological and social wellbeing while using digital technologies for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization. To empower learners to manage risks and use digital technologies safely and responsibly for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.
6.5.	Digital problem solving	To incorporate learning activities, assignments and assessments which require learners to identify and solve technical problems, or to transfer technological knowledge creatively to new situations for fostering sustainable hospitality digitalisation and devoted educational process of the community / organization.

60. How to Teach Sustainable Hospitality Digitally

Sustainable tourism today seems to be able to intercept an emblematic heuristic field and reconcile the needs and perspectives of both a knowledge society and a green society in which the dimension of a green knowledge becomes a common good and training the process to trigger change: pedagogy, the science of education and training, opens up to multi-stakeholder perspectives aimed at designing effective training systems to respond to these challenges and make sustainable educational planning the key to looking to the future with hope.

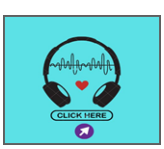
In recent decades, the tourism sector, in addition to having always confirmed a consistent growth trend, has seen the characteristics of demand change in relation to new requests and ways of using resources.

Digital teaching and learning methods play an important role in promoting sustainability in tourism education. Education plays a central role in shaping the transformation of individuals and societies towards sustainability. Education for sustainable development is an educational vision to balance human and economic well-being with cultural traditions and reverence for the Earth's natural resources. It applies the results of sustainability science to educational practices, guiding the choices of learning objectives, teaching content, and teaching and learning methods.

Sustainability science is a new and independent scientific discipline attempting to incorporate scientific research into physically, socially, and morally complex domains with unique problem-solving agenda.

Technology enabled learning (also known as eLearning, online learning and digital learning) has been extensively discussed and researched (Bristow et al., 2011, Strauss and Hill, 2007). This concept includes applications such as virtual learning environment, webinars, blogs, wikis, crowdsourcing, mobile learning and classroom use of social media (London & Hall, 2011).

Higher Education Institutions (HEIs) have invested in such technologies to keep abreast of the rapid technological changes and this new generation of hi-tech immersed students, coined "digital natives" by Prensky (2001), p. 1. More recent research acknowledges a radical shift in the learning process is needed to exploit the use of technology, particularly Web 2.0 (Liburd & Christensen, 2013) in order to develop newer ways of teaching and learning (Dabbagh & Kitsantas, 2012). However, these rapidly morphing technologies pose challenges for educators who struggle to engage students and implement more flexible modes of learning (Eastman, Iyer, & Eastman, 2011). Research exists which demonstrate the relationship between digital tools and how students exploit them in their learning



activities (diFilipo, 2011, Kay and Lauricella, 2011) but little is conducted specifically from a hospitality perspective.

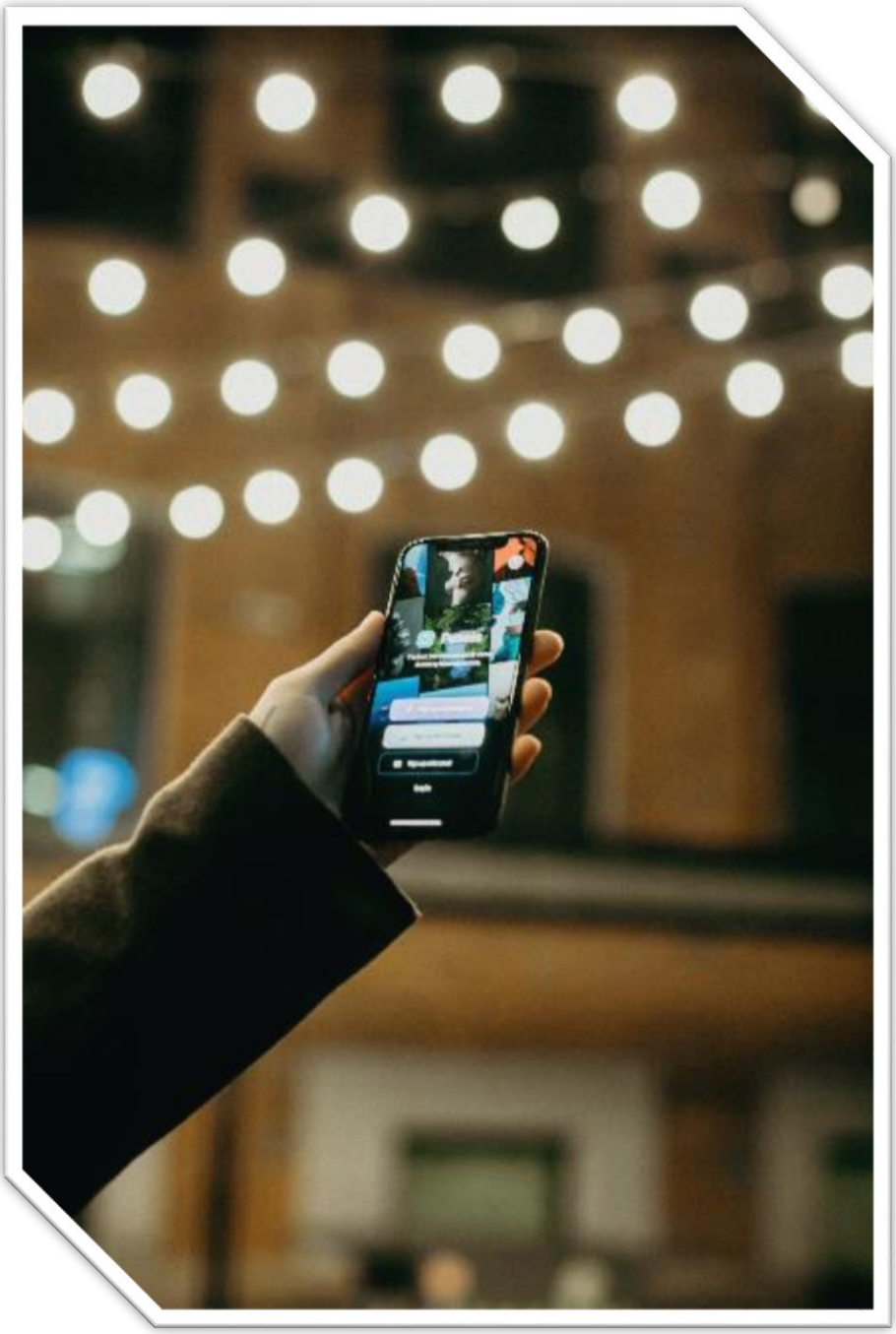


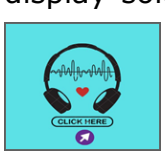
Figure 50. Source cottonbro studio at pexels.com

61. How to Design Course and Materials 'Sustainable Hospitality Digitalisation'

Sustainability is a recurring theme in tourism literature and economics. As a result, there is growing recognition of the need to include SE in the curriculum for business and tourism students. However, there are very few studies on how "sustainability" is embedded within TE curricula.

One study on the business/tourism curriculum at an Australian university using interpretive methodology indicated three key problems: (1) a crowded curriculum; (2) staff and student resistance to sustainability; and (3) the realities of a complex, multicampus institution. The environmental attitudes of a business and tourism program were explored using the New Environmental Paradigm Scale. Meanwhile, the need to teach sustainability and how to implement teaching sustainability across the hospitality and tourism curriculum were examined. The results indicated various approaches for teaching sustainability: providing more optional courses on sustainability; allocating sustainability to certain majors; and giving academic autonym to professors incorporating sustainability into hospitality and tourism curriculum, etc.

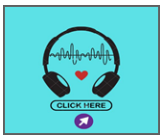
Since the 2017-2018 Academic Year, the Department of Management of the University of Turin has included the Eco-Management of Tourism course in its training offer. It contributes to the training of professionals capable of entering the tourism sector and of developing responses to the changing demands that emerge from the sector. To this end, the training course was directed towards the principles of Sustainable Tourism and the Economy of Taste. The teaching methodology adopted in the course combines traditional frontal lessons with cooperative learning activities or project works that allow students to develop their soft skills, measuring themselves with real problems and establishing relationships with stakeholders. In the A.Y. 2020-2021, we have noticed a growing interest from students in the Eco-Management of Tourism course and project work activities. The spread of the pandemic has led us to reformulate the operating methods, to reconcile the methods of teaching activity with the provisions in force to counter the pandemic, given the spread of smart working and the limitations on mobility or access to workplaces . Once the project ideas had been defined in detail, i.e. the presentation of various contexts and the assignment of objectives, it was established that it was the students who identified the stakeholders, local or not, to be involved in order to achieve the desired result, using smart working tools, have become commonplace in the meantime. At the end of the course, we found that the student teams had achieved the assigned objectives and in some cases had exceeded expectations. In general, we appreciated the contents and the display solutions adopted, to the point of proposing to the Students to publish



their works, both to remember an atypical year and to highlight how the reaction to objective difficulties has been transformed into an opportunity to make an excellent Work. The volume, published by the University of Turin and entitled "A methodological proposal to design sustainable tourism routes. The project works of the Eco Management of Tourism course A.Y. 2020/2021" inaugurates the Series "Paths of sustainable tourism"

The new three-year degree course in "Hospitality Innovation and e-Tourism" under the banner of sustainable tourism was born at Ca' Foscari, in collaboration with SIO - Scuola Italiana di Ospitalità. This is the university's first professionalizing degree with immediate access to the world of work and with a strong digital orientation, essential given the impact on the world of tourism such as booking platforms for travel and tourist stays, service management platforms tourism and the strong relationship with social media and digital marketing. Among the project partners there are also TH Resorts, Club Med, Rocco Forte Hotels, Hilton Italia, Federalberghi and Confcommercio.

Figure 51. Source: Karolina Grabowska at pexels.com



62. How to Embed Digitalisation Process, Topic of Sustainable Digitalisation in Hospitality VET Programmes, Courses and How to Deliver Other Content Courses by Means of Digitalisation

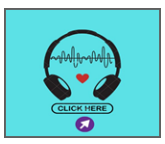
Digitalisation enjoys numerous conspicuous benefits, for example, moment openness to data, simple and fast correspondence and ability to share and trade data, better open doors, and expanded straightforwardness and perceivability. The point of digitisation is to further develop access and advance conservation. Embracing advanced innovation is useful for any cutting-edge business. The fundamental confusion about advanced change is that equipping yourself with current innovations will be sufficient to succeed.

Digitalization is more significant than it could appear, truth be told. Digitization is significant in light of the fact that it assists with upgrading information handling, further developing information stockpiling, optimizing transmission and further developing effective help conveyance. It likewise works with information sharing and recovery, and it has shown to be the most palatable approach to protecting data for an extensive period of time. The hospitality business includes different fields inside the help business, for example, dwelling, the travel industry, food and drink administrations, and even amusement parks. In 2020, the size of the worldwide accommodation market arrived at 3486.77 billion U.S. dollars and was gauge to develop to 4132.5 billion U.S. dollars in 2021.

One of the fundamental ways this industry is as of now hoping to smooth out its labor and products is by digitalizing. Digitisation can assist you with overseeing in a more proficient, monetary and feasible way. It can assist with expanding your market entrance and the quantity of direct appointments as well as to obtain customary clients. Digitisation helps us designers in the preparation and development of lodgings. We believe it to be an extraordinary benefit for the two sides as it permits the administrators or financial backers to partake in our plan thoughts from the get-go and to encounter them in an exceptionally striking manner.

Specifically, digitisation can assist with offering visitors a one-of-a-kind encounter during their visit. This doesn't intend that, later on, lodgings will become technocratic places. Indeed, even a stylishly amicable retreat lodging with keenly coordinated advanced components can completely unfurl its helpful impact while never uncovering that innovation is involved. In our view that is the fate of digitisation in lodgings.

In which explicit regions is digitalization in accommodation ready to yield benefits Formal computerized - used to convey formal course-based content (for instance



'Presenting GDPR') to the end client without critical association with (or support from) learning experts, companions or chiefs.

Casual computerized - gives amazing chances to help casual working environment picking up, utilizing discussions. In information serious associations, casual computerized learning is connected with information the executives. The cooperative media approach (see beneath) can assume a significant part in information dividing between proficient networks. The ascent of casual systems administration by means of online devices empowers information sharing inside associations as well as remotely.

Mixed or upheld learning - where formal and additionally casual learning might be joined ('mixed') with different kinds of learning. For instance, most of learning content may be conveyed through eye-to-eye talks or instructing or potentially through text material, yet the discourse with different students, cooperative exercises and looking for/admittance to supporting material are completely directed on the web. A famous mix is the 'flipped' study hall model where the information move is done online no concurrently with the conversation on that learning done simultaneously, up close and personal or in a virtual homeroom. (7places, date n/a), (CIPD, 2022).

Figure 52. Source Anna Shvets at pexels.com

63. Curriculum Content Design in Pedagogy of Sustainable Hospitality Digitalisation

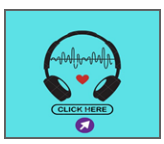
As online education is taking the world by storm, curriculum design becomes vital as educational institutions are striving to design learning experiences that the modern day tech-savvy students will relate and cherish. Gone are the days where online learning means only joining a Zoom call for synchronous sessions. There needs to be quality asynchronous engagement as an integral part of the student journey.

Teaching and learning methods play an important role in promoting sustainability in tourism education. Sustainability is integrated into the tourism and hospitality management programs in many universities around the world to address the need for sustainable tourism development. The sustainability competencies that were mentioned included the following: critical thinking competency, systems thinking competency, and problem-solving competency. Anticipating competence and strategic thinking competence were not mentioned. The most important skills were the following higher-level thinking skills: analyzing, evaluating, and creating. These skills could be seen as parts of green and soft skills. For soft skills, collaborative skills and interpersonal communication skills were emphasized.

The course should train an innovative professional figure, destined for prestigious international reception structures precisely to propose a different kind of tourism: no more hit-and-run, therefore sustainability, attention to the socio-cultural aspects of the territory, intercultural skills and great skills to manage the digital transformation of the tourism industry".

The course aims to train professionals with solid linguistic and cultural foundations, with specific skills in analyzing the territory and the environment, also from a socio-economic and management perspective, capable of planning, managing and directing activities and businesses , projects and processes for the development of sustainable and responsible tourism and for the enhancement of the historical and human capital of the territories. The course should offer a basic preparation in economics, geography, anthropology and sociology, humanities and law related to the sectoral interdependencies of tourism with cultural heritage, the environment, gastronomy, transport, with particular attention to national incoming.

Today, the concept of digital learning has gone global. Moving to the digital learning model has inevitably required us to reconsider our practical and expert role in the classroom. Lecturers still need to transfer their knowledge, except that now most of their theoretical knowledge transfer takes place outside the



classroom. It is essential for every lecturer to understand that we are not losing anything, but that it is especially in the classroom that our expert profile is revealed. The digitalization of our content has modified our teaching practices and what is taught in class. The flipped classroom is an opportunity to reflect on the complementarity between in-class work (synchronous time) and out-of-class work (asynchronous time). Organizing the learning time and learning space are two central components of teachers' activities. This blending of learning style requires redesigning the student learning journey. It’s an endless process as finding the perfect balance between the synchronous and asynchronous time is key to maintaining student motivation.

To motivate our students to learn on their own by facing a computer, is another challenge. As we move forward with the digitalization of our content, we are also looking for new ways to innovate for the students during their asynchronous learning time. This time should not be passive learning that consists of just watching videos. Storytelling and gamification are well known trends in the educational world.

Finally, the digitalisation, has forced us to look at our courses with fresh eyes, to rethink, to take risks, to try new things, to collaborate, to receive feedback and to learn. This is the kind of recipe that can lead to innovation.

Figure 53. Source Sanket Mishra at pexels.com

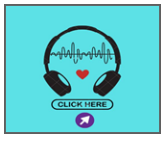
64. How to Design Digital Courses, Materials, Workshops for Hospitality VET Studies

VET ought to drive change towards associated abilities biological systems. This requires new organizations at homegrown and global level, updated VET educational plans to oblige abilities and capabilities for digitalisation and greening, high level abilities knowledge frameworks furthermore, criticism circles and more fit-for-reason administration plans. Existing VET frameworks can not carry out and drive such changes quickly without areas of strength for a private-public association.

The job of worldwide, sectoral and provincial partners should be supported. The speed of progress requires coordination of beginning and proceeding VET frameworks, better associated among nations and with work markets, advancement and different sorts of preparing suppliers. VET should be open for long lasting students and reach out to bunches in danger. It needs to answer all the more deftly to individual necessities and learning pathways. VET requirements to engage with the rebuilding of the economy.

Obliging understudies explicit learning contrasts. High level educator/mentor assistance. This studio works with reflection on work on, testing of natural propensities and examination of exploration based instructing systems. Creating appraisals that suit all degrees of learning. Creating understudy voice to further develop instructing and learning. Creating understudies as students. Connecting with students. Learn viable systems to guarantee your understudies are taken part in advancing as well as advancing. Overseeing testing ways of behaving.

Effective methods for connecting with and support hindered students. Recognize obstructions and offer systems to advance understudy learning and accomplishment utilizing an answer-based approach. Showing basics - developing teachers. This studio tends to the centre basics of educating like preparation, getting input, guidance strategies and building a local area of students. The effect of injury on learning. The new instructor. Comprehend what realizing resembles for the 21st hundred years and move your training into another space of joint effort and actuation. Make a positive and solid learning society to draw in teachers in contemporary showing instructional method and practice. Education, appraisal, standards, incorporated projects. (ETF, 2020).

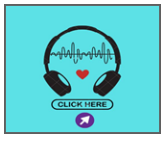


65. How to Design Materials and Field Workshops on Digitalisation for Hospitality Organizations Studies

Around the world, individuals have started to see the advantages of advanced change. In training, this change offers the opportunities for remote instructing, learning, and evaluating, which can assist with making schooling more available. Having as of late done whatever it may take to finish this change inside, this is our thought process all brands ought to figure out about this cycle. There is absolutely no inquiry that the web can't supplant face to face communication, the advantages it offers individuals expertly and inside the training scene can't be neglected. In hospitality industry ought to hold workshops face to face to dig into the interaction with their colleagues, however it should likewise be possible from a distance. At the point when it is totally on the web, coordinators can involve it as a chance to show the way that effective remote classes can work. Educators can then involve it as a benchmark for their classes.

Digitalization in the hospitality business is still in its outset. Notwithstanding, a differentiation must be made between two areas of digitalisation: the digitisation of foundation processes and the digitalisation that can be capable straight by visitors. Indeed, even in the principal region we have noticed bigger holes in the degree of entrance. Numerous lodgings have no robotized obtainment or work force the board processes, in spite of the fact that they would have the option to create impressive proficiency gains and reserve funds subsequently. The utilization of advanced advancements to make an encounter for the visitor is presently still certainly uncommon. However, it is exactly in the front-end where we see people and innovation remaining closely connected from here on out, as is likewise the situation in our confidential lives. Inns are just perceiving this gradually as the lodging business isn't an area that is firmly lined up with the IT area, it is rather a group business. Numerous hoteliers view this as an impact between two universes that are not viable with one another.

The most common way of making this digital growth opportunity, we learned numerous things about the digital change process that we might want to share. Whenever you have presented the remainder of your group to the means framed here, you will be prepared to start the way towards a digital change. Workshop assistance is the demonstration of working with or directing members through a course of co-creation and dynamic discourse to assist them with arriving at a specific objective together. It expects that studio facilitators utilize the right abilities and techniques for various circumstances to guarantee people are directed as opposed to oversaw or controlled all through a workshop. While working with

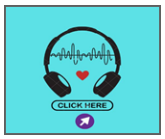


a workshop is in no way, shape or form a simple accomplishment, even an unpractised studio facilitator can come by extraordinary outcomes by following these 18 straightforward advances. From studio arrangement to post-studio commitment - here is the cycle in a nutshell, which will be opened up additional down underneath:

- Get to know the members
- Characterize the reason
- Put forth an unmistakable objective
- Plan for something beyond a day
- Plan for the unforeseen
- Put things in place
- Complete a registration
- Go over the guidelines
- Share the plan and set assumptions
- Assemble entrust with an icebreaker
- Work with, don't control
- Support (interactive media) documentation
- Survey objective consummation
- Complete look at on topics and convey the subsequent stages
- Lay out the higher perspective and impart progress
- Initiate and lock in
- Feedback

It requires the substance, instruments, support for educators and understudies, and phenomenal correspondence to emerge it. Nonetheless, following this way can assist facilitators with conveying significant guidance and keep on setting serious areas of strength for out open doors.

(Meylan, C., date n/a), (Timico, date n/a).



66. How to Infuse Digitalisation in Hospitality Working Environments

Studying digitalisation in hospitality means entering a leading and growing sector of the Italian and world economy that offers important professional opportunities.

The world of tourism needs qualified operators, able to understand a competitive and complex market that requires skills in various disciplines - humanities, economics, business and law - in order to design "tailor-made" products, enhance one's territory in order to be competitive, stay keeping up with new technologies and innovations, managing sustainability and quality.

Finally, the level of digitization of the journey increases. Users make greater use of digital at various stages of the journey. For example, digital bookings are increasing, especially direct ones. Already in 2020, the Observatory's survey on a sample of over 600 Italian accommodation facilities highlighted the phenomenon with a 12 percentage point growth in the incidence of direct bookings (61% in 2020, 49% in 2019), especially digital ones (from 10% in 2019 to 26% in 2020). Even during the stay, the use of tools such as mobile check-in or skip-the-line for attractions has increased, to speed up operations and guarantee physical distancing. The office was the hub of the work ecosystem for decades, until the Covid-19 pandemic changed it forever. After more than two years of working remotely and in hybrid environments, we asked furniture designers and entrepreneurs what the future of the physical office will be

Even before the outbreak of the global pandemic that changed the way we work, the office world was undergoing a subtle change that would later prove to be irreversible. Before 2020, companies were already competing to adapt to the developments imposed by digitalisation.

For some time now, technology had in fact transformed work tools into mobile devices - such as phones, laptops and tablets. The possibility of working from home and the economy of self-employment were already a reality and often, even then, people went to the office or co-working spaces solely for reasons of human interaction.

This was the scenario of the pre-pandemic world of work. The massive lockdown that has been imposed on us and the spread of new approaches to work have accelerated a process already underway. It is therefore legitimate to ask what we expect from the office today and how the workspace will be configured in the future.

To address the many challenges facing today's hospitality industry, businesses are increasingly investing in digital platforms. The intention behind this investment is to create a better experience for the end customer by designing a work environment that has employee satisfaction and success at its core.

According to the 2021 Hospitality and Travel Survey[1] conducted by IDC, almost a quarter of operators operating in the hospitality and travel sectors (24.1%) say they have increased their information technology budgets to keep the keep up with guest requests. About 22% of operators say that IT spending will be strengthened to improve operational efficiency, to automate workflows and to offer customers increasingly technological and contactless new features. Also according to the report, by 2026, 50% of companies in the travel & hospitality sector will be able to find solutions capable of completely automating intelligent activities and open communications between employees and data processes.

Figure 54. Source The Lazy Artist Gallery at pexels.com

67. How to Differentiate the Tasks and Activities on Hospitality Digitalisation and Sustainable Hospitality Digitalisation

Many accept that there aren't much of ways of being imaginative with regards to the hospitality business. In any case, digital change really influences all enterprises

Digitalisation emphatically affects customary organizations. It's an extraordinary approach to improving the experience of clients. Incorporating digital arrangements assists organizations with becoming client cantered by conveying inventive arrangements as appointments and reservations, salaries or payments, staff administration improvement, dedication programs, and so forth.

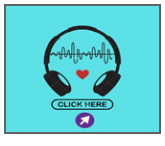
Digitalisation change addresses an entire bundle of chances for the hospitality business, prompting extraordinary changes and development. More and more hospitality and tourism industries are working with programming engineers to give their visitors creative arrangements and enormous players have proactively taken on advanced drives utilizing arising innovations like IoT, VR and huge information and the outcomes are very clear; higher visitor fulfilment, better insight, better previsions, better administration.

The extraordinary idea of digitalisation, there are a few arising issues that hospitality industry should think about while embracing advanced innovations, which incorporate security, protection, expenses, and human touch in friendliness. Security is a central issue in advanced change in any industry, including cordiality. Since advanced innovations, for example, artificial intelligence and IoT are exceptionally associated

Security is one more significant component as profoundly customized administrations depend on putting away and following client inclinations and conduct through advanced innovations. Clients are progressively mindful of their information security, and any break of shopper information can prompt an emergency in cordiality.

Digitalisation change in the friendliness business is huge than any other time, and it's the ideal opportunity for hospitality management industry and organizations to embrace this change

While Digital Sustainability is a significant idea in the hotel industry. The UN Nations characterizes practical the hospitality industry as "the hospitality industry that assesses its current and future financial, social and natural effects, tending to the requirements of guests, the business, the climate, and host networks." When we ponder supportability, contemplating the ecological aspects is simple.



Nonetheless, as the definition proposes, supportability standards allude to the natural perspectives as well as the monetary and socio-social angles also.

Pondering the natural parts of the Hospitality and tourism industry, numerous cordiality organizations immensely affect the climate through the utilization of energy, water and different assets. For instance, numerous hotels are at legitimate fault for utilizing an inordinate measure of energy on air conditioning, lighting, fuel and other hardware. Likewise, they make a great deal of waste and take part in unreasonable buying. These practices add to flighty the travel industry. Consequently, bringing issues to light of ecological maintainability and moderating the regular legacy and biodiversity are fundamental to keep the travel industry reasonable.

One more significant part of practical the hospitality industry is the financial effect on the nearby networks. A significant financial idea in economical the travel industry is called spillage. Spillage happens when vacationers burn through cash at a traveller location and the cash doesn't course inside the neighbourhood local area yet spills out. An illustration of this would be when friendliness organizations buy their assets from beyond the neighbourhood local area or have central command somewhere else. Such practices deny local people of the chance to develop in light of the fact that they are rejected from the production network. Consequently, cordiality organizations need to work intimately with local people to help their economy.

At long last, we really want to contemplate the socio-social parts of maintainability. The hospitality industry might influence the socio-social validity of nearby networks in the objections as just a small portion of the genuine culture is addressed to the sightseers. It is essential that hospitality organizations monitor the social legacy and customs of the host networks and are deferential of such social angles.

Weinert, B. (2018), Noida, M. (2022), Johnson, C. SC. (2021).

68. TWIN TRANSITION: How to Merge Green Skills and Digitalisation Skills Effectively for Increasing Sustainability of Hospitality

This chapter can be found also in Guidebook for Sustainable Hospitality Digitalisation.

The twin green & digital transition: How sustainable digital technologies could enable a carbon-neutral EU by 2050. (European Commission, 2022).

The relationship between the two transitions

Ideally, the green and digital transitions reinforce each other. For example, distributed ledger technology, which underlies blockchain and thus cryptocurrencies, can be used in material tracing, aiding the circular economy by better maintenance and recycling. (European Commission, 2022).

And Digital Twins, virtual counterparts of the real world, can model, among others, traffic, to optimise traffic flows, reduce jams and slash emissions in the process.

However, sometimes the two transitions can also clash. Digitalisation uses electricity, and many digital technologies are resource-intensive and create waste. Unintended consequences can crop up, such as owners of hybrid cars driving more because it is cheaper. Teleworking would cut office space but could lead to employees building separate working rooms at home, and heating or cooling more space than if they were in the office. (European Commission, 2022).

To make the most out of the twin transition, proactive and integrative management will be needed. The digital transition will be spearheaded mainly by the private sector due to its huge economic potential. To harness its benefits for greening and to limit its harmful effects, state and civil society engagement will be necessary. (European Commission, 2022).

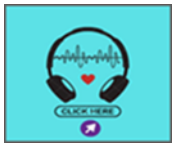
Requirements for having successful green & digital transitions

The authors listed a set of requirements to show under which conditions this engagement can be successful. These are social, technological, environmental, economic, and political in nature. (European Commission, 2022).

One requirement is to increase the societal commitment to the need to change to achieve the transitions. This cannot be enforced top-down, the researchers warn. Making the twin transition fair and inclusive can make its acceptance easier. Not everyone is in a position to buy costly rooftop solar panels, but subsidies for it are provided by all taxpayers. Making such technology affordable to everyone is key to a just and effective transition. (European Commission, 2022).

More data also means more privacy concerns. These must be addressed by anonymising data collection and data minimisation, gathering only as much data as strictly necessary. (European Commission, 2022).

Another set of requirements is technological. The needed infrastructure environment has to be put in place, beginning with high-speed broadband internet



access for all. Interoperability between devices must be ensured, and benefits must be shared equally, with small and medium-sized enterprises included as much as large companies. (European Commission, 2022).

When it comes to the environmental requirements, awareness-raising and higher environmental standards could keep unintended consequences and rebound effects in check. (European Commission, 2022).

In economic terms, enabling markets are required to avoid getting stuck in an "innovation valley of death", when research gains fail to materialise in applied form. A regulatory eco-system should be created that sets high green standards and internalises external costs of pollution and emissions. Upskilling of the labour force is needed to fully exploit the potential of digital technologies. (European Commission, 2022).

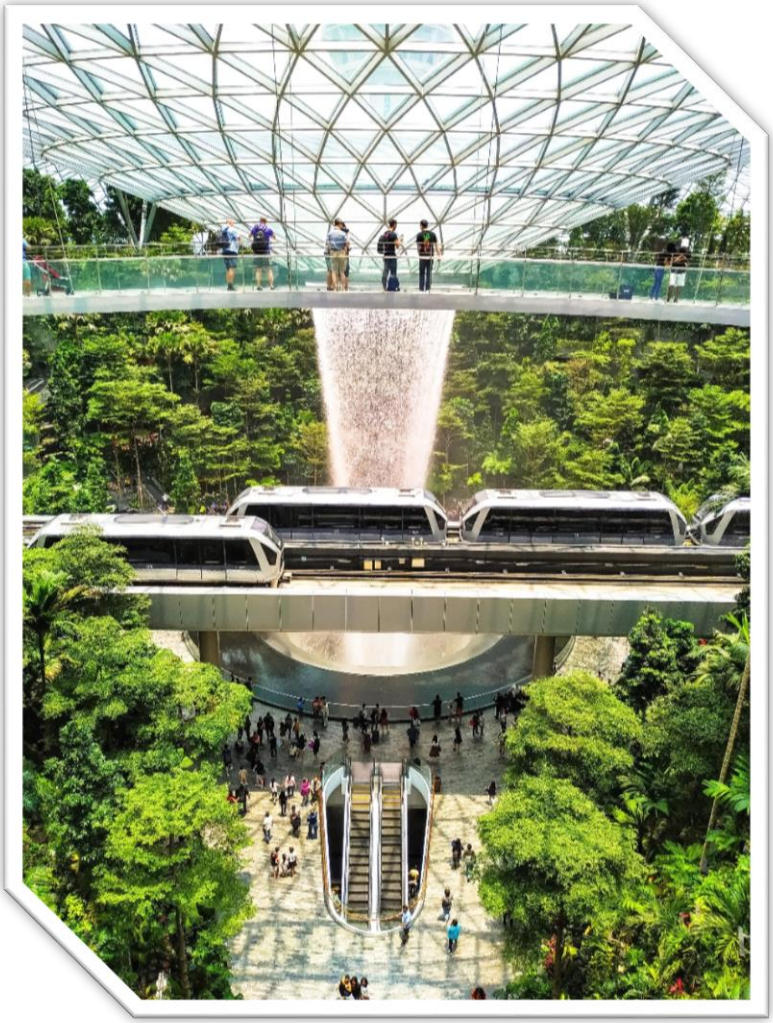


Figure 55. Source: Connecting Flights Guide at pexels.com

69. How to Measure Sustainable Hospitality Digitalisation

This chapter can be found also in Guidebook for Sustainable Hospitality Digitalisation.

Digitalisation provides access to an integrated network of information that can benefit society and businesses. However, the evidence of sustainability in business is less researched.

The Sustainable Development Goals, which were introduced in 2015 as part of the United Nations 2030 Agenda, have the potential to help close the present gaps of digitalisation if the underlying issues are addressed. The idea of data-driven governance introduced in the 2030 Agenda for Sustainable Development emphasizes the need to "increase significantly the availability of high-quality, timely, reliable and disaggregated data by 2030". Digital transformation is described as "the profound transformation of business and organizational activities, processes, competencies, and models in a strategic and prioritized way, with present and future shifts in mind, to fully leverage the changes and opportunities of a mix of digital technologies and their accelerating impact across industries." (ElMassah, S.; Mohieldin, M., 2020).

By using a regression model, the authors identified ties. The study shows the ties between such indicators:

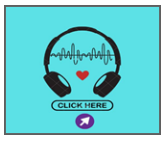
- ICT-based quality education (SDG 4) and ICT-based employment (SDG 8);
- ICT-based gender equality (SDG 5) with ICT-based employment (SDG 8) and ICT-based spending on R&D (SDG 9);
- ICT-based employment (SDG 8) has a link with ICT-based quality education (SDG 4)

and ICT-based gender equality (SDG 5);

- ICT-based spending on R&D (SDG 9) has a link with ICT-based responsible consumption (SDG 12) and ICT-based gender equality (SDG 5);
- ICT-based responsible consumption (SDG 12) and ICT-based spending on R&D (SDG 9). (Burinskienė, A., Seržante, M., 2022).

According to the findings of the study, digitalisation has a link with employment rates through education and gender equality; education is dependent on R&D spending, and gender equality is also dependent on R&D spending; R&D spending is also strongly linked to responsible consumption and vice versa; and responsible consumption is strongly linked to R&D spending. All of these connections are formed as a result of the use of information and communication technology. The results that have been presented have practical significance.

The study could be repeated by revising links to the country level and on an extended time interval level. (Burinskienė, A., Seržante, M., 2022).



70. Measuring Sustainability

This chapter can be found also in Guidebook for Sustainable Hospitality Digitalisation.

"If perfect measures of performance do not exist, organizations use proxies – indicators that approximate or represent performance in the absence of perfect measures" (Gray et al. 2015, p19)

Figure 56. Source: Martin Péchy at pexels.com

Measurement is not simply a technical undertaking, but it has significant behavioural implications, from extremely positive to incredibly negative. (Gray et al. 2015, 20)

"Often the current evaluation literature and management practice assume the existence of a social world external to the evaluator, which can be accessed and measured. This is crucial to shed light on because it can lead to a naïve and one-sided empiricism in which measures tend to be pereived as true representations of reality. However, when we try to measure perceptions, attitudes, and engagement, the process involves subjective interpretation and observation." (Buhman & Likely, p.12).

According to Buhman & Likely (p.12) some "healthy skepticism" is needed when dealing with measurement and evaluation and it is worth considering how to give stronger emphasis to the qualitative and interpretative approaches currently underrepresented in evaluation.

71. Measuring Sustainable Hospitality

This chapter can be found also in Guidebook for Sustainable Hospitality Digitalisation.

There is a popular saying that only what gets measured gets done or gets managed. It means that measurement and evaluation increasingly become a fundamental and mandatory part of projects and that often having a good measurement method is a gateway to having new projects ideas approved. That is why establishing measurement methods and standards that the hospitality sector can agree on is crucial. Otherwise, the popular saying will mean that sustainable hospitality will not get done or get managed. (Heal, G., 2012).

Geoffrey Heal stresses that applying one of the usual measures of economic performance—gross domestic product (GDP), unemployment, inflation—can be misleading. "For example, some parts of India are running out of water, and the water table is falling. Farmers have to drill deeper wells to find water, using more labor and energy. But because this extra spending raises GDP, water shortages appear to be raising Indias GDP and making the country better off." (Heal, G., 2012).

One measurement model is the Human Development Index (HDI) that measures the well-being of members of a society – it is based on data in three welfare areas—health, education, and income. The model does not address environmental sustainability directly but takes a broader societal and regenerative approach and could possibly be combined with other sustainable dimensions.

Figure 57. Source: dcbel at pexels.com

72. Measuring Digitalisation of Hospitality

This chapter can be found also in Guidebook for Sustainable Hospitality Digitalisation.

"The concept of digital sustainability originated in the 2000s, which was advocated by Bradley as a way to achieve sustainable development from the perspective of digital artefacts and archives. As proposed by the United Nations (p. 37), sustainable development refers to the 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Wut, T.M. et al, 2021).

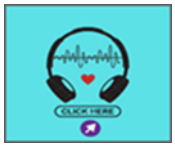
According to Wut's research paper, there is still a research gap when it comes to researching how to measure digitalization of hospitality. (Wut, T.M.; Lee, D.; Ip, W.M.; Lee, S.W. Digital Sustainability in the Organization: Scale Development and Validation. Sustainability 2021, 13, 3530. https:// doi.org/10.3390/su13063530). "Although digital sustainability presents a great opportunity to advance the sustainable development of organizations, prior research on measuring digital sustainability and related empirical models is limited. The absence of a scale to measure digital sustainability has also limited the possibility to empirically examine digital sustainability and its associated antecedents and consequences in organizations." (Wut, T.M. et al, 2021).

Covid-19 has hit especially hospitality very hard. However, this crisis and new normal have taught the industry and hospitality students to work online via work conference software like Google Meet, Teams, Zoom, Skype etc. and the digital technologies have offered a way to survive during the pandemic and a way to grow in the aftermath of the pandemic.

Wut proposes a broad and also a narrow definition of digital hospitality:

Wut's simple definition suggests that "digital sustainability is the sustainable use of digital resources". However, a broader way of understanding the field could be to see digital hospitality as 'organizational activities that seek to advance the sustainable development goals through creative deployment of technologies that create, use, transmit, or source electronic data". (Wut, T.M. et al, 2021).

In line with the simple, narrow definition, it can be helpful to understand sustainable digitalization as an economic investment in the future of the organization. Digital hospitality can be categorized into four major themes - content production, enabling technology, content preservation, and promotion of digital sustainability within the organization. (Wut, T.M. et al, 2021).



Since the practice of digital sustainability varies from company to company, researchers have been searching for a shared way to measure and evaluate it. With this contextual variety in mind, Wut et al. propose a measurement model his study develops a scale of digital sustainability metrics, which is based on a comprehensive literature review and provides a tool for corporate management

The scale consist of four parts –
content,
preservation,
promotion,
technology. (*CybercomGroup, 2023).*

"to sense the acceptance and hurdles towards digital sustainability amongst employees in an organisation in the areas of content production, preservation, promotion and technological enablers." (Wut, T.M. et al, 2021).

The scale consist of four parts – content, preservation, promotion, technology. **"Digitalisation makes it easier to calculate and visualise whether the consumption is sustainable, based on various assumptions, such as equity, room for other species, pollution and overconsumption of natural resources."** CybercomGroup. (2023).

Figure 58. Source: Anna Nekrashevich at pexels.com

73. Measuring Digitalisation of Sustainable Hospitality

This chapter can be found also in Guidebook for Sustainable Hospitality Digitalisation.

Digitalisation plays a role in the increasing consumerism trend in which many companies push people to buy more than they really want, to grow sales and profit, often with a negative impact on the planet. (CybercomGroup, 2023).

"There is evidence that treating citizens as merely consumers whose happiness depends on the consumption of products is contributing to an increase in mental illness." We need a dose of heathy realism when working with digitalization of sustainable hospitality because it both offers a driver for more consumerism and a driver for more sustainable consumption and hospitality society based on collaboration and sharing. It can be argued that digital sustainability should be seen as more than a traditional sustainability concept that is often materialized as an add-on to existing practices, instead it should be applied to fundamentally re-imagine organisation, business models and market functions.

"Digitalisation be a very powerful and disruptive catalyst that can help accelerate different trends. There is nothing inherently sustainable in digitalisation: indeed, a lot of digitalisation today is done for the purpose of only marginally improving unsustainable systems, and actually accelerates unsustainable lifestyles and values". (CybercomGroup, 2023).

"Much current digitalisation is incremental, or linear, meaning that it focuses on improving the efficiency of current systems. If those systems are contributing to sustainability, then digitalisation in that context also contributes to sustainability. However, incremental work should be assumed to be unsustainable; it should not be assumed, as it often is, to be sustainable or neutral." (CybercomGroup, 2023).

Figure 59. Source Thuong D at pexels.com 1

74. Indicators of Sustainable Hospitality

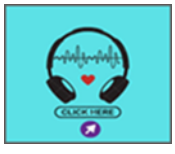
This chapter can be found also in Guidebook for Sustainable Hospitality Digitalisation.

The purpose of setting indicators is to obtain data or knowledge about how the hospitality company, a division, a product or project is performing or doing in relation to the expectations, goals or plans such as average hotel occupancy. Indicators are not limited to financial departments of the hospitality organisation but can be used in any department or discipline both front stage and back stage as long as the department or project has measurable outcomes and operate in a way in which it input and output can be isolated in a way that makes the indication result credible and relatively precise. (Brown, T., 2021).

So the use of indicators allow hospitality actors to learn from their actions and to see which of their investments in sustainable hospitality that pays off the most. Indicators also support the motivation of the professionals because it allows them to follow the process. An example could be times like 2022 when the industry suffer from high energy prices. During these times, it is valuable to have real time indicators of energy prices in order to adjust daily operations to fit when the energy prices are low during the day and night. Fortunately, the hospitality industry such as hotels and restaurants have a tradition for working with indicators such as online reviews, RevPar, RevPas and ALOS (Average length of stay). Unfortunately, sustainable hospitality practices are more complex to measure and evaluate as processes cannot always be isolated from other parts and disciplines. With an increasing amount of data available from increased digitalization of hospitality, it becomes more and more important to not only have indicators but have the right and most intelligent metrics.

The increased amount if data and possible indicators possess a huge opportunity. However, it can also lead to confusion. According to the research paper titled Identifying Core Indicators of Sustainable Tourism by Agyeiwaah, “Progress towards a more sustainable tourism sector at an enterprise level has been slow, even though a number of studies have developed a variety of indicators. Indeed, so many indicators have been developed that industry seems to be overwhelmed by choice, leading to inaction, poor decision-making or adoption of the easiest option.” (Agyeiwaah, E., Mckercher, B., Suntikul, W., 2017).

The paper also argues that it must be considered whether each company must decide and develop its own indicators depending on the site, the context and the enterprise specific. The paper suggest a number of indicators such as waste management, job creation, maintenance of community integrity and quality of life.



According to the 2022-systematic literature review of sustainability indicators in hotels by Reem et al., little is known about green indicators governing the sustainable practices of the global hotel industry. (Reem,M., 2022).

However, the study found no less than 356 hotel sustainability indicators such as certifications, badges, education, energy audits, occupancy rate, consumption costs per bed, average waste per portion, serving waste, number of portions for each meal, number of guests, design if building and infrastructure, show-up indicator, reuse indicator, portion size indicator, area of pool per bed. (Source: https://fslmjournals.taylors.edu.my/wp-content/uploads/APJIHT/APJIHT-2022-11-1/APJIHT-111_P7.pdf)

Figure 60. Source Julia M Cameron at pexels.com

75. Indicators of Digitalisation and Indicators of Sustainable Hospitality Digitalisation

This chapter can be found also in Guidebook for Sustainable Hospitality Digitalisation.

In the business of hospitality, many of our current regulations and structures focus on economic growth, neglecting sustainability and regenerative considerations. Therefore, digitalisation often accelerates unsustainability. Moreover, digitalization brings along new challenges such as privacy, cyber security, cyber bullying. At the same time as encouraging digital sustainability, we also need to discourage digital unsustainability." (CybercomGroup, 2023).

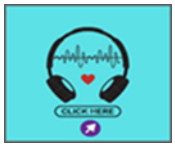
The Digital Sustainability Report by Cybercom points out that there are two different indicators of hospitality digitalization:

1. The traditional approach in which e.g. a solar panel supplier reports only on the impact of the production and the impacts from the usage of the products.
2. The net-positive approach in which the solar panel supplier would also indicate the effect on the market and the consumption that the products have e.g. propel the drive towards making it easier to switch to electric cars.

While, it makes it harder to indicate and measure precisely the broader net-positive approach, it is important to emphasize a focus on the significant indirect impacts by delivering solutions in hospitality-supplying industries such as the hotel construction industry that can build smart buildings that produce more renewable energy than they use and can be shared easier with local community stakeholders. Well-known sustainability indicators, such as CSR reporting standards, labelling, rankings and procurement criteria do not fit well with the new generation of solution providers. (CybercomGroup, 2023).

The solution providers are those companies that try to approach digital sustainability from a positive perspective, and it represents a shift from minimizing negative outputs to aiming to increase positive outputs through the core business. The solution-perspective argues that if companies were only expected to reduce their own emissions, sometime the output of sustainable solutions would suffer. (CybercomGroup, 2023).

"Business, cities and states should be encouraged to report, not only their own emissions, but also their contribution to reductions in other parts of the economy. This would allow for climate-positive reporting and catalyze action among companies that have solutions that can help reduce GHG emissions significantly, but are not big emitters (such as many IT and biotech companies). (CybercomGroup, 2023).



77. Relevance to GRI (Global Reporting Initiative Standards and other metrics)

This chapter can be found also in Guidebook for Sustainable Hospitality Digitalisation.

The global standards for sustainability impacts

GLOBAL REPORTING INITIATIVE STANDARDS
The global standards for sustainability impacts

The GRI Standards enable any organization – large or small, private or public – to understand and report on their impacts on the economy, environment and people in a comparable and credible way, thereby increasing transparency on their contribution to sustainable development. In addition to companies, the Standards are highly relevant to many stakeholders - including investors, policymakers, capital markets, and civil society.

The Standards are designed as an easy-to-use modular set, delivering an inclusive picture of an organization's material topics, their related impacts, and how they are managed. (GRI, Global Reporting Initiative, 2023)

The Universal Standards - now revised to incorporate reporting on human rights and environmental due diligence, in line with intergovernmental expectations - apply to all organizations;

The new Sector Standards enable more consistent reporting on sector-specific impacts;

The Topic Standards - adapted to be used with the revised Universal Standards - list disclosures relevant to a particular topic.

The GRI Standards enable organizations to report information about the most significant impacts of their activities and business relationships on the economy, environment, and people, including impacts on their human rights. Such impacts are of primary importance to sustainable development and to organizations' stakeholders, and they are the focus of sustainability reporting.

The impacts of an organization's activities and business relationships on the economy, environment, and people can have negative and positive consequences for the organization itself. These consequences can be operational or reputational, and therefore in many cases financial. For example, an organization's high use of non-renewable energy contributes to climate change and could, at the same time, result in increased operating costs for the organization due to legislation that seeks to shift energy use toward renewable sources.

Even if not financially material at the time of reporting, most, if not all, of the impacts of an organization's activities and business relationships on the economy,

environment, and people will eventually become financially material issues. Therefore, the impacts are also important for those interested in the organization's financial performance and long-term success. Understanding these impacts is a necessary first step in determining related financially material issues for the organization.

Sustainability reporting is therefore crucial for financial and value creation reporting. Information made available through sustainability reporting provides input for identifying financial risks and opportunities related to the organization’s impacts and for financial valuation. This, in turn, helps to make financial materiality judgments about what to recognize in financial statements.

GRI 1: Foundation 2021

GRI 2: General Disclosures 2021

GRI 3: Material Topics 2021

GRI 11: Oil and Gas Sector 2021

GRI 12: Coal Sector 2022

GRI 13: Agriculture Aquaculture and Fishing Sectors 2022

GRI 201: Economic Performance 2016

GRI 202: Market Presence 2016

GRI 203: Indirect Economic Impacts 2016

GRI 204: Procurement Practices 2016

GRI 205: Anti-corruption 2016

GRI 206: Anti-competitive Behavior 2016

GRI 207: Tax 2019

GRI 301: Materials 2016

GRI 302: Energy 2016

GRI 303: Water and Effluents 2018

GRI 304: Biodiversity 2016

GRI 305: Emissions 2016

GRI 306: Effluents and Waste 2016

GRI 306: Waste 2020

GRI 308: Supplier Environmental Assessment 2016

GRI 401: Employment 2016

GRI 402: Labor/Management Relations 2016

GRI 403: Occupational Health and Safety 2018

GRI 404: Training and Education 2016

GRI 405: Diversity and Equal Opportunity 2016

GRI 406: Non-discrimination 2016

GRI 407: Freedom of Association and Collective Bargaining 2016

GRI 408: Child Labor 2016

GRI 409: Forced or Compulsory Labor 2016

GRI 410: Security Practices 2016

GRI 411: Rights of Indigenous Peoples 2016

GRI 413: Local Communities 2016

GRI 414: Supplier Social Assessment 2016

GRI 415: Public Policy 2016

GRI 416: Customer Health and Safety 2016

GRI 417: Marketing and Labeling 2016

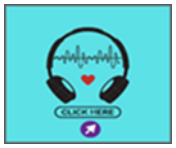
GRI 418: Customer Privacy 2016

Sustainable Brand Index

Sustainable Brand Index™ is Europe's largest brand study on sustainability. The study measures the perception of stakeholders on a brand's sustainability across industries and countries.

Sustainable Brand Index™ yearly ranks brands on sustainability. The rankings show how brands are perceived on sustainability by their important stakeholders. Brands are selected independently based on market share, turnover and general brand awareness. Sustainable Brand Index™ is an independent study founded in 2011 consisting of nearly 1 600 brands, 36 industries, and 80 000 consumer interviews across Europe (the Nordics, the Netherlands & the Baltics). (Sustainable Brand Index, 2022).

Climate Action Index



Financial and investment firms can provide essential support and capital to the companies, technologies and business models that will help decarbonize the global economy. The MSCI Climate Action Indexes expand MSCI's climate indexes range, offering investors a broader choice of solutions to help them meet their net-zero commitments and integrate climate considerations in global equity portfolios. The indexes are designed to help institutional investors seeking to invest for the transition and finance the emission reduction of companies in order to drive change in the real economy. The MSCI Climate Action Indexes use a new assessment of a company's net-zero target setting and climate risk management to select the top half companies in each GICS®1 sector.

The Indexes include companies in every sector that are taking concrete steps to reduce their carbon emissions and reimagine their businesses for a net-zero world. This range of global equity indexes is designed for institutional investors who seek a consistent framework for reducing carbon emissions by backing companies based on their readiness to lead the low-carbon transition compared with peers.

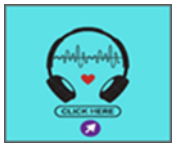
Global Destination Sustainability Index: the GDS-Index

The Global Destination Sustainability Index (GDS-Index) is a destination level programme that measures, benchmarks and improves the sustainability strategy and performance of tourism and events destinations.

Its purpose is to inspire, engage and enable destinations to become more regenerative, flourishing and resilient places to visit, meet in and thrive in.

Scope: Unlike other standards and rankings, the GDS-Index was specifically created – originally – for the events and meetings industry and is the only programme of its type in the world. Since 2020 we have integrated leisure tourism into the criteria, making it relevant for all leisure and business tourism destinations.

Origins: The GDS-Index was created in 2015 by fifteen visionary Scandinavian Cities, MCI and the International Congress and Convention Association (ICCA). (GDSM 2020).



78. Simulation and The Virtual Learning Environment (VLE) in VET

Technologies that can simulate reality, such as **augmented reality (AR) or mixed reality (MR) and virtual reality (VR),** are redefining the interface between educators, learners and machines. (EC, 2020).

Simulation technologies are especially beneficial for students with more visual or hands-on learning styles, or who might lack face-to-face access to certain resources due to their location or socioeconomic background. (EC, 2020).

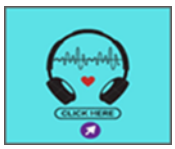
AR and VR have great potential to help students visualise abstract scientific concepts167, such as the human anatomy or food chains, by rendering them as fully 3D models that can be overlaid over the real world. Students can interact, turn and study a model as much as they wish; teachers can then direct students to certain parts of the model, provide additional pointers or facts, and assign tasks based on the model – finding a human organ in relation to the position of the liver, for example. Through virtual headsets, students are also free to experiment with virtual chemicals168 and see the results instantly. (EC, 2020).

AR apps on mobile devices are also increasingly available, enabling learners to explore the solar system, understand geometry and learn the life cycles of plants. Teachers can also create their own AR applications, such as scavenger hunt adventures that incorporate group work and problem solving activities. (EC, 2020).

Artificial intelligence/learning analytics is finding increasing application in education and training and is a vital support to the types of changes described above. (EC, 2020).

Digital technologies offer the opportunity to collect and analyse relevant data on learners on a greater scale and more quickly than ever before. (EC, 2020).

It also offers the chance to collect new types of data. For example, in the virtual reality simulation of spray painting, it is possible to collect data on the depth and spread of paint rather than relying on the experience of the tutor to judge the paint application, as has happened previously.



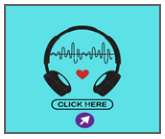
79. Factors that Influence the Virtual Learning Environment (VLE) and Work Environment in Pedagogy of Sustainable Hospitality Digitalisation

In this chapter, the key factors that influence the virtual learning environment (VLE) will be summarized. When learning happens in a virtual environment, both learners and educators face several issues that can compromise the learning outcomes. In academic literature and practice, there is an ongoing debate on which form of learning, virtual or face-to-face produces the best outcomes and results (Nortvig et al., 2018).

One of the key factors identified by Kerimbayev (2020) is the education and information technology factors of the 21st century. There are many exciting technology developments and features that can make virtual learning environments attractive for a learner and also educators. There are several tools and options that are available and can be embedded in the virtual learning environment to support pedagogical approaches and interaction:

- Students' direct communication- blogs, chats, forums, and social networks can be embedded in VLE to ensure interactivity and social communication. Communication does not have to be formal and study content related only. Chat rooms and virtual coffee shops can be created for daily, educational non-related topics of discussion,
- Virtual Reality- there are five basic advantages of using virtual reality in the classroom- visibility (for example, 3D graphics), safety (for example, piloting aircraft), involvement, focusing (panoramic 360-degree view), and the possibility of conducting virtual lecturers,
- Virtual laboratory- enabling experiments without a reality component,
- Artificial Intelligence- for example, voice assistants to notify students of their tasks, revise concepts of the study, answer questions,
- Gamification and virtual games- gaming can be an interactive and fun tool that supports learning. Games, competitions, and quizzes can all support pedagogical efforts.

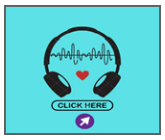
Virtual learning can be effective learning tool if there are several social and interactive factors ensured in the process. Rovai (2002) suggests that VLE and the work environment from a pedagogical point of view have to ensure that there are interaction and social ties formed in the virtual environment. More specifically, he classifies the social and interactive factors into four groups:



1) Spirit- there should be a common goal, and collaborative learning, trust, and bonding present in the virtual classroom,
2) Trust- there should be credibility to the process, outcomes, interactions,
3) Interaction- several tools can be used by educators to ensure that learners have a chance to interact with each other and the educator,
4) Common learning expectancies- there is a shared purpose of learning.

An educator or an institution can provide a variety of tools to interact, learn, experience, and practice in a social context, but it is the behavioral factors to use a virtual environment and technology that will ensure the success of VLE. As concluded by Cairns et al. (2020) technology facilitates new modes of connections and relationships, however, there should be adjusted pedagogical approaches to teaching in virtual environments. However, if the students are not properly introduced to the learning environment, its opportunities, and its uses, their learning journey suffers (Cassidy, 2016), and students end up having lower study results and lower satisfaction with the virtual learning environment overall. The sub-factor to this is the technology learning readiness, summarizing the social, emotional, and physical development and the existence of skills necessary to learn in a virtual environment. Success in a technology-enabled environment depends on overall attitude toward technology, motivation to learn and experience, self-efficiency, self-control, social and emotional development, learner control and discipline, and individual characteristics (Jena, 2016). If a learner is emotionally, socially, and physically ready to use technology in learning, then the process becomes easier. It is up to educators and educational institutions to ensure there is sufficient introductory material to ease the journey in VLE before learners become competent users of technology.

In the pedagogical approach of teaching sustainable hospitality digitalization in the virtual learning environment, success highly depends on the factor of educators, administration, counselors, mental health support staff, instructional designers, ICT specialists, and other stakeholder interaction. A learner itself, no matter how ready and technologically experienced he/she is, cannot ensure the success of the learning journey in isolation. It is the collaborative and interactive nature of the team that can create genuinely enriching virtual environments, meeting equally important learning, as well as social-emotional needs (Caprara & Caprara, 2022). The learning environment and pedagogical approach should meet the various needs of the learners and educators and is a team effort to ensure it.

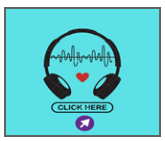


80. Drivers in Pedagogy of Sustainable Hospitality Digitalisation

Pedagogy has been confused by many and for long with the actual teaching within a classroom. Pedagogy has a Greek origin and it means a set of practises for teaching the relationships and "interactions between teachers, students and the learning environment and the learning tasks." (Murphy, 2008. p 35). Teaching on the other hand is the practical part and the actual act while we can say the pedagogy is the theoretical aspect of it. Many discussions have been made to define the correct principles of pedagogy that a teacher needs to apply in the classroom but there is no consensus for which exact principle are to be applied. Each classroom and each level of education requires different approach. Being a teacher in secondary and tertiary level for more than 10 years taught me that we need to be flexible and adapt to the level and background of the students. In general, though we as educators need to have in mind that an open, collaborative, participative environment where students can be involved provides to students more opportunities for meaningful learning. Pedagogy needs to encourage students to think out of the box, be creative and generally be able to positively change their way of thinking and understanding providing them with the skills that are needed in modern societies (Esteban-Guitart, M. 2019). Many authors have summed up the drivers of pedagogy to educational principles and practices, psychological approaches to learning, and high-order thinking skills.

The hospitality industry has undergone major changes the last decade and digitalization was one of the most important ones. Most aspects of hospitality operations have been digitalized with technologies like AI, VR/AR, blockchain, big data analytics and computer connectivity technologies are some of the digital technologies being used currently (Narayan, R., 2022). The hotel industry has found in digital technologies assistance in many of the issues that was pertinent in the sector like low productivity, lack of trained staff and rising costs of operations. Technology therefore has become an important pillar of the industry and this has an effect on how education and pedagogy will need to respond and transform. An important aspect of this transformation that is happening is to bear in mind that pedagogy needs to be the guiding light in all the changes that need to happen in the classroom and not the other way round. This means that we do not apply techniques and tools just for the sake of the technology but they need to have a pedagogical underpinning and reasoning.

We have witnessed an explosion of knowledge and techniques in education and in the hospitality industry. It is important educators to combine these two worlds to create a sustainable development that will benefit students and the industry. For this to happen we need to apply the drivers of pedagogy that we have mentioned



above within a digital environment. A classroom without technology today is outdated and it does not provide to the students the digital skills they need. This is in turn will make graduates unemployable and will devaluate the value of a degree and education in general. Academic institutions have realised the above and have invested in new technologies and training of their staff. It is difficult though for universities to keep up with the evolution of technology since they lack the funding and bureaucracy does not allow them to act as quickly as they should be.

The single most important actor in the education system is the teacher himself. To lead a sustainable hospitality digitalization, the educator needs to be at the forefront of this process. It is not an easy task since this transformation requires training but above all cultural transformation. Educational institutions need to transform from trying to preserve the status quo into challenging it. Educators need to acquire techno-pedagogical proficiencies that will make teaching and learning a pleasurable exercise, more interactive and creative. Their teaching will focus more on critical thinking and innovation using digital tools and less on the traditional delivery of academic knowledge.

Hospitality digitalisation is happening now and is changing the way the hospitality industry operates and interacts with its customers. The way that the future hotel employees and managers are trained needs to change with it and therefore the pedagogy of the sustainable hospitality digitalization will need to adapt. Technology is able to offer new and innovative for training and education that all relevant stakeholders need to use.

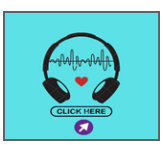
Figure 61. Source Emiliano Arano at pexels.com

81. Success Factors in Pedagogy of Sustainable Hospitality Digitalisation

The current world and evolving business practices mandate that pedagogical methods and technological advancements in the higher education system must inevitably alter (Timoshenko, 2021). In addition, it necessitates urgently developing educational conditions and an environment geared toward the coordinated development of intellectual, logical, and analytical skills. A brand-new, developing pedagogy must put an emphasis on students' adaptable skills (soft skills), which help pupils build their emotional intelligence (E.I.).

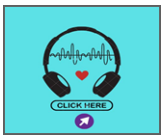
In order for students and instructors to achieve their personal and institutional objectives, pedagogical strategies are still seen as the major guiding principles. There is no disputing that all aspects of society, including education, have undergone changes as a result of the growth of information and communication technologies (Portuguez Castro & Gómez Zermeño, 2020). The use of network-connected gadgets and the internet has impacted conventional teaching and learning strategies. As a result, many educational approaches have developed, reflecting these developments and posing fresh problems that influence training procedures.

ICTs are a key component of the smart tourism idea, which seeks to develop new processes by maximizing and optimizing the involvement of all stakeholders (Rodrigues et al., 2022). The term "digitalized" refers to the way that tourism is conducted in the twenty-first century. Trends in the travel and tourism sector are inextricably linked to digitalized technical and non-technical abilities (Khanyisani & Thabo, 2018). The technology engine driving industry innovation over the past ten years has been the digital revolution. New procedures and products have been developed as a result of the digital transformation. In the body of literature currently in existence and advocated by research papers and education specialists, pedagogical practices have emerged that place a major emphasis on new models and paradigms. In recent years, research on digital literacy has spread around the world. Updating lecturers' pedagogical strategies to address the current gaps created by the Information Age (IA) and Knowledge Culture (KC) within their teaching practice in the tourism and hospitality management programs presents a number of issues. Any person must possess certain abilities in order to function in the digital settings that are now commonplace, especially in the tourism sector. Such skills may include simple operational procedures like using Trip Advisor to make reservations or obtain itineraries for upcoming travel. A high-quality teaching approaches that outline the ideals of a number of current curriculum ideas should be implemented.



According to Skantz-Åberg et. al (2022), There are seven repeating elements of teachers' professional digital competence: technological competence, subject understanding, attitudes toward technology use, pedagogical competence, cultural awareness, critical approach, and professional engagement, with the former two being more prevalent. The process must be supported by sustainable tourism pedagogies, particularly in terms of students' professional competencies necessary for resolving emergency circumstances.

Figure 62. Source Gerd Altman at pexels.com



82. Motivation in Pedagogy of Sustainable Hospitality Digitalisation

Motivation in educational and pedagogical context refers to "reasons that emanating from individuals' intrinsic values to choose to teach and sustaining teaching, and the intensity of teacher motivation which is indicated by the effort expended on teaching as influenced by a number of contextual factors" (Jan & Yin, 2016). Sustaining motivation in pedagogy for sustainable hospitality digitalization teaching is of high importance. However, it is wrongly assumed that motivation in pedagogy only refers to teaching staff. As suggested by Blašková et al. (2016), sustainable motivation in pedagogy has three dimensions, as shown in Figure below.

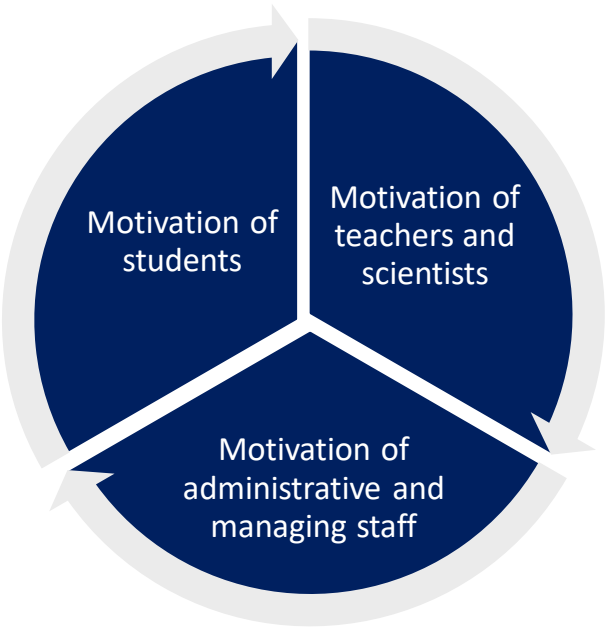


Figure 63. Dimensions of sustainable motivation in pedagogy. Source: authors' design based on Blašková et al. (2016)

As shown in Figure, motivation in pedagogy can be considered sustainable only when equal importace is given to three dimensions- motivation of teachers and scientists, administrative and managing staff, and students.

Teachers and scientists have to be motivated to conduct their teaching and research duties in a high-quality manner. They have to engage in personal and professional development activities and ensure avoidance of negative goals (like job avoidance, learning avoidance, task avoidance, and others).

Administrative and managing staff has to be motivated to provide services and ensure sustainable development of the institution, its programs, and staff. Staff

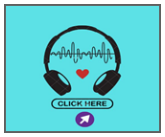
also has to be concerned with personal and professional growth and development. Motivators that help to ensure staff motivation are creativity, participation, and taking part in decision-making.

Student motivation refers to motivation towards participating in development activities, willingness, and eagerness to gain knowledge and develop self in a personal and professional manner. Students are mainly motivated by productive cognitive learning activities and active engagement with learning content and development. If the personal goal is primarily vocational education (as in the case of sustainable hospitality digitalization), students are motivated by the sense of gaining practical knowledge, on hands experiences, and overall assessment of how well the program prepares for future employment.

In Virtual Learning Environments (VLE) learning is described by the concept of "Self-directed e-learning" (SDEL). From the theoretical perspective of motivation, it is a very complex environment, where multiple individual, group, and external factors can affect motivation, both for a learner, as well as an educator. As summarized by Kim& Frick (2011) in SDEL and VLE context, motivation is driven by:

- Internal factors- there are specific internal factors, like task engagement and attention, relevance, self-efficacy or confidence in task and environment, and satisfaction with achieved results and the process that affect motivation,
- External factors- the overall climate of the learning environment and design, support to solve technical difficulties, instruction and orientation, engaging and welcoming learning environment, and technology proficiency can all affect motivation,
- Personal factors- personal learning or teaching style, instructional media, individual characteristics and temperament, gender, age, and well as perception of the difficulty, and past experiences can all impact motivation.

To sum up, as summarized by Crumpacker (2001), the pedagogical approaches to learning and teaching are changing and adjusting rapidly, taking into account the dynamic developments of information and education technology. Figure 64 shows the framework of interactions between student and instructor motivation.



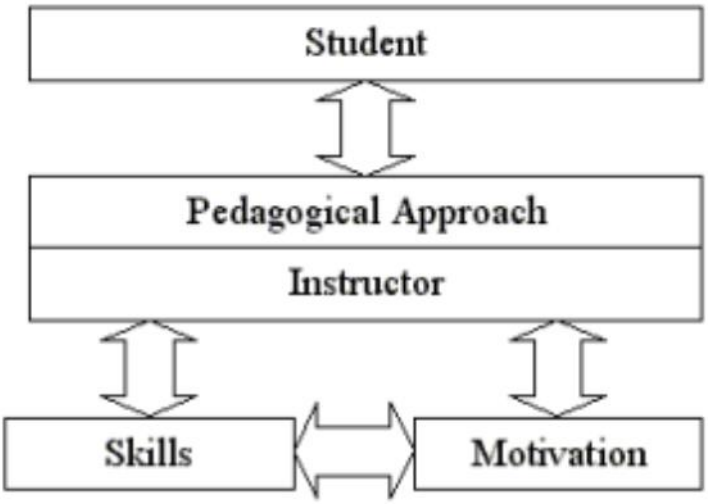


Figure 64. The framework of student and instructor motivation, Source: Crumpacker (2001)

As it can be concluded from Figure 64, motivation is an outcome and combination of instinct and extrinsic factors, skills, and pedagogical approach.

Figure 65. Source Thirdman at pexels.com 1

83. Engagement in Pedagogy of Sustainable Hospitality Digitalisation

Student engagement generally refers to the extent to which students join in their education, mentally and physically (Axelson & Flick, 2011). Student engagement is considered by most educators as a significant variable towards enhanced student performance and a supportive classroom environment. Student engagement can vary greatly depending the level of education (e.g. primary, secondary, and tertiary) or the context itself whether it is formal or instruction delivered online (Beer, Clark & Jones, 2010). Educators are constantly looking for new and innovative ways to increase engagement of students using increasingly new technologies in order to keep up with the digitalisation in hospitality. From my personal experience I realised that has become increasingly more difficult to keep students engaged since they are already using many technologies in their daily lives and they are expecting the same from their lecturers. They become more impatient to stay in passive role where the lecturer is providing the information and they are consuming it. While the physical part is easy since they are obliged to participate in formal education, the mental part has to be won.

There are different categories of engagement as we can see in Table below. An educator needs to have those in mind and try to work with them at the best of his/her abilities. The physical engagement is important since students need to participate in activities that will make them participate, excite them and help do what they had just learned. The educator needs to help also the intellectual engagement of the taught material by using technology as assistance and part of carefully planned pedagogy approach. The cultural category of engagement becomes more and more important since in many countries students belong to different ethnic groups and religions. This is the case of course in tertiary education. Behavioural engagement is also important since students' evolution as personalities and future citizens will help greatly in their lives as adults.

Table 10: Categories of engagements: descriptors & definition

Category of engagement	Description:	Example from the research literature:
Intellectual	Intellectual engagement is sometimes also referred to as 'cognitive' or 'academic' engagement, related to a student's absorption with intellectual tasks.	'A serious emotional and cognitive investment in learning, using higher order thinking skills (such as analysis and evaluation) to increase understanding, solve complex problems, or construct new knowledge' (Williams,

		Friesen and Milton, 2009, p.6)
Physical	Physical engagement has been described in terms of a student's active physical participation in lessons due to the teacher planning activities which involve motion or engagement in physical activities.	This can be a student's participation in 'hands on activities with physical movement' (Wiesner-Groff, 2012) or defined as a student's engagement in Physical Education lessons where, 'engaged students persist in active and effortful attempts to master the knowledge and skills they encounter and exhibit a preference for and enjoyment of physical activity' (Bevans et al., 2010).
Cultural	Cultural engagement is often defined as whether students of all cultures feel accepted and welcomed in the learning environment (Hess, Lanig & Vaughan, 2007).	Harper and Quaye (2009) argue that cultural engagement involves both students and the educational institution, 'students should not be chiefly responsible for engaging themselves ... but instead administrators and educators must foster the conditions that enable diverse populations of students to be engaged (Harper & Quaye, 2009, cited in Trowler, V., 2010 p. 5)
Behavioural	Behavioural engagement has been defined as: a. participation in school-centred activities, such as extracurricular activities (e.g., Fullarton, 2002);	Fredricks et al. (2004, p.62) noted that, 'In general, these definitions do not make distinctions among various types of behaviour, such as participation in academic and non-academic school activities'.

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Behavioural engagement has been defined as:

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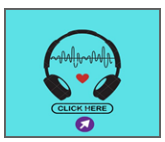
On top of the above we can add the emotional engagement which we can say is the first most important in the hierarchy of engagements (Skinner, Kinderman, & Furrer, 2009). If a student does not like the teacher, or the environment he is or something has happened outside of the school then he will not care about any of the modules taught. Since we cannot control what happens in his house or the relationships with his friends we can focus on the other two elements. The teacher and the environment we create is of great importance and the digitized tools we have in our possession can play a big part in the pedagogy engagement.



84. Evaluation and Assessment in Pedagogy of Sustainable Hospitality Digitalisation: before, during, after. Measuring Effectiveness.

Examining what and how evaluation teaches is part of the evaluation pedagogy (Patton, 2017). The assumptions, values, premises, priorities, sense-making processes, and principles used in various evaluation systems vary. Identifying and comprehending a pedagogy of evaluation requires clarifying and illuminating key concepts.

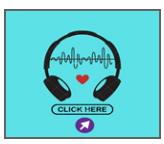
Digital sustainability offers a lot of potential applications. It alludes to technological ecosystems, such as numerous mobile payment platforms, crowdsourcing, peer-to-peer lending, huge financial datasets, block chain, digital tokens, and the internet of things. Opportunities for sustainable growth are thus opened up quite recently. As a result, the research community pays increased attention to digital sustainability. The main goal of this article is to create a knowledge base with chosen documents in the area of digital sustainability.

In particular, hotels use a variety of technologies to assist them improve corporate image, increase efficiency, conserve energy, manage resources wisely, track competition performance, extend distribution channels, and develop the best plans. The idea of a smart hotel has become more popular as a result of the application of smart technology in lodging.

Evaluation can assist in data-informed decision making about educational challenges and pedagogical approaches:

- assist in creating measurable, purposeful research goals;
- create a study to assist in achieving research goals and objectives;
- gather and arrange relevant information;
- use the appropriate analytic techniques to analyse the data;
- help interpret the results to inform choices;
- if applicable, inform key stakeholders of the findings.

Goal-based evaluation is based on the idea that defining objectives improves effectiveness and directs us to concentrate on and assess goal accomplishment. Based on the idea that interventions are more likely to be successful if they are founded on a theory of change, theory-driven assessment directs us to pay attention to and evaluate program theory. The foundation of utilization-focused evaluation is the idea that by identifying and collaborating with intended users on intended uses, use will be improved. In order to capture emergent outcomes in complex dynamic situations, we must be open and agile. Developmental evaluation is based on complexity theory, which encourages us to do so. After



gathering data, the procedure shifts to interpretation, which entails conducting an evaluation.

Digital assessment tools and credentials

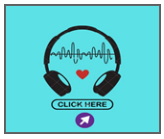
Innovative learning and teaching extends to novel ways of enhancing the whole assessment process; from the design of assessment tools and processes, to the delivery of assessments and the evaluation and subsequent reporting of student performance.

Within this context, digital assessments can provide innovative solutions for assessing students' skills in order to identify progress, challenges and needs, although anecdotal evidence suggests that their popularity amongst teachers varies187. The nature of summative assessments are changing with new and innovative (digitally enabled) approaches, e.g. allowing internet access for examinations in a given subject. ePortfolios, in which a student can gather a collection of documents representing their achievements (i.e. transcripts, video or audio recordings etc.), are increasingly being used for formative and summative assessments, and can be implemented through e-learning management systems such as Mahara and Moodle. (EC, 2020).

Formative assessment refers to a wide variety of methods that teachers use to conduct in-process evaluations of students' comprehension, learning needs, and academic progress during a lesson, unit, or course. The general goal of formative assessment is to collect detailed information that can be used to improve instruction and student learning while it is happening. (Redecker, C., DigCompEdu., 2017)

Peer assessment is a process whereby students grade each others' assignments or tests, based on a teacher's benchmarks. The practice is employed to save teachers time and improve students' understanding of course materials and to improve their metacognitive skills. Peer assessment can empower students to take responsibility for, and manage, their own learning; enable students to learn to assess and to develop life-long assessment skills; enhance students' learning through knowledge diffusion and exchange of ideas; motivate students to engage with course material more deeply. (Redecker, C., DigCompEdu., 2017) referring to Source: Adapted from Wikipedia; Cornell University Centre for Teaching Excellence, http://www.cte.cornell.edu/

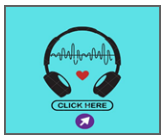
Self-assessment involves the ability to be a realistic judge of one's own performance. Proponents of selfassessment suggest it has many advantages, for example, it: provides timely and effective feedback and allows students to assess their own learning quickly; allows instructors to understand and provide quick feedback on learning; promotes academic integrity through student self-reporting



of learning progress; promotes the skills of reflective practice and self-monitoring; develops selfregulated learning; increases student motivation; improves satisfaction from participating in a collaborative learning environment; helps students develop a range of personal, transferrable skills to meet the expectations of future employers. (Redecker, C., DigCompEdu., 2017, referring to Source: Cornell University Centre for Teaching Excellence http://www.cte.cornell.edu/

A self-assessment tool is an instrument that assists professionals in their self-assessment, i.e. in evaluating the effectiveness of their performance in all areas of responsibility, and determining what improvements are required (Adapted from: http://www.businessdictionary.com/definition/self-assessment.html). Within this report the term is used to refer to online programmes in the form of questionnaires which allow teachers to evaluate their digital competence with the help of a set of questions. Usually feedback in the form of a report is provided, identifying areas of strength and areas for development (Redecker, C., DigCompEdu., 2017).

Summative assessments are used to evaluate student learning, skill acquisition, and academic achievement at the conclusion of a defined instructional period – typically at the end of a project, unit, course, semester, programme, or school year. Summative-assessment results are often recorded as scores or grades that are then factored into a student's permanent academic record. (Redecker, C., DigCompEdu., 2017) referring to Source: The Glossary of Education Reform http://edglossary.org/summative-assessment/).



85. Feedback in Pedagogy of Sustainable Hospitality Digitalisation

Feedback is not advice, adoration, or assessment. Feedback is knowledge about how well one is doing in pursuit of a goal. Giving and getting feedback are two distinct processes, neither of which is simple. In a pedagogical context, it's crucial to comprehend both how to provide and receive feedback. Feedback can be in the form of:

- Written comments,
- Electronic Comments,
- Meetings with individuals,
- Suggestions from peers,
- Electronic feedback (Leader tips, n.d.).

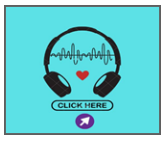
Feedback should not be given only after the task, as this can be quite discouraging and leaves less room for improvement and action a learner can take to improve. The feedback should also be provided before and during the task or the process, to ensure less judgmental, and more encouraging feedback (García-Yeste, 2013).

Feedback is helpful for educators and students. It helps to discover how they can learn and improve, and develop trust in themselves and others, promoting the ability to learn. Authors Smith et al. (2016) propose a concept of "responsive pedagogy" that explains the concept of learner's dialogue between internal and external feedback, and teacher's ability to encourage learners and make them believe in themselves, and their abilities to complete the tasks, assignments, and overcome challenges. Effective and responsive feedback has an effect on:

- Self-regulation - when a learner is an active participant in his own learning journey, he/she creates thoughts, attitudes, and behaviors that help to attain goals and succeed. Feedback has a crucial role in self-regulation, especially internal feedback, on how well the task is performed, but also external feedback from instructors, peers, parents, and others.

- Self-efficacy- reflects the persons beliefs and expectations from the course, which then accordingly affects the performance. Feedback has an important role to promote the feeling of competence, which allows believing in self, and accordingly to succeed with the task.

It is overall concluded by Smith et al. (2016) that feedback that learners receive has the uttermost importance on the way they participate in learning, and how



much they believe in themselves. Self-regulation and self-efficacy allow learners to put in the effort that is necessary to complete the task and succeed.

Good feedback is defined by the University of Greenwich, Learning and Teaching Unit, and defines good feedback as:

- it encourages attention to the assessment task - by focusing the student's effort on the task,
- it motivates the student to continue to work - by encouraging them to do the best they can,
- it provides evidence of existing good practice - so the student knows what and why they have done well,
- clarifies the expected standards - for the piece of assessment
- signposts where and how to improve (What is good quality feedback, 2022).

Further on, seven principles of good feedback practice are developed by Nicol and Macfarlane-Dick (2006), shown in Figure below:

1. Helps clarify what good performance is (goals, criteria, expected standards);
2. Facilitates the development of self-assessment (reflection) in learning;
3. Delivers high quality information to students about their learning;
4. Encourages teacher and peer dialogue around learning;
5. Encourages positive motivational beliefs and self-esteem;
6. Provides opportunities to close the gap between current and desired performance;
7. Provides information to teachers that can be used to help shape teaching.

Figure. Seven principles of good feedback. Source: Nicol and Macfarlane-Dick (2006)

It can be concluded that good feedback provides a timely assessment of good performance and discrepancy. It is important that feedback is given in an encouraging and motivating format, rather than discouraging.

Given the latest technological developments, Neri et al. (2002) explain that feedback can be given automatically and instantaneously. System-allocated feedback can be prone to errors, however, it is constantly being improved. Scoring and feedback that is created automatically can be of great help for educators, as it can help them to bring focus and attention to students in the classroom, and focus on self-improvement. Of course, neither teachers nor automatic systems, need to provide feedback on every single mistake of students, as it can be discouraging.

86. Communication in Pedagogy of Sustainable Hospitality Digitalisation

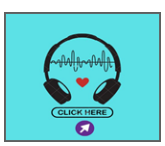
Digital Communication

Communication using digital technology. Various modes of communication exist, e.g. synchronous communication (real time communication, e.g. using skype or video chat or Bluetooth) and asynchronous ones (not concurrent communication, e.g. email, sms) using for example, one-to-one, one-to-many, or many-to-many modes. (Redecker, C., DigCompEdu. 2017)

The field of Communication in pedagogy and its teaching can be traced back centuries to Greek scholars like Isocrates, Socrates, Plato, and Aristotle as well as Roman scholars Cicero and Quintilian, among others (Feezel, J.D., 2018). Communication in the classroom has gone through various stages from the very strict and disciplinary environment where students had no rights and they had to follow strictly, certain rules to the more democratic and interactive environment that exists within the classrooms. Furthermore, digital technologies have given to the educators more tools to communicate with their students in a synchronous or asynchronous manner where, place and time is not important for the communication to take place.

Being an effective educator is more than knowing very well the subject that you are teaching. Very important is how you communicate with your students and how you can create a relationship with them that will allow you to positively affect the learning process. From my own experience I have met brilliant lecturers with impressive resumes and research activity but they were lacking the ability to communicate with their students. Creating an environment where students feel that they can interact following certain rules and be able to express themselves is key for the educator to improve his influence over them. This teacher-student relationship that is developed has shaped personalities and professional aspirations for many generations over many different countries. Teachers need to be able to implement effective strategies that will make learning exciting, accessible and effective.

In every attempt to improve communication between teachers and students emotional communication is key (Quinlan, K.M., 2016). Students need to emotionally attach to their teacher and be able to feel comfortable around them. As part of the educational process I found myself from both sides of the classroom and this has been proven beyond doubt. We are willing to follow and listen more to teachers that we like and trust rather than the opposite. In the effort to create the emotional connection humour can play a positive role. Many difficult and



conflicting situations can be resolved or alleviated using humour that will make all, more relaxed and put them at ease. It is the personality of the teacher and the specific situation that will help towards this direction.

For effective communication the non-verbal language that is used plays a significant role and it has been pointed out by several scholars (e.g., Yu, 2011; Wendt, J.L. and Courduff, J., 2018, Sutiyatno, 2018, Nakatsukasa, K. and Loewen, S., 2017). The non-verbal communication includes physical gestures, eye contact, body language, smiling even raising the eyebrows (Hsu, 2010). The above interactions enhance the sensory stimulation of interlocutors, resulting in more intense and effective interactions (York, 2013).

Reflective communication needs to be at the heart of every modern classroom. Teachers have many tools in their hands and the use of digital technologies should be used. Teachers need to be good listeners as well to be able to understand the mood of the classroom and adjust accordingly. The era of educators teaching from their desk is long gone. They can use videos, educational applications (e.g. Kahoot), journals, exercises, school visits to make learning more exciting and fun and ultimately more interactive and reflective. Technology can be used to teach every possible topic and module including hospitality and tourism courses.

Figure 66. Source fauxels at pexels.com 1

87. Monitoring in Pedagogy of Sustainable Hospitality Digitalisation

The monitoring of the pedagogical process in the "teacher-student" system consists of a set of supervising and diagnostic activities outlined by the necessity of the teaching process as well as providing in dynamics the students' levels of mastery of the educational material and its adjustments. In other words, monitoring is constant oversight of activities in the "teacher-student" system that enables observation and correction as necessary to develop the pupil from ignorance to knowledge.

In order to achieve sustainability, digitalization makes it possible to realize robust infrastructure in every application. Real-time data-driven intelligent decisions have already been shown to improve hospitality services thanks to digital technology. Numerous theoretical and empirical research from the past have expanded on the significance of digital technologies in the hotel industry.

Therefore, modern theoretical and applied sciences are faced with the challenge of developing a system of obtaining objective information about the outcomes of training in compliance with educational standards, including the establishment of criteria, procedures, and techniques of assessment, organization of pedagogical monitoring, and its use as an integral part of managing the quality of education (Saudabaeva et al., 2016).

The most of the programs sought to alter participants' perspectives on sustainable development, foster understanding of related ESD challenges, and encourage the growth of crucial competences, attitudes, abilities, behaviours, and dispositions appropriate to ESD goals. Despite the fact that different frameworks are used in the literature to identify the essential competences, the major ESD-related competencies listed there include (Edwards et al., 2020):

- Systems thinking
- Futures thinking (or anticipatory)
- Values thinking (or normative)
- Strategic thinking (or action-oriented)
- Collaboration (or interpersonal)
- Problem-solving abilities
- Action orientation

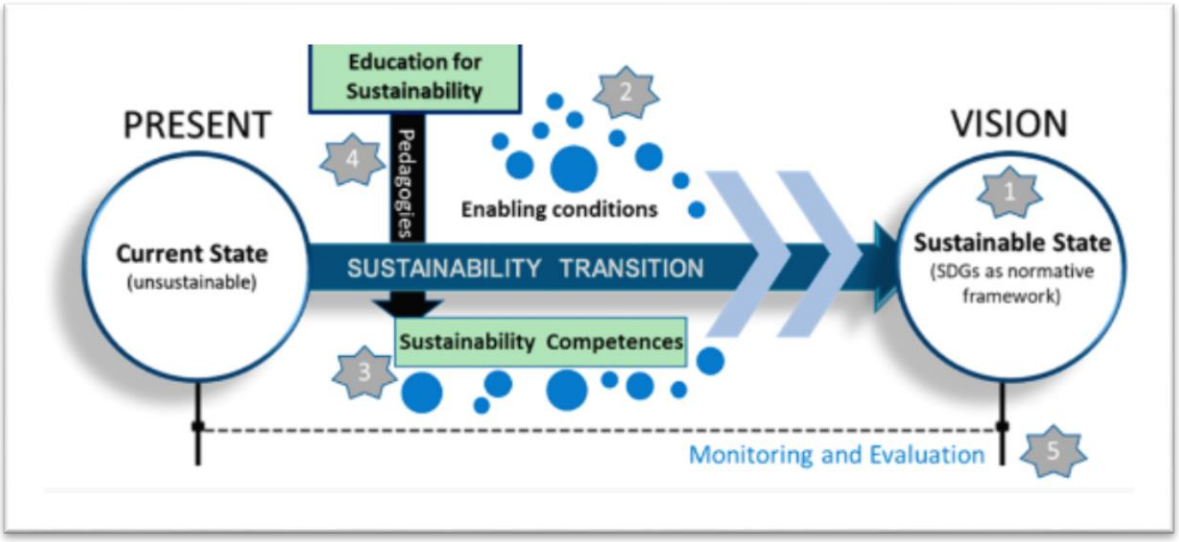


Figure 67: Educational framework for sustainability transformation and main steps (adapted from Kioupi & Voulvoulis, 2019).

Hotels, a significant sub-sector of the hospitality industry, must overcome a number of obstacles in order to maintain their long-term existence and sustainability. As a result of critical pedagogy, students may develop political and ethical consciousness, an understanding of power relationships, and the ability to inspire social action.

Figure 68. Source This Is Engineering at pexels.com

88. Review in Pedagogy of Sustainable Hospitality Digitalisation

Review sometimes is seen as a form of feedback, however, there are some differences between feedback and review that can be pointed out:

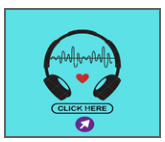
- Feedback tends to be solicited and internal, while the review is unsolicited and independent (Feedback vs reviews, 2022).
- Review can be performed in different formats, for example:
  - Tutor to student,
  - Expert to student/tutor,
  - Industry professional to student or tutor.

The essence of the review process is to give feedback on the work in a manner that gives an overall independent evaluation of the work. In pedagogy, one form of review commonly used is peer review. The key aim of the peer review process is to validate academic work and access its overall quality (What is peer review, n.d.).

The peer review process faces multiple issues when applied, some of which are summarized by Tennant (2018):

- A lack of adequate training and support for researchers in best practices for how to perform peer review,
- The length of time taken for the peer review process,
- That valuable contextual information is often lost as review reports remain unpublished,
- What the best operational processes should be for different research communities,
- A general lack of rigorous evidence into the functionality of different elements of peer review, including quality,
- The relationship between peer review quality and journal quality,
- Core competencies and standards for editors engaged in peer review,
- Any form of strategy or consensus on how to address some of the major criticisms levied at peer review.

To avoid issues with a review process in the pedagogy of sustainable hospitality digitalization, the key aspects are timely, constructive feedback, provided by professionals and industry experts, or experienced researchers.



There are different types of peer review formats that are used to evaluate academic and research work.

Single-anonymous peer review- the author is known, but the reviewers are anonymous,

Double-anonymous peer review- both parties- author and reviewer, is anonymous,

Open peer review- reviewers know who the author is, and also reviewer identities are known at least at some point in the process,

Post-publication peer review- review process that happens after the work is published.

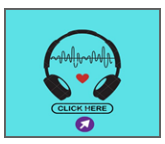
As summarized by Taylor & Francis publishing house author services (2022), each form of peer review has its benefits and drawback, summarized in Table below.

Table 11: Pros and cons of different formats of peer review

Single-anonymous peer review	
Pros: The reviewer can be totally honest with their thoughts on the paper as they will remain anonymous throughout the process	Cons: Providing details of the author may take some of the focus off of the work when really the reviewer should be focused on the work alone
Double-anonymous peer review	
Pros: Less risk of conscious or unconscious bias from either the reviewer or the author Reviewers can feel more protected from criticism of their review	Cons: It's not possible to guarantee the anonymity of the author. For example, if the reviewer was already familiar with their work or had heard that someone was working on a particular topic
Open peer review	
Pros: Authors might receive more constructive and polite reviewer comments, as the reviewers know that a signed version of their report is going to be published	Cons: There are concerns that researchers who are invited to review may be less inclined to do so under an open model, where their name and report will be published
Post-publication peer review	
Post-publication review allows the opportunity to gather a wider range of perspectives on your work A review doesn't end when your work is published, your peers can add comments reflecting new developments in the future	Cons: Not every paper published in this way is always guaranteed to receive reviews If your article is tackling a controversial topic, it may attract a large number of comments which won't always be moderated

Source: authors' construction based on Taylor & Francis publishing house author services (2022)

To summarize, depending on the objectives and tasks of the review process in the pedagogy of sustainable hospitality digitalization there are several formats of review available.

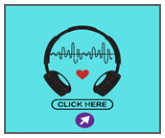


89. Barriers, Problems and Challenges in Pedagogy of Sustainable Hospitality Digitalisation

Pedagogy is the art, science, or profession of teaching according to the Marriam Webster dictionary (Marriam Webster, 2023). This definition leaves space to interpret pedagogy in many different ways, according to the teaching style, personality of the teacher, tools that he/she uses, the way he gives feedback to the students. Each educator has his own style and each student responds differently to the various teaching styles of his teachers. Therefore, teaching and learning in the classroom becomes a very individual thing that people who do this profession need to approach and understand. Even the most competent and well-read educator will face challenges, barriers and problems that will make his effort in the classroom more difficult to achieve the learning outcomes that are expected for each module. The educators are facing also extra pressure in the era of digitalisation. It is important to identify the barriers and try to remove them so as to help students become efficient in learning and in applying the knowledge.

Education has become one of the sectors where digitalisation and interactive applications have penetrated and become popular pedagogical tools (Sigala, 2020). The tourism industry was not an exception and the last few decades it has used them extensively (Buhalis & Law, 2008). This is due to the many advantages that they offer to the educational institutions like cost effectiveness, the necessity to train students according to the industry standards, the creation of a more interactive educational environment (Vogel et al., 2011). The digitalisation of education and pedagogy has been further enhanced due to the recent Covid-19 pandemic that forced the online teaching to become the norm (Sharin, A.N., 2021). It is imperative therefore educators to understand the new digital educational environment that has emerged and use it to lift the barriers and problems that exist in the pedagogical approach.

Educators face on a daily basis complex issues that involve students, parents and the school itself. Those issues have been studied by many scholars that tried to offer solutions and practical tips (MS, D., AI, T., LR, T. and EV, R., 2020). A first important step to address them is to acknowledge these issues before try to tackle them. It is important first of all to identify the barriers as soon as possible since otherwise the student will face learning difficulties and possible failures in his academic path. It is also advisable to use different methods and techniques to identify the barriers because a single technique might not be able to detect the problem.



There are three types of professional and pedagogical barriers in the scientific and psycho-educational literature:

- motivational barriers;

- communicative barriers;

- cognitive barriers.

(MS, D., AI, T., LR, T. and EV, R., 2020).

Motivational barriers: Students need to have motivation to learn. They need to want to be in classroom interact with the teacher and their peers otherwise no improvement will ever happen. Educators need to be able to motivate students by using different techniques such as rewards, make them understand the importance of what they are learning and try to make the classroom as exciting as it can be. (Rissanen, I.,et al, 2019).

Communication barriers: These are barriers that exist for many reasons. There are barriers that emerge due to multicultural student audience, due to language barrier especially among refugee students or barriers coming from hearing difficulties. Educators need to identify early what type of communication barrier exist to take the necessary measures.

Cognitive barriers are multifaceted and can be but not limited to ineffective learning strategies, mistrust to their own capabilities, fear and mistrust towards the teacher, mental and psychological issue and many others (Chew, S.L. and Cerbin, W.J., 2021).

Digital technologies have become an important tool in the hands of educators but they need to integrated as part of a proper pedagogy strategy. Digitalization has the potential to help students and teachers and provide enhanced educational experience and benefits (Bhati, 2009).

90. Costs of Pedagogy of Sustainable Hospitality Digitalisation

Lack of education may exacerbate the decline in trust, making institutional, knowledge-building measures harder to adopt and scapegoat solutions more appealing. It may become more challenging to develop institutions if a vicious cycle restarts. Mutual trust deteriorates, inclusion becomes more challenging to execute, and human capital continues to decline as a result.

To respond to the changes imposed by new technologies, the digital transformation of the education sector has entailed the engagement of sustainable management. Universities have undergone a number of significant changes in recent decades as a result of societal and technological tendencies toward digitalization.

The digital revolution requires significant readjustments across all industries, from banking to the supply chain for energy and goods. Universities are currently adopting technologies in line with a paradigm shift in which technology is seen as a complex and linked environment that facilitates digital learning.

Higher education institutions (HEIs) that want to draw in more and better students, enhance the learning process overall, and improve the quality of their courses and instructional materials must become digital.

The widespread adoption of digital learning is a crucial step toward building more resilient and sustainable educational systems. It may be used for remote learning when classes are not in session as well as for blended learning in classrooms (UNICEF, 2021).

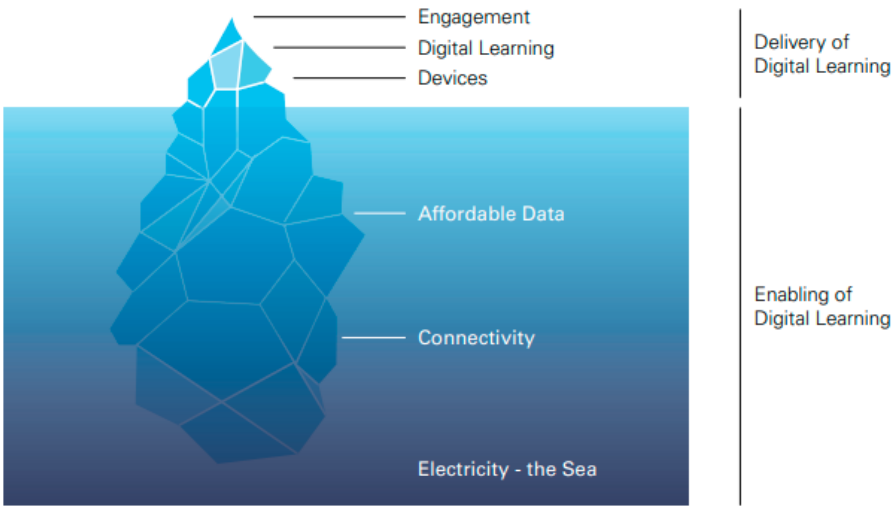


Figure 69: Items to be costed for the universalization of digital learning (adapted from UNICEF, 2021)

They can be further grouped according to the Reimagine Education paradigm as follows:

- purchasing and maintaining equipment for kids and teens;
- purchase and upkeep of equipment for instructors and facilitators;
- identification, curation, and scaling up of digital solutions in pedagogical material;
- educating educators about digital learning and pedagogies;
- increasing institutional and policy capability;
- supporting data, analytics, and research on the creation and use of digital learning tools;
- involving the general public, especially young people, in advocacy, expansion, accountability, etc.

According to estimates, it will need US$1.4 trillion over the next ten years to give every child and young person access to digital learning. Despite being a large expenditure, it only makes up a small portion of the existing electricity investment, telecom revenue, and public education spending.

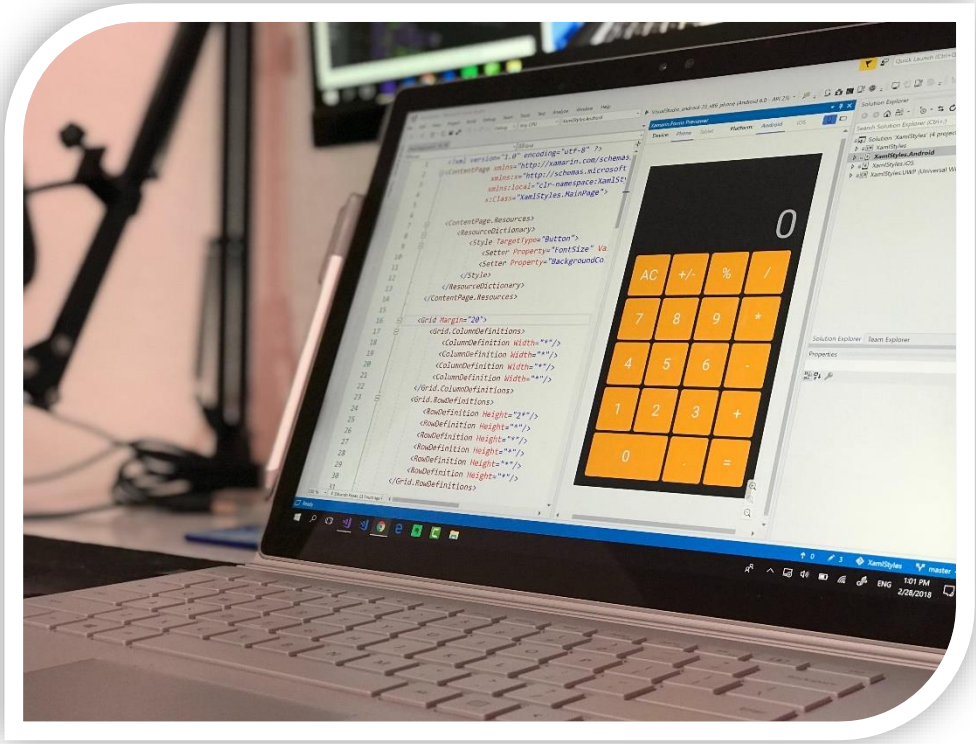


Figure 70. Source Eduardo Rosas at pexels.com

91. Budgeting in Pedagogy of Sustainable Hospitality Digitalisation

Budgeting in a broad sense is defined as "providing (a sum of money) for a particular purpose from a budget" (Dictionary, n.d.). When planning a sustainable hospitality digitalization program, the tools, and the delivery methods, it is important to consider budgetary constraints and opportunities. Using emerging technologies in teaching and delivery of the modules, for example, significantly can increase the cost, as electronic portfolios, computer games, simulations, artificial intelligence, digital books, and other tools come with a cost.

As suggested by Moloi (2007) budgeting decisions in pedagogy are linked with the policy and plans for the educational program, as shown in Figure below.

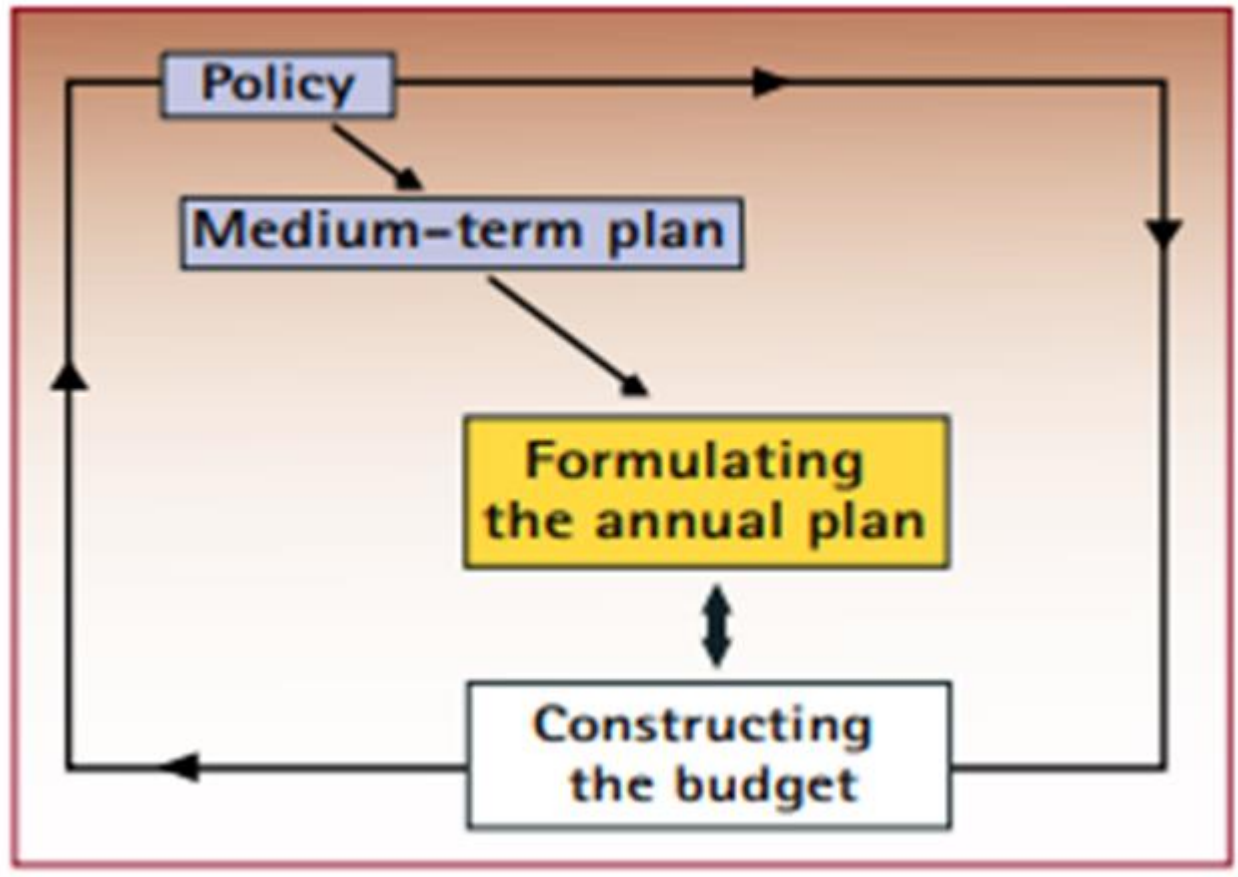


Figure 71. The budgeting and policy and plan relation in pedagogy. Source: Moloi (2007)

As shown in Figure 71, the budgeting and budget allowances of each activity and task will depend on an annual plan, medium-term plan, and policy. As concluded by Walsh (2020), budgeting is not a purely economic issue in education. Budgeting has a profound effect on both the teachers, their ability to perform and deliver at the expected level, and students, whose participation is directly affected by the opportunities a program can provide. It is a question of equity and quality, and

the key questions that need to be asked when performing budgeting for a pedagogy of sustainable hospitality digitalization are:

- Does it exist?
- Is it stable?
- Is it transparent?
- Is it what my students need?

When considering sustainable hospitality digitalization pedagogy, some of the key budget items to consider would be:

- Delivery of the modules/tasks by experienced staff, industry practitioners, and experts from the field,
- Technology implementation- use of VLE, the technology integration, artificial intelligence, and gaming tools and opportunities that will be implemented in the program,
- Meeting learners' and teachers' needs- are there any special needs that need to be met? Is there any special learning considerations to be met?
- Other items.

Figure 72. Source Pixabay at pexels.com

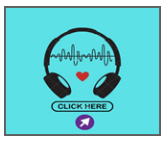
92. Costs of Sustainable Hospitality Digitalisation

Economies and societies are experiencing an era of immense volatility, change and digitalization that is disrupting the way businesses and consequently hotels were operating. (Lam, C. and Law, R., 2019). All agree that we have entered the era of the fourth industrial revolution in which digital technologies will play a key role (Deloitte Touche Tomahtsu Limited, 2018). Traditionally hospitality was an industry that was one of the last that adopted new technologies partly because hoteliers were afraid to lose the personal touch with their customers. Additionally, these technologies were costly especially for hotels that operated on a seasonal basis. But if there were reservations in the past to adopt new technologies now it has become a necessity to do so.

Next to the traditional software that has been used in the hotel and airline industry for decades we have new digital advancements that have changed the competitive environment and brought new challenges. Many of these software packages are also available and accessible via the Cloud which has dropped the cost of acquisition significantly (Wynn, M. and Jones, P., 2022).

Some of these new technologies that are used or will be used is AR, VR, Internet of Things, Blockchain, A.I and robots (Zeqiri, A., 2020). That helped even small family owned hotels to have access to these technologies. The era of Internet and Social media has brought transparency, direct contact between customers and suppliers (e.g. Hotels) and has shifted the power dynamics in favour of the consumers. The new digital technologies have helped consumers to gain power in comparison to the large companies, are able to compare prices (e.g.Trivago) and leave comments (e.g. TripAdvisor). The introduction of Online Travel Agents (OTAs) have changed the hospitality distribution field and have forced hotels to rethink their distribution strategies since OTAs have acquired a large part of the market.

The above changes even though exciting, beneficial and unavoidable to a large extend, they have considerable implications and costs for the hospitality industry. The digital transformation goes beyond such new technologies and software but it will change the way companies operate, communicate, compete and interact with their guests (Vial, G., 2019). The changes will not be easy and many hotels might themselves not relevant any more in the new digital environment which ultimate will force to pay a high cost by losing guests and profits. The adoption of the new technologies might also have a significant financial cost for many small companies in the industry. They will have to recruit more IT staff that will be able to maintain and operate these technologies. As a result, they will have either to merge with bigger companies or acquire them by creating considerable debts.



Another element of the digital transformation that comes with considerable cost is the loss of the private identity. The digital technologies in order to work they need a large amount of personal data that we should be willing to share with the large multinationals. This means that our lives are no longer private and we constantly have to reveal personal preferences, where we live, what we like, who are we with. This will allow hotel companies to tailor made their marketing, the product creation and their communication with their customers. Options are offered regarding the level of privacy we want to allow but it becomes apparent that this will not be easily implemented.

The digitalization in the hospitality industry apart from the technical aspect requires also a retraining of the employees that will implement these technologies and communicate with the customers. This can come at a considerable cost on training but we also it running the risk to alienate some customers and employees of older ages that they are not willing to adjust. Therefore, it is important to keep in touch with our clientele and be aware how far digitalization can go and they are willing to accept.

Figure 73. Source Nataliya Vaitkevich at pexels.com

93. Budgeting in Sustainable Hospitality Digitalisation

Lack of education may exacerbate the decline in trust, making institutional, knowledge-building measures harder to adopt and scapegoat solutions more appealing. It may become more challenging to develop institutions if a vicious cycle restarts. Mutual trust deteriorates, inclusion becomes more challenging to execute, and human capital continues to decline as a result.

Forecasts regarding customer behaviour in the quickly evolving digital environment are based on data that is only a few months old (Sanders, 2022). Trends appear and then go after a few weeks. Consumer expectations evolve more quickly than businesses can respond to them. Similarly, in order to achieve a competitive edge, company executives must make better, nimbler use of their IT budgets.

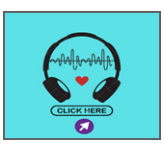
The modern travel and hospitality industries rely largely on digital interactions: when customers purchase a trip, hotel room, or rental car online, they provide personal information. Because of this, cybercriminals target companies that provide travel services. Many small travel agencies developed digital capabilities throughout the pandemic.

Budgets for sustainability are excellent candidates for gamification tactics, including "Sustainability Scores" or "Limits" that can be used to encourage competitiveness among engineers. As a result, a developer may be motivated to create their system in the most effective way since they are playing a game with other developers and stand to gain from "winning" (whether this be financial or otherwise).

Strategically, the systems that have the best benefit-to-cost ratio are the ones that receive the most funding. There can be good management of energy expenditure at all levels of an organization: a corporation, for example, but also a sector, and even a nation. Historically, it was difficult to identify this ratio in the early stages of a project because there was no system to measure it beforehand.

Budgets for energy, for instance, might be established based on certain industries and their requirements. Regulation might be put in place to prevent industries from exceeding their limits, and political management at the various levels could be used. Energy ratings, which would guarantee that requirements were being maintained, might be used to encourage organizations to be sustainable.

The Sustainability Budget approach makes a significant contribution by giving organizations and ML practices a mechanism to incorporate environmental sustainability right from the start.



Most importantly, sustainability budgets increase public awareness of the issue. Sustainability budgeting and the associated gamification tactics are likely to increase awareness of energy usage and sustainability issues in addition to providing incentives, which may have an impact on both individual and organizational behaviour.

A constant or decreasing debt/GDP ratio from business cycle to business cycle is also necessary for sustainable budgeting. Although the ratio could rise during a recession, it must fall during an economic expansion.

The profit from the use of renewable resources must be used to benefit people throughout the time it takes for the resources to replenish themselves, according to sustainable budgeting. For instance, if a forest can be cleared for logging once every thirty years, the proceeds from that logging must benefit locals for the same period of time. On the other hand, after depreciation of capital (wind turbines) is taken into account, government earnings from instantly renewable resources (wind) can be used to support current consumption.

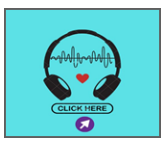
A comprehensive strategy for managing public finances is called sustainable budgeting. Each given government may meet some but not all of the requirements given the numerous requirements involved. Some people could get closer than others to fulfilling the requirements, yet they still fall short.

Two key advantages of sustainable budgeting are ensuring intergenerational equity and accelerating economic growth.

The OECD countries' populations are expected to age, and there will likely be an increase in government expenditure on pensions and healthcare, which has raised concerns about the economic sustainability of those countries. Concerns over the current fiscal state of countries have not, for the most part, been the driving force behind it.

Discussed are several aspects of sustainability, including solvency, growth, stability, and fairness. Baseline forecasts, balance sheet analysis, fiscal gap analysis, and generational accounting are a few examples of sustainability analysis methods that are connected to current budgeting procedures. The management of the sustainability process as well as how to incorporate sustainability analysis into the budgeting process are covered in the article's conclusion.

Governments and international organizations are now thinking more broadly about sustainability as a result of the change to a long-term view. The phrase still refers to the government's ability to pay its bills, but it has taken on a number of new meanings that are related to governments that have no trouble doing so. Modern



sustainability analysis focuses on fiscal circumstances that could impede economic growth, increase tax burdens, or shift large expenses to taxpayers in the future.

There are four distinct dimensions of sustainability. Although they are separated for analysis here, in actuality they frequently appear together:

•Solvency refers to a government's capacity to meet its financial obligations.

•Growth is a fiscal strategy that promotes economic expansion.

•Stability is the ability of the government to satisfy current tax obligations and future liabilities.

•Fairness is the government's ability to meet its financial obligations now without passing the bill forward to future generations.

As populations age and past pledges or expectations for income transfers and health services become due, fiscal sustainability is (or should be) a crucial concern for all national governments.

Formally including long-term estimates in the annual budget or medium-term framework would be one way to deal with the future. These forecasts would be revised annually in a similar manner to how medium-term estimates are carried forward. The baseline predictions would be based on the continuation of the present (or approved) revenue and spending policies and the absence of material deviations. The budget would include the expected effects of fiscal trends on national output, prices, and interest rates as well as the major social and economic presumptions that underlie the long-term predictions.

Key levers for ensuring sustainable development are the procedures and processes for allocating public resources.

The goal of green budgeting is to make decision-makers, the public, and the legislature more aware of the potential environmental effects of budgeting decisions.

A coherent, environmentally informed approach to policy making that is supported by budgetary decisions would result from integrating environmental considerations across all policy domains of the budget, from environment and climate to transportation, health, and finances. This would support the alignment of incentives.

94. Updated Information in Pedagogy of Sustainable Hospitality Digitalisation

In pedagogy, the information is always changing and updating. As a tutor, you might face a situation where your students require to use new technology, new approaches, or new ideas. Or as a tutor, you might feel that current information, know-how, or opportunities do not anymore meet the needs of students and their learning. Updated information is also important for students. As they will further proceed to the job market, it is important to gain the most updated information, skills, and competencies, to be competitive in the job marketplace.

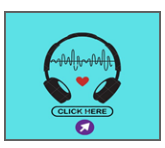
There are several fields of knowledge in pedagogy, that reflect the information flow:

- Technological knowledge,
- Pedagogical knowledge,
- Context knowledge (TPACK, 2019).

The teachers have to keep updated and collect the latest information in all three fields. First and foremost, the teacher has to update information on technological development and follow the latest trends and issues. Pedagogical knowledge refers to the latest teaching methods, approaches, and methodologies. And context knowledge refers to understanding the contextual factors, for example, program or course aims, objectives, student background, and others.

In this context, Herodotou et al. (2019) have summarized the key innovations in education and identified six areas. The future innovative pedagogies that are identified are:

- Formative analytics- supporting the learning journey through what is learned, what can be improved, what goals to reach, and how to move forward,
- Teachback- demonstration that two or more people are progressing through a shared understanding of a complex topic and concepts,
- Place-based learning- encouraging learning from a local community context and implementing methods that allow students to connect theories and abstract facts to their community problem-solving,
- Learning with robots- helps to do repetitive tasks and free up teachers' time that would be spent on repeating simple activities,
- Learning with drones- helps to get outdoors and explore fieldwork and spatial contexts,
- Citizen inquiry- learning through public and private incentives.



Debroy (2018) suggests several strategies for how teachers can stay up-to-date with current information:

Establishing specific goals- what is the main goal that can be achieved, and what is the purpose of both a person or institution,

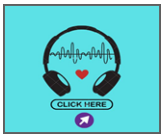
Discuss with peers and experts from across the world- it is important to have a global perspective on the teaching and information updates,

Don’t panic and keep things in high spirits- when facing new developments, changes, and information updates, it is important to keep a positive outlook on the issues,

Utilizing social media- following people, learning new things, gaining new information, and learning in a global context,

Proceed to continued education- it is important to not be afraid of the latest developments and issues, and keep updating skills, knowledge, and competence.

Figure 74. Source Thirdman at pexels.com



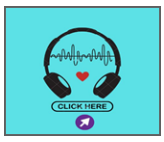
95. Sustainability in Pedagogy of Sustainable Hospitality Digitalisation

The sustainability agenda has moved on the top list of priorities of governments and businesses the last decade. This is the result of the increased awareness of the damage that we have caused to the environment and the fact that sustainable development opens new and profitable ways to produce products and services (Daly, H.E., 2017). The sustainability agenda transcends on many different industries and the tourism and hospitality industry is affected by it. Even though tourism is contributing to CO2 emissions only by 5% (Ben Youssef, A. and Zeqiri, A., 2022), the biggest polluter is the subsector of airline and transportation (75 % of the 5%). Still the industry needs to play its part towards a Net positive hospitality sector.

The increased awareness was a result of better coverage by the media and the fact that sustainability became part of the curriculum of education on the primary, secondary and tertiary level. Education can play a big part in teaching the necessary skills and change people minds on how to treat the environment, the economy and society in a sustainable way. This initiative was led by the United Nations that has created the global framework of 'Global Action Programme on Education' (after 2014) and by naming the decade 2005-2014 as the decade of education on sustainability (Buckler & Creech, 2014). Education can play an important role to teach sustainability principles and skills to students and proper pedagogy methods need to be used in order to make teaching as effective as possible.

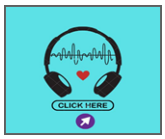
To incorporate sustainability into the curricula requires an interdisciplinary approach and needs educators and authorities to think differently and approach the teaching of sustainability by using interactive, experiential real-world learning (Brundiers, K., Wiek, A. and Redman, C.L., 2010). Teaching sustainability particularly in higher education needs to focus on knowledge and skills that will help students and future employees and managers to promote the sustainability agenda. They need to be taught sustainability using introductory courses, courses on Corporate Social Responsibility (CSR) and develop competencies on how to apply sustainability principles in real situations (Lozano, R., et al., 2017). Digitalization can help educators and universities to make the pedagogy of sustainability more effective and efficient.

Delivering sustainable courses and skills can be done using various pedagogical approaches. Lozano et al., 2017 have identified twelve different approaches that educators can use to teach sustainability to various levels of education. They can use case studies of real world examples from around the world of destinations or



companies that have applied sustainability and the improvements they have seen on various fronts. They can use traditional lecturing, which is a good way to introduce the subject to a big audience, project and problem based learning that will make the learning experience more interactive. They can also use Supply chain analysis that will help students understand how sustainability can be applied in an economic, environmental and social framework. A more engaging approach to teach sustainability is to use a place-based environmental education where students can be based close to a community which is under investigation and propose solutions at the end of their study. It can include scientists from various disciplines like biology, environmentalists etc.

Figure 75. Source Cyrill Bambilla at pexels.com



96. Technologies in Pedagogy of Sustainable Hospitality Digitalisation

In order to achieve sustainability, digitalization makes it possible to realize robust infrastructure in every application (Narayan et. al., 2022). For the hospitality industry to receive the finest client feedback on offering top-notch service, resilient infrastructure built on digital technology is essential. Real-time data-driven intelligent decisions have already been shown to improve hospitality services thanks to digital technology. There have been various theoretical and empirical studies that have expanded on the significance of digital technology in the hotel industry.

Moreover, digital technologies have been acknowledged as the primary foundations of productivity and generated benefit in the hotel sector, having significantly changed hotel operations and administration as a result of the digital revolution.

Digital technologies such as IoT, AI, robotics, block chain, big data analytics, digital twins, and AR/VR have the potential to change how hotels run their operations and value chains.

These technologies can be used by hotels to manage their resources and capacity as well as their service, customer relations, order process, competitiveness, service quality, flexibility, resource utilization, and innovation.

The newest technologies go far beyond the initial wave's characteristics, which included lower cost, a better integrated value chain, and other amenities (Zeqiri et.al., 2020). Technologies used in the hospitality sector 4.0 have new capabilities and will have a deeper and more significant impact. They ought to promote sustainability, individualized services, and a decline in mass tourism.

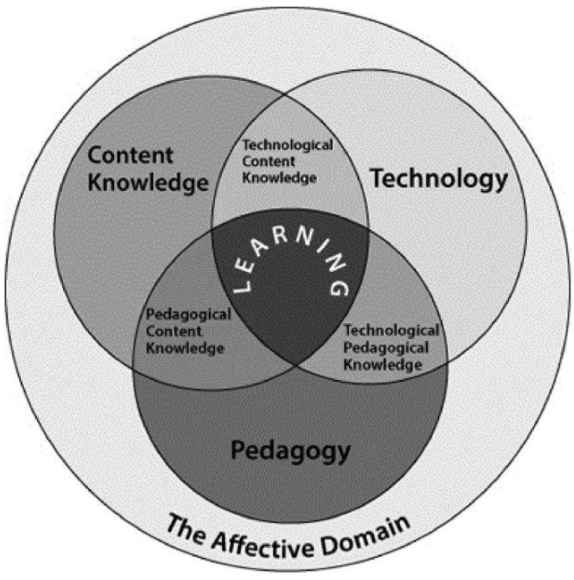


Figure 76. Source: Pedagogical Technological Integrated Medium (adapted from Ramma, 2017).

The hospitality sector was a pioneer in embracing new technology. Digitalization has impacted this industry over time and is predicted to have even more significant effects. Based on evolving consumer behaviour and preferences as well as greater usage of industry 4.0 technology, the hotel industry will undergo significant transformation in the future.

The idea of "flipped learning" has become widely accepted nowadays (Pascot, n.d.). Our practical and knowledgeable position in the classroom has unavoidably had to be re-evaluated as a result of switching to the flipped learning approach.

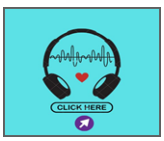
Although if most of their theoretical knowledge transmission currently occurs outside of the classroom, lecturers still need to transmit their expertise. Every professor needs to recognize that we are not losing anything, but rather that our professional profiles are most clearly displayed in the classroom.

Our teaching methods and what is covered in class have changed as a result of the digitization of our content. The flipped classroom provides an opportunity to consider how in-class (synchronous time) and out-of-class work complement one another (asynchronous time).

Two essential elements of teachers' tasks are planning the instructional time and the instructional environment. Redesigning the student learning journey is necessary due to this merging of learning styles. It's a never-ending effort since keeping students motivated requires striking the ideal balance between synchronous and asynchronous time.

Pre-work must be established regardless of the method used to impart knowledge during asynchronous time (e.g., viewing videos, reading texts, or articles). Any asynchronous task that a student must complete before engaging in actual class time is referred to as pre-work. The preparation and engagement-boosting pre-work activities are what drive learning.

Figure 77. Source Julia M Cameron at pexels.com



97. Data in Pedagogy of Sustainable Hospitality Digitalisation

A concept of educational data mining (EDM)" seeks to use these data repositories to better understand learners and learning, and to develop computational approaches that combine data and theory to transform practice to benefit learner" (Romero & Ventura, 2010). Obtaining data and using data in education is a process involving multiple stakeholders: students, educators, educational organizations and systems and others. The data serves multiple purposes: to build educational systems, to show discovered knowledge, to show recommendations, and to impose usage, participation and communication. The multilevel interactions between stakeholders and data is shown in Figure 78.

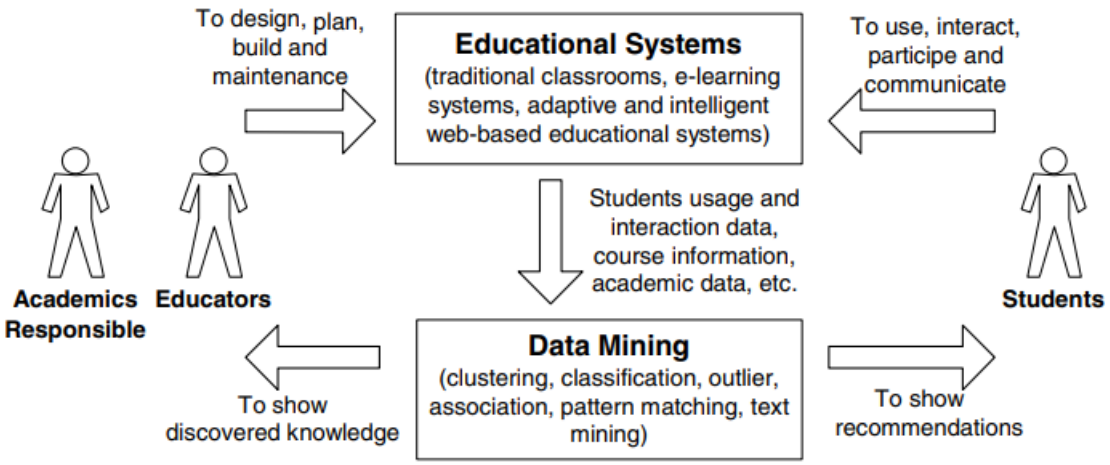


Figure 78. Data mining and interactions in education, Source: Romero and Ventura, 2010

It can be concluded that data in education plays a crucial role to ensure the up-to-date educational systems, and improve interactions and knowledge transfer among educations, academics and students.

The key areas of consideration in the context of data in education are summarized by Selwyn (2015), suggesting to consider the following:

- What data exist in the educational context? There are different ways educational institutions can collect and use data. Data should add value.
- What is the primary use of the data? Data can be used for monitoring, controlling, assessment and other purposes.
- What is the secondary use of the data? Can the data be re-used by other researchers for purposes other than what data was collected for?
- What are the consequences of these uses of data? The data used should bring improvements and efficiencies in the educational context.

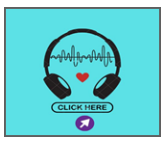
- How can data become more efficient and equitable in educational context? Ensuring beneficial use and collection of data in educational settings.

Data collection in education can be led by several objectives to obtain specific information, as summarized in Figure below.

Users/Actors	Objectives for using data mining
Learners/ Students/ Pupils	To personalize e-learning; to recommend activities to learners resources and learning tasks that could further improve their learning; to suggest interesting learning experiences to the students; to suggest path pruning and shortening or simply links to follow, to generate adaptive hints, to recommend courses, relevant discussions, etc.
Educators/ Teachers/ Instructors/ Tutors	To get objective feedback about instruction; to analyze students' learning and behavior; to detect which students require support; to predict student performance; to classify learners into groups; to find a learner's regular as well as irregular patterns; to find the most frequently made mistakes; to determine more effective activities; to improve the adaptation and customization of courses, etc.
Course Developers/ Educational Researchers	To evaluate and maintain courseware; to improve student learning; to evaluate the structure of course content and its effectiveness in the learning process; to automatically construct student models and tutor models; to compare data mining techniques in order to be able to recommend the most useful one for each task; to develop specific data mining tools for educational purposes; etc.
Organizations/ Learning Providers/ Universities/ Private Training Companies	To enhance the decision processes in higher learning institutions; to streamline efficiency in the decision-making process; to achieve specific objectives; to suggest certain courses that might be valuable for each class of learners; to find the most cost-effective way of improving retention and grades; to select the most qualified applicants for graduation; to help to admit students who will do well in university, etc.
Administrators/ School District Administrators/ Network Administrators/ System Administrators	To develop the best way to organize institutional resources (human and material) and their educational offer; to utilize available resources more effectively; to enhance educational program offers and determine the effectiveness of the distance learning approach; to evaluate teacher and curricula; to set parameters for improving web-site efficiency and adapting it to users (optimal server size, network traffic distribution, etc.).

Figure 79. Data in education stakeholders and use of data, Source: Romero & Ventura, 2010

It can be summarized that based on each stakeholders' involvement and interests, different types of data can be collected in the educational settings and context. It is important to ensure the efficient use of this data.



98. Ages in Pedagogy of Sustainable Hospitality Digitalisation

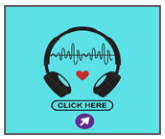
The introduction and implementation of innovative and appropriate pedagogies for VET learners using digitalisation tools requires that educators to match the needs of the students with the pedagogies that need to be used for effective learning (Stanley, J., 2015). Educators need to use approaches that will put learners at the centre of the learning process. The pedagogical approaches need also to take into consideration the age of the learners since different approach is needed for different age groups. Younger learners are different for examples from adult learners in many aspects such as growth and literacy (Matsuda, A., 2019).

In the context of the current article we will focus on VET learning practises and what pedagogies are needed for this age group. Vocational and training (VET) educators need to provide to their students not just vocational skills but also strong digital and soft skills. The advancement of technologies (e.g. VR, AR, A.I) is affecting the way we work, interact and produce products and services. The above changes will need employees that are digitally literate but also they are able to communicate, work in teams, are able to solve problems and have critical thinking among others (OECD, 2019). The above skills will be crucial in the workplace.

Educators to be able to teach their learners the above skills need to adopt age appropriate and innovative pedagogies. Some if these pedagogies can be inquiry-based, project-based and collaborative learning. These approaches can be blended with digital technologies such as Virtual reality, Artificial Intelligence and Augmented reality that will to create innovative teaching approaches. This will require that the educators themselves possess the digital skills needed to teach them.

The digital skills that are needed to VET learners can be divided into basic functional digital skills, generic digital skills and higher level digital skills (OECD, 2019). The basic skills include adults with some experience in the use of computers while the generic skills need that learners can use data and information and use digital technologies to communicate with others (Carretero, S., et al., 2017). Higher skills require programming languages, data analysis and processing and modeling skills (Spiezia, V. and A. Sabadash,2018).

Soft skills on the other hand have become increasingly important in a world where digital technologies gradually have prevailed. Educators need to create a proper teaching environment where these skills will be taught. Next to the traditional face-to-face lectures, educators can add a more work-place oriented approach,



where active and experiential learning will facilitate learning (Paniagua, A. and D. Istance, 2018). Innovative approaches include gamification, computational thinking and blended learning (Dichev, C. and D. Dicheva, 2017).

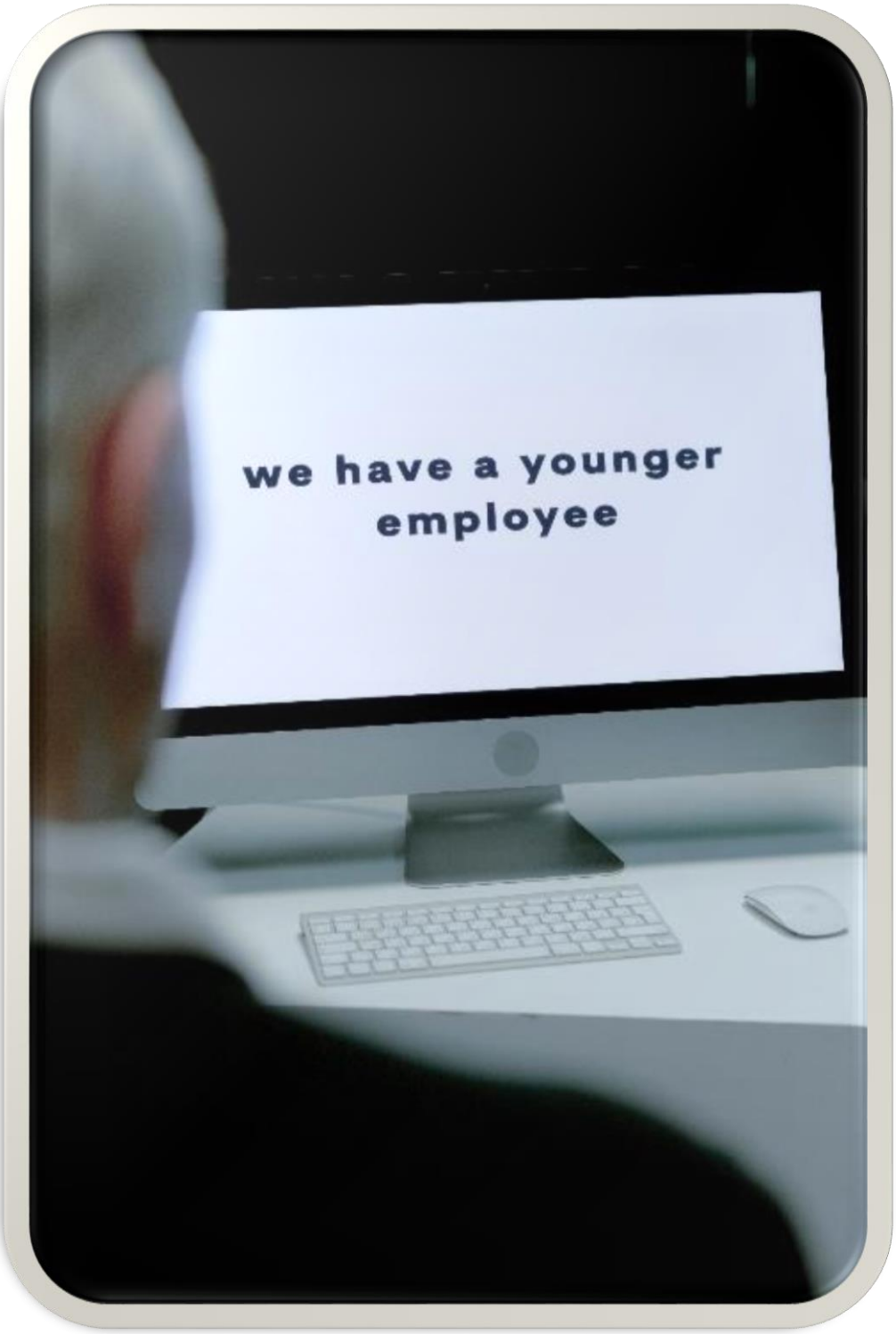


Figure 80. Source Ron Lac at pexels.com

99. Educational Levels in Pedagogy of Sustainable Hospitality Digitalisation

Universities have undergone a number of significant changes in recent decades as a result of societal and technological tendencies toward digitalization (Abad-Segura et. al., 2020). The digital revolution requires a significant readjustment in every industry, from finance to the supply chain for energy and goods.

Universities are currently adopting technologies as a result of a paradigm shift in which technology is seen as a complex and linked environment that facilitates digital learning. This manner, in addition to the learning opportunities it provides, the interest is more on the pupils than the technology itself.

In this regard, digitization is a requirement for higher education institutions (HEIs) able to draw in more and better students, enhance the quality of the training process overall, and enhance the experience of courses.

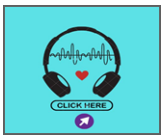
It has been determined that in order to unify its commitment to meeting the expectations of the various interest groups in the economic, social, and environmental dimensions, the digital transformation (DT) must be constructed in accordance with the connectivity axioms.

It is well known that colleges, institutes, and universities engaged in HTE face the challenging task of dealing with changes in the technological environment, international competition in the student market, socio-economic factors, learning and teaching methods, and a dearth of highly qualified digital literacy educators (Adeyinka-Ojo et. al., 2020). To build a model for the development of digital skills, hospitality and tourism education providers and existing hospitality and tourism industry must work together to determine the digital literacy skills required.

There is a need for more critical-reflective teaching-learning experiences in finance at business schools that might encourage people to modify the way they view sustainability rationale. These critical-reflective teaching-learning experiences have consequences for both pedagogic methods and discussions of finance theory in the classroom.

The reason is that it can help students comprehend the conflicts that arise during the co-creation of knowledge and the linkages between scholarly (theoretical) information and real-world business knowledge (Brunstein, 2019) It also teaches them to consider the tensions and challenges that are present in a particular situation and call for sound judgment (phronesis).

In the business classroom, critical reflection focuses on students' concerns and learning experiences. It critically examines theoretical claims and received wisdom



to enable students to disclose social and political dynamic tensions in a transparent and understandable way.

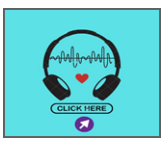
Without any comprehension of the material, students mindlessly repeat the ideas offered by the professor or in the textbook. After the school year or test, this knowledge is quickly lost. It is comparable to the motion of riding a bike, which, once mastered, doesn't require any kind of reflective practice.

The second level is referred to as comprehension; kids at this level have a deeper understanding of a subject's content but do not demonstrate reflective efforts. Students comprehend concepts without asking difficult questions or giving them much thought as to what they mean or how they can use them.

The third level, known as reflection, requires students to go beyond the textbook and absorb and analyse the material while also drawing connections between what they are learning and their own experiences.

Students make connections between the material and their personal experiences on the fourth level, critical reflection, and consider how to apply the material. Also, there is a shift in presuppositions that creates a new conceptual framework, forcing students to abandon their preconceived notions and adopt fresh ones.

Figure 81. Source Pixabay at pexels.com



100. Innovations and Know-how, Licences and Patents in Pedagogy of Sustainable Hospitality Digitalisation

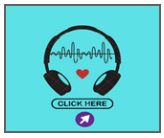
Innovations are crucial factor for growth and survival for individuals, and institutions in all industries and areas, including education. Kettunen et al. (2013) describe innovative pedagogy as movement from individual learning (listening to lectures, reading text books, writing reports and thesis) to group-based learning (discussions, practices, laboratories), to the most innovative stage of networked learning (multidisciplinary education, flexibility, entrepreneurship, innovation and research projects, mobility). "The core of innovation pedagogy lies in emphasizing interactive dialogue between the educational organization, students, and surrounding working life and society" (Kairisto-Mertanen et al., 2012).

Innovations in education and pedagogy can arise from multiple sources, as it is very interactive and dynamic field. Some of the examples of innovations are:

- political (NCLB (No Child Left Behind Act), Race to the Top);
- social (Equal Opportunities Act, affirmative action policy, Individuals with Disabilities Education Act);
- philosophical (constructivism, objectivism);
- cultural (moral education, multiculturalism, bilingual education);
- pedagogical (competence-based education, STEM (curriculum choices in school: Science, Technology, English, and Mathematics);
- psychological (cognitive science, multiple intelligences theory, Maslow's hierarchy of needs, learning style theory); and
- technological (computer-based learning, networked learning, e-learning) (Serdyukov, 2017).

Know-how refers to sharing a practical knowledge or ability, that is created and learned, and can benefit others (Cambridge Dictionary, 2022).

When a pedagogical innovation is created, authors of it can have a rights to a property that is created. For example, in the context of sustainable hospitality digitalization, if an innovative idea, product or service is created, it can be protected with a help of patent.



The main difference is that patent is "an exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem. To get a patent, technical information about the invention must be disclosed to the public in a patent application" (Wipo, 2023).

License is "an official document, card, etc., that gives you permission to do, use, or have something" (Brittanica, 2023).

Once the patent is obtained for a specific innovation, a patent owner can decide to license someone to use the patent. For example, Microsoft company owns a patent to their creation, which is the Microsoft Office package. As a user who would like to use the product, or an organization that wants to use it, you can obtain a license, which is an official permission to use the patented product.

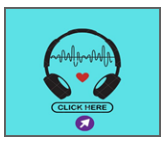
Figure 82. Source SevenStorm JUHASZIMRUS at pexels.com

101. Data Protection in Pedagogy of Sustainable Hospitality Digitalisation

The more education moves into the new era of digitalization the more imperative it becomes to protect the personal data of educators and learners. Digitalisation practically means that a lot of private information are accessed by applications, government agencies and commercial websites and that these data need to be protected from a breach. These data can include information about the age of the learners, learning difficulties, health issues and other sensitive information. It is the responsibility of the schools' authorities to protect them. All the parties involved in the learning process need to feel safe that they are protected against people that they want to have access to their data and only responsible and dedicated personnel can have access.

Students create data from the moment they enrol into a programme whether this is in VET environment, college or university. From the moment a student searches a piece of information online, the clicks he makes, the information he stores, the tests he takes, all create data that are stored in the institution's computers or in cloud applications stores thousands of miles away. In many cases it is not clear which data are property of the student or belong also in the institution he studies (Hoel, T. and Chen, W., 2018). European Union takes the protection of data seriously and recently has passed a new regulation in 2018 called the General Data Protection Regulation (GDPR) with the aim to protect the personal data of European citizens and harmonize the laws across Europe (GDPR.EU, 2018). Even before the introduction of the GDPR regulation it was clear that many countries have implemented similar principles to protect the personal data of its citizens (Bygrave, L. A. 2010).

The new regulation can also specific provisions for the education sector. It includes stricter provisions for educational institutions since it involves children and young adults. Schools are allowed to collect only the necessary information and parents and students are given access to review the information that are collected. The collection of data needs to be justified for the specific purposes of the institution's role. Also under this regulation every educational institute needs to assign two persons with the roles of data processor and data controller both of them with specific responsibilities (GDPR.EU, 2018). Harsh punishments are predicted under this regulation for data breaches.



102. Legislative Framework Review in Pedagogy of Sustainable Hospitality Digitalisation

Infrastructure, data, and people can all be safeguarded and protected with the aid of regulation. It can act as a leveller, ensuring that all market participants enjoy a level playing field. Regulation can help create a climate that supports and encourages returns on investments, such as in infrastructure.

Nearly every economy in existence today has its own, independent ICT regulator, regulating crucial problems like radio-frequency spectrum allocation, operator licensing, and the growth of national networks and services in an ever-more complicated regulatory context. Authorities are tackling problems such changing frameworks for digital taxes, infrastructure sharing plans, consumer trust difficulties, the blurring of the borders separating network operation and content production, network investment issues, and connecting everyone to the advantages.

Cyber threats are expanding in scope and size, while other marketplaces are proliferating and fragmenting. Moreover, the number of mobile customers is increasing local Internet access. To confront the problems of the digital transition, many nations are enlarging the scope of their regulatory frameworks, and monitoring and enforcement are increasing.

Regulation paradigms are being put to the test by new technologies including artificial intelligence (AI), big data, the app economy, cloud computing, the Internet of Things, social media, and mobile technology. New technology, as well as new business and investment structures, are being faced by national authorities.

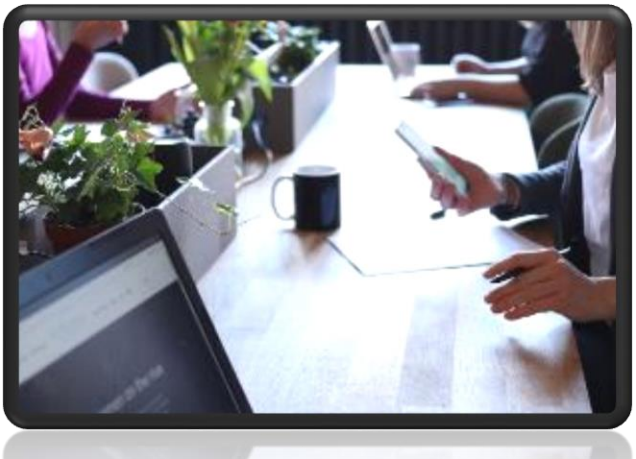


Figure 83. Source CoWomen at pexels.com

Figure 84. New digital deal (adapted from Villa Mateos & Gomez, 2022)

They are also aware that they must keep up with preserving and protecting consumers and infrastructure without impeding investment or innovation.

Divergent regulatory frameworks in a complex, rapidly changing environment may add complexity, foster uncertainty, and deter investment and innovation. One regulatory model rarely fits all.

All over the world, decision-makers are faced with the task of shaping the digital transformation and assessing its effects. Many countries are struggling with fundamental problems when it comes to inclusive and sustainable digital development: In addition to providing the corresponding infrastructure and building up methodological and technical skills, framework conditions must be defined for different areas such as cross-border (data) markets, the handling of data or digital technologies or measures against cyber threats.

Decision-makers from governments, the private sector and civil society in partner countries should develop digital strategies and policies to tackle these digital policy tasks in order to ensure a sustainable and human-centred digital transformation.

Over the past few years, the field of digital policy has become a stand-alone one. The phrase "digital policy" is becoming more and more popular to describe how politics and digitalization interact. Digital policy decisions influence each other at the national, regional, and global levels as a result of worldwide networking, which is a unique characteristic of the sector. Because additional players are engaged, the negotiation and coordination process for global digital policy is structured

differently than it is for other policy domains. They include national, regional, and worldwide organizations as well as global internet service providers.

While many issues are being brought up in the current discussion of digital policy, data security, digital sovereignty, and digital participation stand out as important ones. Several digital policy concerns are being addressed in particular by various nations:

- ensuring that the internet is comprehensive and available to everyone;
- establishing the foundations for a data-driven economy, taking into account global data flows and globally active dominant enterprises;
- in order to defend people' rights (e.g. through data protection, digital privacy or even when using newer technology such as AI).

Transnational digital strategies can help with the consulting and implementation process of rules and the circumstances of the digital policy framework since related data, capacities, or reference examples are frequently lacking.

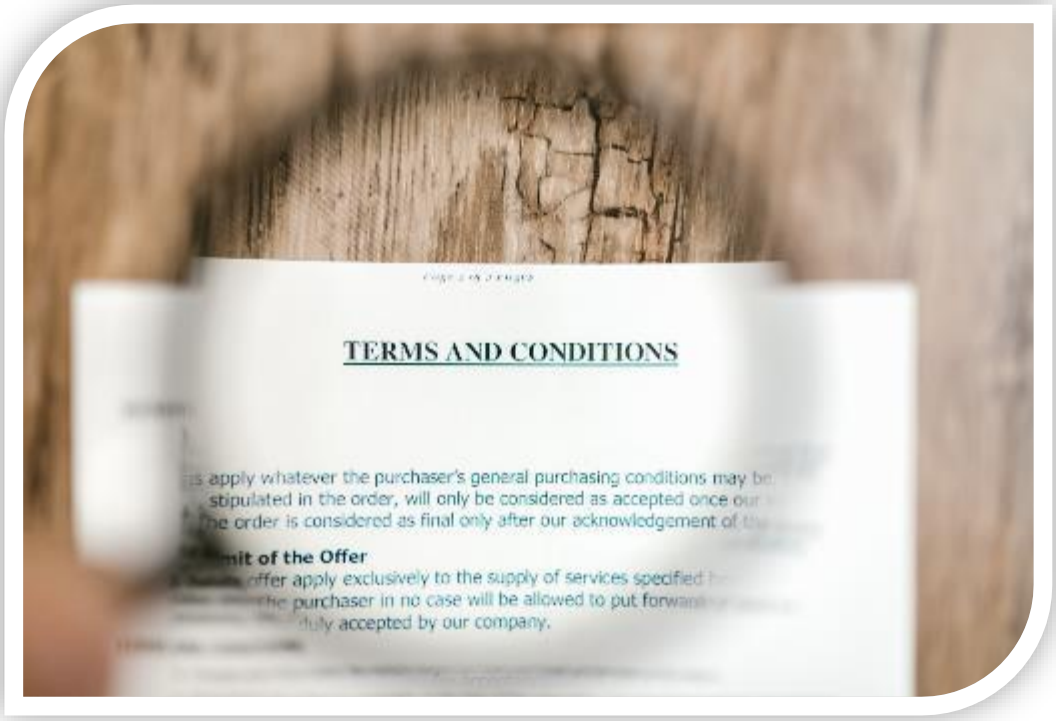
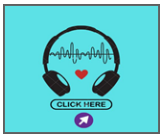


Figure 85. Source RDNE Stock project at pexels.com



103. Quality in Pedagogy of Sustainable Hospitality Digitalisation

It is not easy to define a complex term of quality in the pedagogy of sustainable hospitality digitalization. Henard and Leprince-Ringuet (2008) summarize that quality in pedagogy must always be centered on the needs of the students and promote all student learning. Therefore, it is important to focus on both the teacher's pedagogical abilities and the learning environment, which must take into account the needs of each individual student. Students should understand why they are working, be able to connect with other students, and ask for assistance when necessary. Learning outcomes are also improved when staff and students have enough assistance (financial support, social and academic support, help for minority students, counseling services, etc.). Learning communities, for example, groups of students and/or instructors that work together to study and share knowledge, are thought to improve student learning by raising both student and teacher satisfaction.

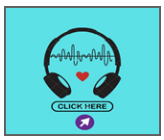
Quality in the pedagogy of sustainable hospitality digitalization is not a set of new and recent teaching skills. Rather, according to Griffiths et al. (2006), quality is a much wider concept that includes:

- directing instructors' focus on the depth of understanding that is apparent in what students are learning,
- the degree to which classrooms are really supportive environments for student learning,
- the amount and quality of instruction offered to pupils that has any purpose beyond simply completing assignments to pass classes,
- how knowledge and experiences are structured to facilitate student learning.

It can be concluded that the quality concept in the pedagogy of sustainable hospitality digitalization is multi-dimensional, and includes student, teacher, peers, environment, personality, and support availability among other factors.

Griffiths et al. (2006) also propose that the quality of pedagogy can be measured based on three dimensions:

- intellectual quality (deep knowledge, deep understanding, problematic knowledge, higher-order thinking, metalanguage, substantive communication),
- quality learning environment (explicit quality criteria, engagement, high expectations, social support, students' self-regulation, and direction),



- significance (background knowledge, cultural knowledge, knowledge integration, inclusivity, connectedness, narrative).

What has recently become a focus of academic interest is the quality of digital and e-learning environments. While the fundamentals of quality do not change in the e-environment, there are many aspects that need to be considered when trying to ensure overall pedagogical quality in the digital environment. Figure below shows the framework of e-quality.

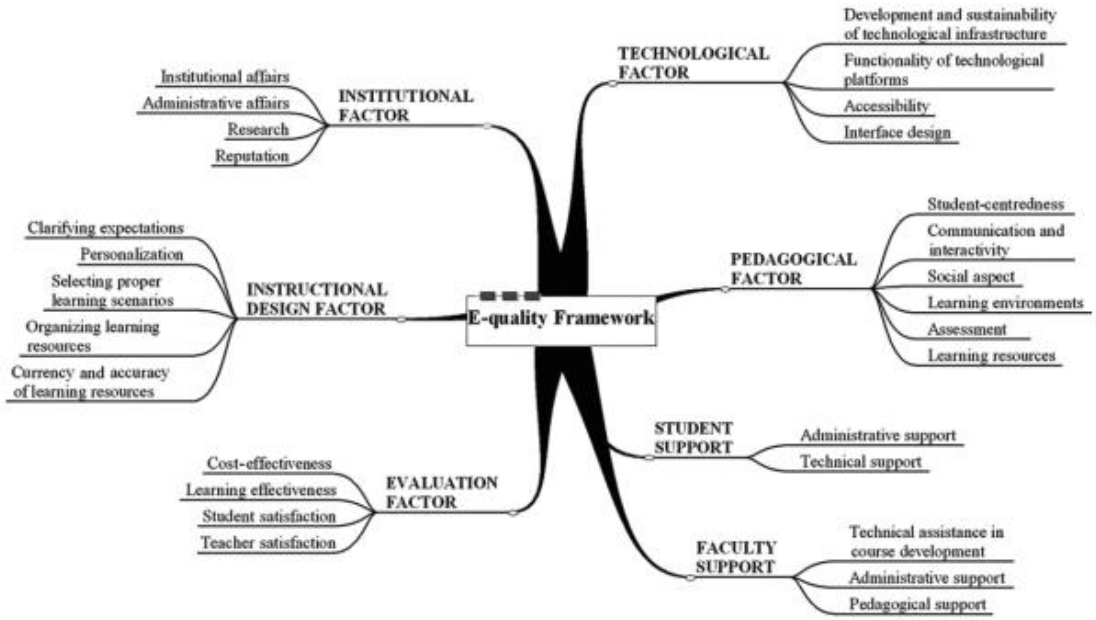
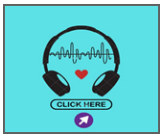


Figure 86. E-quality framework, Source: Masoumi and Lindström, 2012

Within the digital environment, quality becomes more complex. It is no anymore student-teacher-peers and environment interaction. There are technological, institutional, instructional design, evaluation, faculty support, and digital pedagogy factor, as well as support for students to navigate the e-environment.

Figure, Source: Christina Morillo at pexels.com



104. Standards in Pedagogy of Sustainable Hospitality

There has been a lot of discussion regarding the standards that need to be upheld in education in order to improve the efficiency of educational programs and make sure that the students are learning what they are supposed to on every level of the educational system. Also an important factor in standard setting is to be able to measure what and how well they have learned (Entz, S., 2007). The research has shown that effective standards of teaching can be summarized in the following principles (Teemant, A. and Pinnegar, S.E., 2019). They are based on the CREDE model of pedagogy, an approach that was based on the sociocultural theory of Vygotsky (Vygotsky, L. S. 1978).

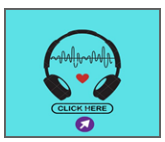
a) Joint productive activity (JPA) is important in every classroom since the best academic results come when there is close collaboration between learners and teachers (Chapman, T.K. and Hobbel, N., 2010). The teachers require the collaboration of students to accomplish certain activities, promotes group assignments to enable students to collaborate. He works as a facilitator and monitors the situation and intervenes to provide stimuli, guidance and set the rules and enforce them if and when needed.

b) Language and Literacy Development: No effective standard can be complete without students to be literate orally and in written. They should be able to articulate their ideas in their own language and use a rich vocabulary. Educators should use listening, reading, and writing activities.

c) Contextualization (CTX): Effective pedagogy should be interesting and relevant to students' lives. The curriculum and the learning activities that the teachers design should be relevant with the local community and local traditions. Digital tools can be used to make teaching more interesting and interactive. The families of the students can be encouraged to participate in the activities (Yamauchi, L.A., Wyatt, T.R. and Taum, A.H., 2005).

d) Challenging activities, Complex Thinking, promoting complex: Since the above standards have been met the teacher is ready to challenge the students to more complex activities and level. Activities can be designed with this in mind. Teachers need to provide feedback at the end of the activities. (Saye, J.W et al., 2018)

(e) Instructional Conversation, teaching through dialogue: The teacher engages in conversations with the students. The goal is to let the student express their ideas, views judgements letting them talk more than the teacher. At the end of the conversations we create a result in the form of a product or service.



(f) Modelling, learning through observation: This is an effective standard especially for younger students that they learn through observing (Rohbanfard, H. and Proteau, L., 2011)

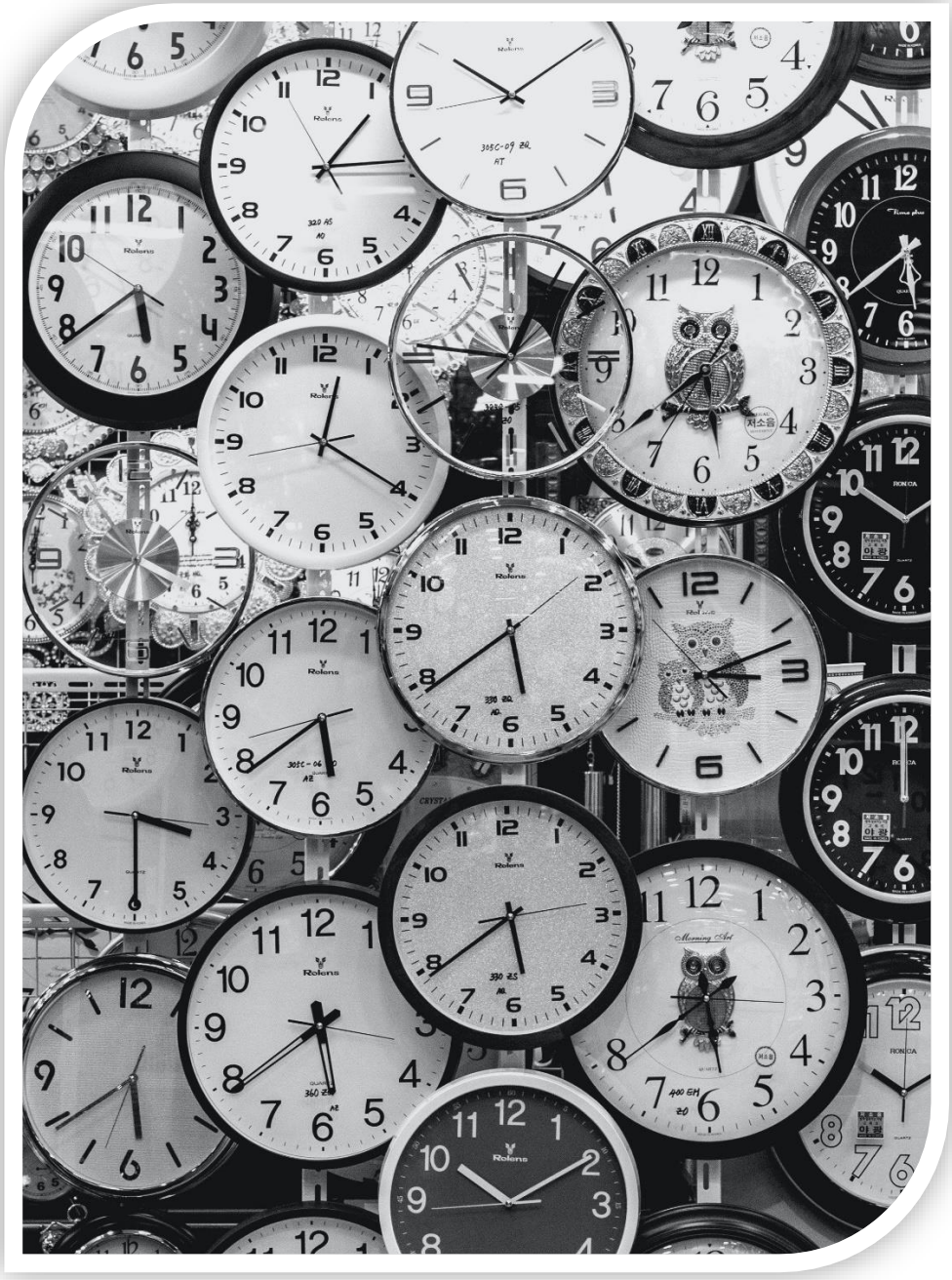


Figure 87. Source Andrey Grushnikov at pexels.com

105. Professional Network for VET Educators, Programme Leads, Hospitality Field Coaches, Trainers, Team Leads from Professional Hospitality Environment

The lack of appeal of teaching as a profession contributes to the scarcity of VET teachers. For instance, the attractiveness of the teaching profession is directly impacted by teacher salaries, which are the highest single expenditure in VET (OECD, 2021).

In contrast to the industry and/or other educational institutions, the profession does not typically offer earnings that are competitive in a lot of nations. The retention of VET teachers is impacted by factors like heavy workloads, inadequate management of VET schools, and a lack of possibilities for professional advancement.

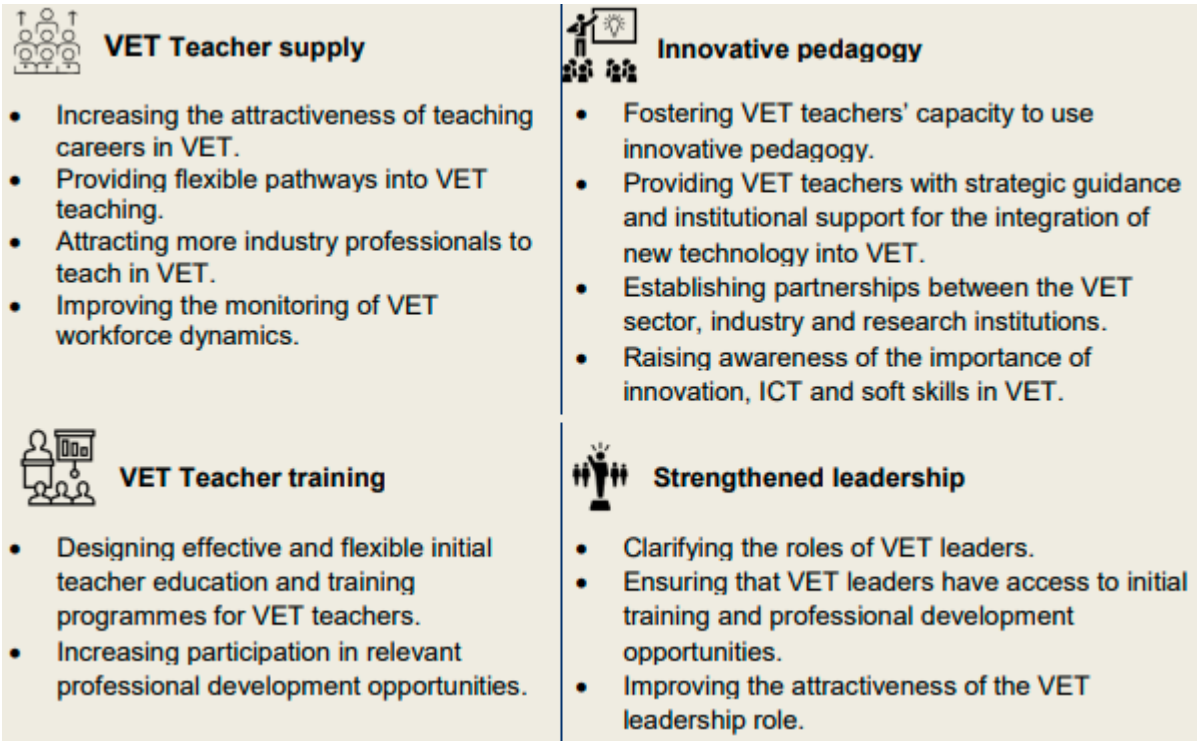


Figure 88. Key policy recommendations for strengthening teaching and leadership in VET (adapted from OECD, 2021)

It has been demonstrated that incentives and support that are well-targeted can help recruit and keep VET teachers. These include attractive career pathways to encourage experienced teachers to stay in the field while allowing them to move into senior or management-level positions or other subject areas. Bonus and wage

incentives for the recruitment of VET teachers in shortage subjects or sectors are also included.

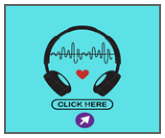
VET instructors must encourage their students' development of digital and soft skills due to the rising demand for these talents on the labor market. VET instructors should become more knowledgeable about how to help their students develop these abilities, particularly in practical settings, and include cutting-edge teaching strategies into their routines.

Today, learner-cantered, workplace-oriented, and inquiry-based instructional techniques are required. The focus of pedagogy should be on collaborative learning as well as active and experience learning to promote soft skills. Robotics, simulators, and other emerging technologies have the potential to encourage innovation in VET teaching and learning.

It has been discovered that VET teachers who received training in particular teaching responsibilities or tasks during their initial education and training (such as general pedagogy, subject-specific pedagogy, subject content, and classroom practice) feel more prepared to assume these responsibilities in their teaching.

To prepare VET leaders for their roles and offer possibilities for upskilling, it is crucial to provide initial training and professional development opportunities that are well-designed. Setting more accurate and current definitions of VET leadership responsibilities would be a good first step.

These definitions can serve as a valuable point of reference for those who are thinking about becoming leaders as well as for those in charge of the recruitment and training of new leaders. The content of all training programs must be closely related to the peculiarities of the institutions and their surroundings.



106. Summary

The authors of the book including the consortium of the representatives from the six EU countries including "HOTEL SCHOOL" Hotel Management College from Latvia, Dania Academy from Denmark, Italian Hospitality School SRL from Italy, City Unity College Nicosia from Cyprus, DigitalGuest APS from Sweden, INERCIA DIGITAL SL from Spain when joining the educational organisations and digital companies have achieved the aim of the project ERASMUS+ PROJECT 2021-1-LV01-KA220-VET-000033140 'Sustainable Hospitality Digitalisation Toolkit" as produced relevant extended applied research and published the innovative book "Pedagogy of Sustainable Hospitality Digitalisation for VET Educators and Sustainable Business Field Coaches and Team Leads".

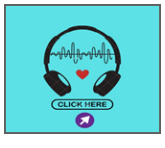
The digital brochure provides description of the role of pedagogy of sustainable hospitality digitalisation and explains different roles of the participants and stakeholders in that.

The book includes review and summary with the links to the related regulative documents, legislative base, and enlightens what is the Digital Education Action Plan. A set of the linked definitions is reviewed as theoretical basis including sustainability, Sustainable Development Goals, hospitality, sustainable hospitality, digitalisation and sustainable digitalisation. The chapters provide explanation how to understand the meaning of Sustainable Hospitality Digitalisation Toolkit, sustainable hospitality concept and process.

Related digital skills, digitalisation skills, green skills are reviewed, as well as digitalisation competences required for Hospitality Qualifications including Culinary Arts are listed in the brochure. The book explains enhancing digital skills and competences for the Digital Transformation: Digital Education Action Plan 2021-2027, developing digital competence for employability in the hospitality industry including engaging and supporting stakeholders with the use of DigComp 2.0, 2.1, 2.2., also what aids the development of self-confidence and respect to green, digital and digitalization skills.

The book also provides a revision of the terms related to Pedagogy of Sustainable Hospitality Digitalisation including educational approach, educational methodology, educational method, educational tool, toolkit, teaching and learning, relevant educational approaches, educational theories and theoretical concepts, pedagogic teaching and learning methods in Pedagogy of Sustainable Hospitality Digitalisation including hybrid learning.

Pedagogic Skills and Digital Skills expected for Pedagogy of Sustainable Hospitality Digitalisation are listed in the chapters of the brochure, as well as competencies and practical methods on embedding digitalisation in VET hospitality courses,



further hospitality professional workshops in working environments are explained in the brochure.

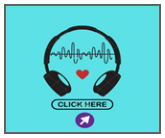
Resources, sources and systems as well as the meaning of 8 learner styles in Pedagogy of Sustainable Hospitality Digitalisation are clarified within the book chapters.

Practical cases on embedding digitalisation in sustainable hospitality VET Learning, review of good and best world practices on embedding of digitalisation in different countries are presented in the book.

The authors disclosed the canvas of skills, competences to provide digital courses, the canvas of skills to design digital courses, the canvas of skills to deliver the subject content by means of digitalisation and about sustainable digitalisation means, the canvas of skills to instruct learners how to embed digitalisation in the studies, assignments, in the working area. The authors of the book produced the Sustainable Hospitality Digitalisation Competence Framework for VET Educators on the basis of DigComp 2.2 for educators, justified how to teach sustainable hospitality digitally, how to design course and materials 'Sustainable Hospitality Digitalisation', how to embed digitalisation process, topic of sustainable digitalisation in Hospitality VET programmes, courses and how to deliver other content courses by means of digitalisation, how to proceed curriculum content design in Pedagogy of Sustainable Hospitality Digitalisation and how to design digital courses, materials, workshops for hospitality VET studies, how to design materials and field workshops on digitalisation for hospitality organizations studies, how to infuse digitalisation in hospitality working environments. The book also provides explanation how to differentiate the tasks and activities on hospitality digitalisation and sustainable hospitality digitalisation, describes TWIN TRANSITION and how to merge green skills and digitalisation skills effectively for increasing sustainability of hospitality.

The chapters of the book point out how to measure sustainable hospitality digitalisation, explains measuring sustainability, measuring sustainable hospitality, measuring digitalisation of hospitality, and lastly measuring digitalisation of sustainable hospitality with review of the indicators of sustainable hospitality and indicators of digitalisation and indicators of sustainable hospitality digitalisation also with relevance to GRI (Global Reporting Initiative Standards and other metrics).

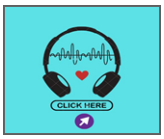
The next chapters clarify the Virtual Learning Environment (VLE), factors that influence the virtual learning environment (VLE) and work environment in Pedagogy of Sustainable Hospitality Digitalisation, drivers, success factors, motivation, engagement, evaluation and assessment in Pedagogy of Sustainable Hospitality Digitalisation: before, during, after., as well as feedback,



communication, measuring effectiveness, monitoring, barriers, problems and challenges in Pedagogy of Sustainable Hospitality Digitalisation.

Another parts relates to review of the costs of Pedagogy of Sustainable Hospitality Digitalisation and Budgeting in Pedagogy of Sustainable Hospitality Digitalisation, then costs and budgeting in sustainable hospitality digitalisation.

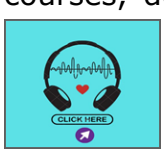
The book chapters provide analysis of updated information in Pedagogy of Sustainable Hospitality Digitalisation considering sustainability and technologies, data, ages, educational levels, innovations and know-how, licences and patents, data protection, quality and standards, professional network for VET Educators, Programme Leads, Hospitality Field Coaches, Trainers, Team Leads from Professional Hospitality Environment. The book benefits also with topical glossary and links to related useful resources.



107. Conclusion

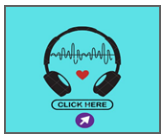
The authors of the book including the consortium of the representatives from the six EU countries including Latvia, Denmark, Sweden, Cyprus and Italy have achieved the aim of the project ERASMUS+ PROJECT 2021-1-LV01-KA220-VET-000033140 'Sustainable Hospitality Digitalisation Toolkit'' as produced relevant extended applied research and published the innovative book "Pedagogy of Sustainable Hospitality Digitalisation for VET Educators and Sustainable Business Field Coaches and Team Leads". The book focuses on Pedagogy for Sustainable Hospitality Digitalisation is an extension on methodology, approaches, and methods sketched in the first part of the Guidebook for Sustainable Hospitality Digitalisation for VET Learners and Professionals. The art of pedagogy in this context is also adding sustainable and digital elements to learning in a hospitality context. The digital brochure provides review of 1) how to teach sustainable hospitality digitally; 2) how to design course and materials 'Sustainable Hospitality Digitalisation'; 3) how to embed digitalisation process, topic of sustainable digitalisation in Hospitality VET programmes, courses and how to deliver other content courses by means of digitalisation; 4) how to design digital courses, materials, workshops for hospitality VET studies; 5) how to design materials and field workshops on digitalisation for hospitality organizations; 6) how to infuse digitalisation in hospitality working environments; 7) how to differentiate the tasks and activities on hospitality digitalisation and sustainable hospitality digitalisation; 8) how to measure sustainable hospitality digitalisation 9) how to merge green skills and digitalisation skills effectively for increasing sustainability of hospitality.

The brochure includes review of relevant educational approaches, theoretical concepts, methods, pedagogic and digital skills, competencies and practical methods on embedding digitalization in VET hospitality courses, further hospitality professional workshops in working environments. The guidebook provides practical cases on embedding digitalisation in Hospitality VET Learning, review of best world practices on embedding of digitalisation and the canvas of skills and competences to provide digital courses, design digital courses, deliver the subject content by means of digitalisation and about the digitalisation means, and to instruct learners how to embed digitalisation in the studies assignments and in the working area. On the basis of DigComp 2.0, 2.1, 2.2. and taking into consideration the specifics of the Hospitality Business digitalisation, the Digital Competence Framework for Sustainable Hospitality Digitalisation Educator has been developed. The guidebook provides practical cases on embedding digitalisation in Hospitality VET Learning, review of best world practices on embedding of digitalisation and the canvas of skills and competences to provide digital courses, design digital courses, deliver the subject content by means of digitalisation and about the



digitalisation means, and to instruct learners how to embed digitalisation in the studies assignments and in the working area. KA220-VET Cooperation partnerships in vocational education and training 'Sustainable Hospitality Digitalisation Toolkit' in the field of VET (both initial and continuing) is aimed to enhance access to training and qualifications for all by support to pooling of resources, and providing initial and/or continuing training to the staff, further strengthen key competences in initial and continuing VET, in particular digital skills, green skills, employability. The book includes review of the latest educational approaches, methods and practices used for educational purposes on sustainable hospitality digitalisation, where the need for digitalisation meets the need for sustainability, and demonstrates the benefits of digitalizing these processes and merging them according to TWIN Transition focus and priorities.

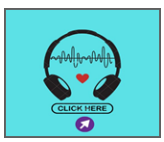
The developed digital brochure is technically available in electronic version with guided audio chapters. The book is linked to the Guidebook for Sustainable Hospitality Digitalisation for VET Learners and Professionals, also linked to the developed digital course on the basis of Digital Guest technical solution and is linked to the digital course parts developed in Moodle software, where all of them are interrelated and interlinked.



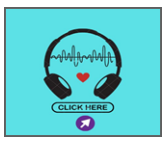
108. Glossary

Table 12 :Glossary: Sustainable Hospitality Digitalisation Pedagogy

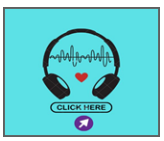
Term	Description	Reference
Acceptable Usage Policy (AUP)	An Acceptable Usage Policy (AUP) is a document that outlines a set of rules to be followed by users or customers of a set of computing resources, which could be a computer network, website or large computer system. An AUP clearly states what the user is and is not allowed to do with these resources	Redecker, C., DigCompEdu. (2017) referring to source: https://www.techopedia.com/definition/2471/acceptable-use-policy-aup
Active learning	Active learning is a form of instruction that emphasises seeking information, organising it in a meaningful way and having the chance to explain it to others during interactions with peers and instructors, which involves a cycle of constant activities and feedback373. Many studies have shown the positive effects of active learning on student attitudes, skills and learning outcomes374. Forms of active learning include project-based, problem-based or inquiry-based learning also described below.	(EC, 2020).
Adjacent and ambivalent skills	Other skill categories such as digital, sector-specialised, business, or interpersonal skills that have the potential to contribute to greening the economy.	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Algorithm	In mathematics and computer science, an algorithm is an unambiguous specification of how to solve a class of problems. Algorithms can perform calculation, data processing, automated reasoning and other tasks	(EC, 2020).
Artificial intelligence	Artificial intelligence (AI) includes the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently	(EC, 2020).



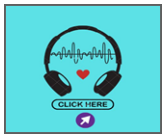
	applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalise or learn from past experience.	
Assistive Technology	Assistive technology (AT) is a generic term used to refer to a group of software or hardware devices by which people with disabilities can access computers. They can be specially developed and marketed devices or off-the-shelf products that have been modified. Assistive technology can include devices such as alternative keyboards and mice, voice recognition software, monitor magnification software, multiple switch joysticks, and text-to-speech communication aids.	Redecker, C., DigCompEdu. (2017) referring to source: http://www.webopedia.com
Augmented reality	Augmented reality is an interactive experience of a real-world environment where the objects that reside in the real world are 'augmented' by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory and olfactory.	(EC, 2020).
Blended learning	Blended learning involves the way e-learning is combined with traditional classroom methods to create a new hybrid teaching methodology	(EC, 2020).
Blockchain technology	Blockchain technology facilitates the recording and sharing of information by a community. In this community, each member maintains his or her own copy of the information and all members must validate any updates collectively. The information could represent transactions, contracts, assets, identities, or practically anything else that can be described in digital form. Entries are permanent, transparent, and searchable,	(EC, 2020).



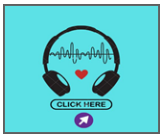
	which makes it possible for community members to view transaction histories in their entirety. Each update is a new 'block' added to the end of a 'chain'. With blockchain, cryptology replaces third-party intermediaries as the keeper of trust, with all blockchain participants running complex algorithms to certify the integrity of the whole	
BYOD/bring your own device	BYOD (or BYOT/bring your own technology) refers to the policy that allows or even encourages students to bring personally owned mobile devices (laptops, netbooks, tablets, smartphones, etc.) to their educational institution and to use those devices to access information, applications and services to support their learning	(EC, 2020).
Centres of Vocational Excellence	CoVEs support regional and local strategies while supporting overall structural changes and economic policies in the European Union, based on relevant partnerships and acting as a driver of quality vocational skills in the context of national, regional/local and sectorial challenges, with a strong element of work-based learning, digital content and mobility experience abroad	(EC, 2020).
Climate neutral and low carbon	Types of economic or social activity that are either fully compatible with a green (i.e. climate-safe) economy or contributing to the process of transitioning to it becoming so (i.e. with lower GHG emissions than currently).	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Competence-based approaches	Competence-based approaches focus on assessing the learner's demonstrable competencies rather than his record of attendance	(EC, 2020).



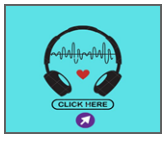
Continuous Professional Development (CPD)	CPD is the means by which members of professions maintain, improve and broaden their knowledge and skills and develop the personal qualities required in their professional lives, usually through a range of short and long training programmes, some of which offer accreditation. This job-related continuing education and training refers to all organised, systematic education and training activities in which people take part in order to obtain knowledge and/or learn new skills for a current or a future job.	Redecker, C., DigCompEdu. (2017) referring to source, adapted from http://www.umultirank.org/#!/glossary?trackType=home&sightMode=undefined&section=undefined adapted from http://creativecommons.org/about
Country income levels	Refers to the World Bank classification of the world's economies into four income groups (high, upper-middle, lower-middle and low), based on GNI per capita in current USD.	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Critical literacies	Critical literacies is a method of teaching that involves the critical interpretation of texts in different environmental and cultural contexts382. This allows educators and students with an opportunity to read, evaluate, and reflect on texts, and embark upon the creative process of actively constructing or reconstructing these texts.	(EC, 2020).
Culturally relevant pedagogy	A culturally relevant pedagogy is a teaching pedagogy focused on students' academic success, cultural competence, and critical consciousness	(EC, 2020).
Data	A sequence of one or more symbols given meaning by specific act(s) of interpretation. Data as a general concept refers to the fact	Redecker, C., DigCompEdu. (2017) referring



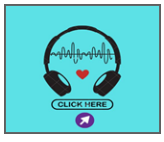
	that some existing information or knowledge is represented or coded in some form suitable for better usage or processing. Data is measured, collected and reported, and analyzed, whereupon it can be visualized using graphs, images or other analysis tools	to source Wikipedia.
Digital Communication	Communication using digital technology. Various modes of communication exist, e.g. synchronous communication (real time communication, e.g. using skype or video chat or Bluetooth) and asynchronous ones (not concurrent communication, e.g. email, sms) using for example, one-to-one, one-to-many, or many-to-many modes.	Redecker, C., DigCompEdu. (2017)
Digital Competence	Digital competence can be broadly defined as the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society.	Redecker, C., DigCompEdu. (2017) referring to source DigComp Framework https://ec.europa.eu/jrc/digcomp
Digital Content	Any type of content that exists in the form of digital data that are encoded in a machine-readable format, and can be created, viewed, distributed, modified and stored using digital technologies. Examples of digital content include: web pages and websites, social media, data and databases, digital audio, such as mp3s, and e-books, digital imagery, digital video, video games, computer programmes and software. For the DigCompEdu framework, digital content is divided into digital resources and data.	Redecker, C., DigCompEdu. (2017)
Digital Environment	A context, or a "place", that is enabled by technology and digital devices, often transmitted over the internet, or other digital means, e.g. mobile phone network.	Redecker, C., DigCompEdu. (2017)



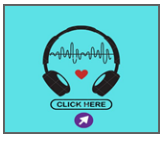
	Digital environments are usually used for interaction with other users and for accessing and publishing user-created content. Records and evidence of an individual's interaction with a digital environment constitute their digital footprint.	
Digital pedagogy specialist	A digital pedagogy specialist is a professional that collaborates with faculty, staff, and students to employ technological solutions in the realisation of teaching and learning aims	(EC, 2020).
Digital Resources	The term usually refers to any content published in computer-readable format. For the purposes of DigCompEdu, a distinction is made between digital resources and data. Digital resources in this respect comprise any kind of digital content that is immediately understandable to a human user, whereas data need to be analysed, treated and/or interpreted to be of use for educators.	(Redecker, C., DigCompEdu., 2017)
Digital Services	Services that can be delivered through digital communication, e.g. internet, mobile phone network, that might include delivery of digital information (e.g. data, content) and/or transactional services. They can be either public or private, e.g. e-government, digital banking services, e-commerce, music services (e.g. Spotify), film/TV services (e.g. Netflix).	(Redecker, C., DigCompEdu., 2017)
Digital Technology	Any product or service that can be used to create, view, distribute, modify, store, retrieve, transmit and receive information electronically in a digital form. In this framework, the term "digital technologies" is used as the most general concept, comprising: ◆◆ computer networks (e.g. the internet) and any online service supported by these (e.g. websites, social networks, online libraries, etc.),	(Redecker, C., DigCompEdu., 2017)



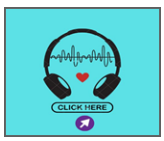
	◆◆ any kind of software (e.g. programmes, apps, virtual environments, games), whether networked or installed locally; ◆◆ any kind of hardware or "device" (e.g. personal computers, mobile devices, digital whiteboards); and ◆◆ any kind of digital content, e.g. files, information, data. For the purposes of the DigCompEdu framework, the category of digital technologies is broken down into the following areas: Digital devices; data and digital resources (=digital files + software + online services).	
Digital Tools	Digital technologies used for a given purpose or for carrying out a particular function of e.g. information processing, communication, content creation, safety or problem solving	(Redecker, C., DigCompEdu., 2017)
Digitalisation	Digitalisation is the process of leveraging digitisation to enabling, improving or transforming processes	(EC, 2020).
Digitisation	Digitisation is the process of converting information into a digital format. Digitisation is an act that may enable digitalisation, but the latter always requires the former	(EC, 2020).
Discussion-based learning	Discussion-based learning enables student involvement through instructor-directed questions and student participation. This requires that students contribute and learn from each other in an environment that is directed by prepared instructors	(EC, 2020).
Educational Content	(Digital) content relevant, in one way or another, to the educational context. This term is broader than "educational resource" in that it also comprises content marginal to the instructional process, e.g. communication with students, parents, colleagues; administrative content, etc.	(Redecker, C., DigCompEdu., 2017)



Educational Resources	Resources (digital or not) designed and intended to be used for educational purposes.	(Redecker, C., DigCompEdu., 2017)
Educator	In the context of DigCompEdu, the term "educator" is used to generically refer to any person involved in the process of teaching or transmitting knowledge. In particular, it refers to teachers at all levels of formal education, ranging from pre-primary, primary and secondary, to further and higher education (e.g. university lecturers), to vocational and adult education, and including initial training and continuous professional development. It may, by analogy, also be used to describe people involved in providing training in non-formal and informal settings, e.g. social workers, library staff, parents providing home schooling, etc	(Redecker, C., DigCompEdu., 2017)
Embodied learning	Embodied learning is a way to teach while involving the whole body, for example teaching maths while throwing small bags of sand to each other	(EC, 2020).
E-portfolio	Collections of (students') work that can advance learning by providing a way for them to organize, archive, display and reflect on their work. E-portfolios are both demonstrations of users' abilities and platforms for their self-expression.	(Redecker, C., DigCompEdu., 2017)
Experiential learning	Experiential learning is the process of learning through experience, which includes for example hands-on learning	(EC, 2020).
Flipped classroom	Flipped classroom is a hybrid form of learning during where students listen to recorded lectures outside of class in their own time, while the physical meetings focus on solving exercises.	(EC, 2020).
Formative Assessment	Formative assessment refers to a wide variety of methods that teachers use to conduct in-process evaluations of students'	(Redecker, C., DigCompEdu., 2017) referring

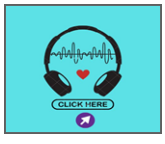


	comprehension, learning needs, and academic progress during a lesson, unit, or course. The general goal of formative assessment is to collect detailed information that can be used to improve instruction and student learning while it is happening.	to source: Glossary of Education Reform http://edglossary.org/formative-assessment
Gamification	Gamification is the process of taking something that already exists – a website, an enterprise application, an online community – and integrating game mechanics into it to motivate participation, engagement, and loyalty. Gamification typically involve learners in fictional or real-world situations that call for them to put their knowledge into practice, applying and integrating various aspects of their studies and problem solving.	(EC, 2020).
Green economy	An economy that operates safely within planetary environmental boundaries, notably with regards to a stable climate and healthy ecosystem biodiversity	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Green growth	Increase in the productive capacity of an economy consistent with development pathways necessary specifically for a stable climate (i.e. a 1.5-degree pathway) and healthy ecosystem biodiversity	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Green skills	Green skills are those that enable the environmental sustainability of economic activities, such as skills in pollution mitigation and waste prevention, environmental remediation, sustainable procurement, energy generation and management, etc. 'Core' green skills (such as recycling) are most directly related to these sustainability-	(Linkedin Economic Graph,2022). Global Green Skills Report 2022

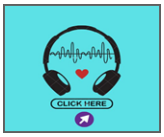


	promoting activities; 'ambivalent' green skills (such as fleet management) may or may not be used for sustainability and 'adjacent' green skills (such as biology) can support acquisition of core and ambivalent green skills. (Linkedin Economic Graph,2022. Global Green Skills Report 2022).	
Green transition	The process of evolution towards a green economy (see above) to support the goals of the Paris Agreement, to deliver net-zero emissions in order to limit climate change to 1.5 degrees. This includes structural transformation across all sector and country value chains	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Higher VET	Higher VET typically refers to forms of VET programmes or qualifications at ISCED level 5 or above, or EQF level 5 or above; although there is no commonly accepted definition of higher VET across Member States	(EC, 2020).
Industry 4.0	Industry 4.0 represents the fourth industrial revolution that is occurring in manufacturing in the design, manufacture, operation and service of systems and products. This fourth industrial revolution enhances the progress that was made in the third industrial revolution with the adoption of computers and automation, and enhances it with smart and autonomous systems fuelled by data and machine learning. Angela Merkel defined industry 4.0 as 'the comprehensive transformation of the whole sphere of industrial production through the merging of digital technology and the internet with conventional industry'.	(EC, 2020).
Innovation	Innovation is the use of new or significantly redesigned teaching and learning tools, methods or environments (such as digital learning tools, MOOCs or virtual reality) or	(EC, 2020).

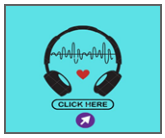
	new organisational methods (for example using a new app or software to interact with employers) aimed at improving the quality of VET in response to environmental sustainability and social and economic needs.	
Inquiry-based learning	Inquiry-based learning is a learning and teaching method that prioritises student questions, ideas and analysis, and can include case studies, group projects, research projects and fieldwork.	(EC, 2020).
Just transition	A transition which addresses the societal needs of those negatively impacted by the process or by existing inequalities.	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Knowledge clusters	Knowledge clusters are a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities, which aim to exchange and generate knowledge	(EC, 2020).
Knowledge triangle	The knowledge triangle refers to the interaction between the three areas of (academic) research and knowledge creation, education and training, and (business) innovation. In the European Union, it also refers to an attempt to better link these key concepts, including VET	(EC, 2020).
Lab-based learning	Lab-based learning is learning which occurs in a laboratory and is particularly well tailored to experiential and project or problem-based learning	(EC, 2020).
Learning analytics	Learning analytics can be defined as the measurement, collection, analysis and reporting of data about learners and their contexts for the purposes of understanding and optimising learning and the	(EC, 2020).



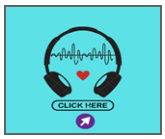
	environments in which it occurs. In simpler terms, it can be understood as collecting 'traces' that learners leave behind and using those traces to improve learning	
Learning hub	A learning hub is a technology-rich learning environment with both physical and virtual components that provide formal and informal opportunities for learners to come together with peers, teachers, and other experts in their field. Here, individuals can access relevant knowledge and information, enlist support from educators and other learners, and, in so doing, develop new opportunities to improve their livelihoods	(EC, 2020).
Learning outcome	Statements of what a learner knows, understands and is able to do on completion of a learning process. The achievement of learning outcomes has to be assessed through procedures based on clear and transparent criteria. Learning outcomes are attributed to individual educational components and to programmes at a whole. They are also used in European and national qualifications frameworks to describe the level of the individual qualification	(EC, 2020).
Massive Online Open Courses (MOOCs)	MOOCs are an online course aimed at unlimited participation and open access via the web. MOOCs are openly accessible, large scale, and self-paced, allowing the learning load to match a student's progress, for example, to augment traditional modes of teaching. Additionally, lectures can be attended numerous times, at no additional cost, and tests can be retaken until the sought after level of proficiency is attained.	(EC, 2020).
Module	A course unit in a system in which each course unit carries the same number of credits or a multiple of it	(EC, 2020).



Multi literacies	Multi literacies recognises the variability of meaning making in different cultural, social or domain-specific contexts, as well as the fact that meaning is becoming increasingly multimodal, in which written-linguistic modes of meaning interface with oral, visual, audio, gestural, tactile and spatial patterns of meaning, largely as a result of new information and communications media.	(EC, 2020).
Open Educational Resources	Teaching, learning and research materials in any medium, digital or otherwise, that are in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions.	(Redecker, C., DigCompEdu., 2017) referring to Source: UNESCO definition http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/what-are-open-educational-resources-oers/
Peer-assessment	Peer assessment is a process whereby students grade each others' assignments or tests, based on a teacher's benchmarks. The practice is employed to save teachers time and improve students' understanding of course materials and to improve their metacognitive skills. Peer assessment can empower students to take responsibility for, and manage, their own learning; enable students to learn to assess and to develop life-long assessment skills; enhance students' learning through knowledge	(Redecker, C., DigCompEdu., 2017) referring to Source: Adapted from Wikipedia; Cornell University Centre for Teaching Excellence, http://

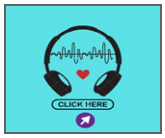


	diffusion and exchange of ideas; motivate students to engage with course material more deeply.	www.cte.cornell.edu/
Planetary Environmental Boundaries	Concept first proposed in 2009 by scientists from the Stockholm Resilience Centre and the Australian National University, its definition of a "safe operating space for humanity" is the most widely referenced precondition for sustainable development and is based on scientific evidence that human actions since the Industrial Revolution have become the main driver of global environmental change.	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Pop-up workshops	Pop-up workshops are brief, informal and interactive sessions designed to deliver bite-size, timely, targeted information to learners on a range of themes	(EC, 2020).
Problem-based learning	Problem-based learning is a learning method which involves having students solve real-world problems as a driving force for the curriculum	(EC, 2020).
Project-based learning (PBL)	PBL is a learner-centred approach in which learners engage in active exploration of real-world challenges and problems by involvement in a projects organised around a driving question or challenge.	(EC, 2020).
Quality assurance	The process or set of processes adopted nationally and institutionally to ensure the quality of educational programmes and qualifications awarded. Quality assurance should ensure a learning environment in which the content of programmes, learning opportunities and facilities are fit for purpose. Quality assurance is often referred to in the context of a continuous improvement cycle (i.e. assurance and enhancement activities)	(EC, 2020).
Robotisation	Robotisation is the automation of a system or process by use of a robotic device.	(EC, 2020).

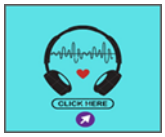


Self-assessment	Self-assessment involves the ability to be a realistic judge of one's own performance. Proponents of selfassessment suggest it has many advantages, for example, it provides timely and effective feedback and allows students to assess their own learning quickly; allows instructors to understand and provide quick feedback on learning; promotes academic integrity through student self-reporting of learning progress; promotes the skills of reflective practice and self-monitoring; develops selfregulated learning; increases student motivation; improves satisfaction from participating in a collaborative learning environment; helps students develop a range of personal, transferrable skills to meet the expectations of future employers	Redecker, C., DigCompEdu., 2017) referring to Source: Cornell University Centre for Teaching Excellence http://www.cte.cornell.edu/
Self-assessment Tool	A self-assessment tool is an instrument that assists professionals in their self-assessment, i.e. in evaluating the effectiveness of their performance in all areas of responsibility, and determining what improvements are required. Within this report the term is used to refer to online programmes in the form of questionnaires which allow teachers to evaluate their digital competence with the help of a set of questions. Usually feedback in the form of a report is provided, identifying areas of strength and areas for development	Redecker, C., DigCompEdu., 2017) referring, adapted from http://www.businessdictionary.com/definition/self-assessment.html).
Self-determined learning	"A process in which learners take initiative for identifying learning needs, formulating learning goals, identifying learning e-sources, implementing problem-solving strategies, and reflecting upon the learning processes to challenge existing assumptions and increase learning capabilities." (The concept is related to the concepts of self-directed and self-regulated learning. Of	Redecker, C., DigCompEdu., 2017) referring to Blaschke, 2012; http://www.rtschuetz.net/2014/12/self-directed-vs-

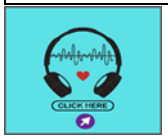
	these three it is the most demanding on the level of learner autonomy. Since such a high level of autonomy may be too ambitious for some learning and teaching contexts or learner groups, in DigCompEdu the concept of self-regulated learning is given preference.	self-determined.html).
Self-directed learning	Self-directed learning is a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, and choosing and implementing appropriate learning	(EC, 2020).
Self-regulated learning	Refers to learning that is guided by metacognition (thinking about one's thinking), strategic action (planning, monitoring, and evaluating personal progress against a standard), and motivation to learn. "Self-regulated" describes a process of taking control of and evaluating one's own learning and behaviour (Wikipedia). The concept is related to the concepts of self-directed and self-determined learning. Since the latter two require a higher degree of autonomy, not feasible in all educational contexts, for DigCompEdu the concept of "self-regulated learning" is given preference	Redecker, C., DigCompEdu., 2017)
Service-based learning (SBL)	SBL is an educational approach that combines learning objectives with community service in order to provide a practical and progressive learning experience while responding to societal needs.	(EC, 2020).
Smart specialisation	Conceived within the reformed Cohesion policy of the European Commission, smart specialisation is a place-based approach characterised by the identification of	(EC, 2020).



	strategic areas for intervention based both on the analysis of the strengths and potential of the economy and on an Entrepreneurial Discovery Process (EDP) with wide stakeholder involvement, based on targeted support to Research and Innovation (R&I). It is outward looking and embraces a broad view of innovation including but certainly not limited to technology-driven approaches, supported by effective monitoring mechanisms. A smart specialization strategy is often referred to as S3.	
Summative Assessment	Summative assessments are used to evaluate student learning, skill acquisition, and academic achievement at the conclusion of a defined instructional period - typically at the end of a project, unit, course, semester, programme, or school year. Summative-assessment results are often recorded as scores or grades that are then factored into a student's permanent academic record.	Redecker, C., DigCompEdu., 2017) referring to Source: The Glossary of Education Reform http://edglossary.org/summative-assessment/
Sustainability	Sustainability — a situation in which economic, social and environmental goals are all achieved in balance though sustainable development.	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Sustainable growth	Increase in the productive capacity of an economy consistent with development pathways necessary for a stable climate (i.e., a 1.5-degree pathway) and healthy ecosystem biodiversity, as well as satisfying humanity's basic needs and sharing additional wealth and benefits with reduced inequalities, in line with the UN Sustainable Development Goals (SDGs) for 2030.	(Linkedin Economic Graph,2022). Global Green Skills Report 2022

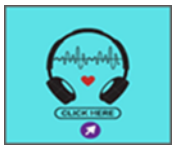


Teacher	A teacher is a person who provides education for students in formal education, i.e. within an educational institution. Since the term is often taken to only refer to school education (i.e. ISCED1-3), for DigCompEdu the wider term "educator" is used.	Redecker, C., DigCompEdu., 2017)
Teaching uncertainty competences	Teaching uncertainty competences entails providing learners with the tools to manage knowledge uncertainty in a complex world, more specifically by teaching learners to appraise, tolerate and reduce uncertainty	(EC, 2020).
Third mission	The third mission is an additional function of universities, which relates to their mission to engage with societal needs and market demands by linking the university's activity with its own socioeconomic context. It comes in addition to the first mission (qualifying the human capital) and the second mission (producing new knowledge)	(EC, 2020).
Transition to sustainability	A process whereby an economy becomes green (see above) as well as its society meeting basic human needs globally and providing equal opportunities according to UN principles and in line with SDGs for 2030.	(Linkedin Economic Graph,2022). Global Green Skills Report 2022
Triple helix	A triple helix is a model, developed by Henry Etkowitz and Loett Leydersdorff in the 1990s, to conceptualise the different forms of university – industry – government interaction.	(EC, 2020).
Virtual campus	A virtual campus refers to both an online location for learning and an internet tool for exploring education options. Some colleges and universities use the phrase 'virtual campus' to refer to the information center that allows their students to access online courses and degree programmes, while this	(EC, 2020).



	phrase is also used to describe an online tour of a physical college campus	
Virtual classroom	A virtual classroom is a teaching and learning environment where participants can interact, communicate, view and discuss presentations, and engage with learning resources while working in groups, all in an online setting. The medium is often through a video conferencing application that allows multiple users to be connected at the same time through the Internet, which allows users from virtually anywhere to participate	(EC, 2020).
Virtual reality	Virtual reality (VR) is an interactive computer-generated experience taking place within a simulated 3D environment. It incorporates mainly auditory and visual feedback, but may also allow other types of sensory feedback. This immersive environment can be similar to the real world or it can be fantastical411. VR can model of machines or entire surroundings, and involve the user through a mouse or keyboard, or a more immersive environment in the form of a helmet	(EC, 2020).

Figure 89. Source Sound On at pexels.com



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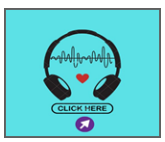

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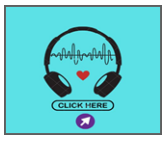

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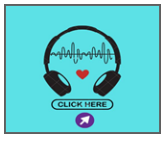

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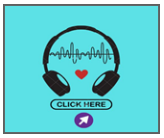

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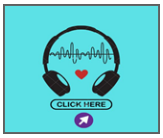

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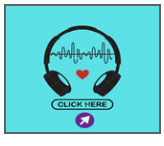

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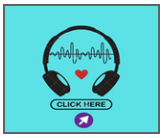

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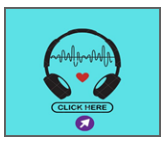

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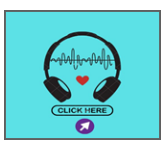

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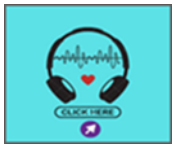

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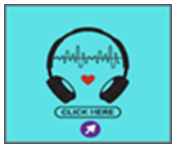

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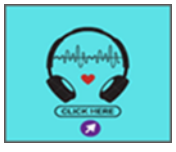

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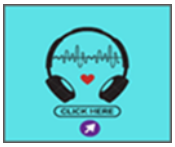

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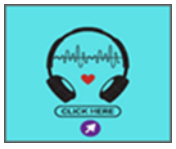

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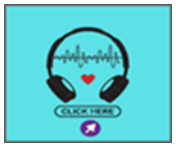

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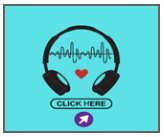

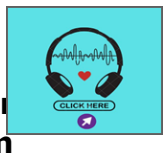

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Link to the project website ‘’Sustainable Hospitalirty Digitalisation Toolkit

www.sustainable-hospitality-digitalisation-toolkit.com

Pedagogy of Sustainable Hospitality Digitalisation for VET Educators and Sustainable Business Field Coaches and Team Leads

Hyperlink: www.sustainable-hospitality-digitalisation-toolkit.com

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