EULEP

WP2 – MARKET ANALYSIS

QUALITATIVE FOCUS GROUPS ON NEEDS AND RELEVANT SKILLS REQUIRED BY COMPANIES IN THE TOURISM SECTOR AND ITS SUPPLY CHAIN ABOUT ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY

FINAL REPORT

EULEP - European Learning Experience Platform
Connecting Centres of Vocational Excellence to develop and deliver
innovative transnational C-VET training in AI, VR, social innovation

Co-funded by the European Union

Project Name:	European Learning Experience Platform - Connecting Centres of Vocational Excellence to develop and deliver innovative transnational C-VET training in AI, VR, social innovation
Project Acronym:	EULEP
Work Package:	2 - Market Analysis
Document title:	Qualitative Focus Groups on needs and relevant skills required by companies in the tourism sector and its supply chain about Artificial Intelligence and Virtual Reality. Final Report
Authors:	edited by Unioncamere, reviewed by INAPP, IFOA, Università degli Studi di Genova

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Introductory note

This document reports the conclusions of three Focus Groups organised by the Italian partnership of EULEP project in the framework of the activities of WP2 - Market Analysis. The Focus Groups were aimed at investigating the knowledge and use of AI/VR and related skills needs, from the point of view of different players of the tourism sector. Meetings were held online (via Zoom platform) on March 27th (panel "Experts") and 28th (panel "Enterprises" and panel "Training-University") involving participants from the business world, universities and sector experts, lasted two hours each and were led by external moderators: a tourism expert (Mrs. Flavia Coccia) and an expert in Focus Groups' moderation (Mr. Fulvio Pellegrini). The Focus Groups were recorded, while internal Unioncamere staff members acted as back-up note-takers. Please refer to the individual reports attached for details.

Aim of EULEP project

EULEP (European Learning Experience Platform) is a four-year European project (1st June 2022-31st May 2026), funded by Erasmus+ Programme. It brings together 20 organisations from 8 countries (Belgium, Austria, Cyprus, Spain, France, Italy, Latvia, Turkey), working together to make C- VET (Continuing vocational education and training) more attractive for lifelong learning, offer businesses new and tailor-made training modules that correspond to their skills needs in innovation oriented subjects (Artificial Intelligence, Virtual Reality and Social Innovation), establish or reinforce knowledge triangles at regional and national level thanks to the triangulation business - VET provider - European Digital Innovation Hub (EDIH), embed VET in regional economic development strategies and reinforce its governance, putting it on a sustainable path.

The project activities directly target VET providers, companies, potential VET learners from different horizons, EDIHs, public authorities and other stakeholders involved in the VET governance process or dealing with VET more widely.

We invite you to explore the project website, even to follow later the activities of EULEP learning experience Platform: https://eulep.eu/about-eulep/

Aim of Work Package 2

The aim of Work Package 2 was to lay the ground for the development of the training modules of the EULEP platform, through four specific goals:

• to identify the level of awareness and training needs of companies in the fields of Artificial Intelligence (AI), Virtual Reality (VR), Social Innovation (SI);

• to check the extent to which existing training modules meet companies' training needs and to come up with the best possible training scenario that meets companies' needs;

• to lay the basis for the future recognition of the newly developed training modules at national level (either as standalone modules or as part of larger curricula);

• to define common criteria for the development of transnational VET training modules.

Training needs of companies in the fields of AI, VR and SI were highlighted following a bottom-up and user-centred approach, through surveys and desk research in the participating countries.

Moreover, Italian country hub organised additional qualitative Focus Groups to study in depth skill needs of companies in the tourism sector and its supply chain on the selected topics. The FGs were attended by representatives of SMEs (Chambers of commerce, entrepreneurs and managers), HEIs (ITS networks and universities), VET and tourism sector experts.

The results of the survey, analysed and shared with the project partners, are presented in this report, which will form a basis for further review at education/VET provider level and for discussion in the VET councils.

Topic addressed

During the Focus Groups, the moderators sought to bring out speakers' opinions in relation to perceived skills gaps and training needs on highly innovative topics, such as those identified by the EULEP project. They stimulated discussion and guided the debate through topics deemed indicative of tourism sector development, in relation to the level of knowledge, use and understanding of the tools.

In particular, they aimed to detect:

1. recognisable features of change linked to the use of digital resources (such as Artificial Intelligence); user-centricity: demand collection systems and experience ratings (sentiment analysis) as factors for accelerating the evolution of supply;
2. reflections on digital innovation-driven change in tourism;
3. opportunities, constraints threats and incentives;
4. barriers to access: the chain of conditions enabling or hindering innovation: business attitudes towards digital tools (AI, VR etc.);
5. which factors should be invested in? How to develop the ongoing change (human capital, financial resources, management organisation)?
6. how to activate the Learning Chains.

Findings

Recognisable features of digital-related change (ex. Artificial Intelligence)

One of the main visible effects of change in tourism sector triggered by technological innovation is the polarisation and diversification of the demand/supply of services, which affects several generations of users (from the very young to the boomers).

In fact, the most immediate effect has been a significant diversification of demand/supply chains, which are not only very different from each other, but also very different from those of the past. For example, even the generation of boomers is approaching the use of digital systems applied to tourism in a very widespread (and unexpected) way.

Digitisation in tourism, paradoxically, has been accelerated by the Covid-19 pandemic emergency which, by necessity, has greatly restricted the tourism experience. In fact, although the trade and tourism sectors have suffered more than others from the pandemic shock, there has been a widespread multiplication of opportunities for businesses in the sector, especially small ones, towards a desirable paradigm shift.

They were called upon (obligatorily) to acquire new organisational skills and digital tools in order to cope with the unexpected and sudden changes caused by the pandemic. New ways of interfacing with customer-tourists, opportunities to provide virtual experiences (virtual reality systems) also with a view to stimulating future purchase desires, adaptation of their facilities and services to the expected forms of social distancing (service booking systems, etc.), accelerated the production and use of new digital tools, many of which were created to meet ad hoc needs.

This has highlighted, however, how the opportunities offered by digital technology have been welcomed by most tourism enterprises, especially the smallest ones, as a response to an emergency more than as a real business strategy.

Nevertheless, the cognitive and organisational development tools, provided especially by AI systems, have undoubtedly entered the common vocabulary.

Although they are not yet used on a massive scale, some tools, such as:

- openings and closures dictated by specific requirements (in this case, by Covid)
- bookings management, exposed to the constant risks of cancellations
- concierge services digitisation
- promotional activities, even for completely new and/or niche services
- distance training;
- availability of data, big data, for reading customer trends and revenue management strategies,

were widely perceived as mandatory evolutionary milestones for all.

Despite high technicality of digital solutions, the grafting of advanced technology into tourism sector still largely lies in the interconnection of knowledge (history, art, local milieu, technology).

Although processes' complexity is constantly increasing, relying only on the sophisticated instrumentation of AI, without interfacing with other skills (social, humanistic and economic) does not

automatically support evolutionary change. As our interlocutors underline, AI should in fact be understood not so much as a tool for identifying/releasing solutions, but rather, and above all, as a tool to support decision-making, which remains responsibility of people, at all levels.

Change and technological evolution in tourism should, therefore, enhance the use of hybrid systems, based on complex and already high-performing technological systems, but subject to continuous improvement processes linked to business and user needs and run by entrepreneurs first.

To the concerns about the reduction of the employment base due to innovation, speakers argued that in tourism, even the most advanced technology is not only or above all labour saving, for many reasons. Tourism activities, in fact, are carried out and strengthened thanks to relational skills that, even with a highly sophisticated and automated system, cannot be completely replaced by machines. On the contrary, it is precisely the mix between technology and the quality of relationships that makes the difference.

It is essential that technology, which could be too pervasive, leaves especially face-to-face relations between tourism actors intact, at best enhancing them.

The concept of "tourist" as "temporary citizen" makes tourism a promoter and container of experiences, of opportunities for enjoyment, but above all of multiple social relations, which must remain real.

In tourism experience, human relations are increasingly being complemented by 'extreme' solutions, such as the use of ChatGPT to automatically respond to reviews: this opens the possibility of harnessing the potential of artificial intelligence to conduct much more accurate and faster experience ratings and sentiment analyses. Consumers' thoughts and perceptions are used to quickly adapt tourism offer, making it more responsive to specific needs.

On the other hand, the most interesting new AI systems are mainly still linked to the automation of procedures such as check-in and check-out, and/or opportunities to customise in-room services (from the choice of pillow to the ideal room temperature, etc.) that largely improve customer enjoyment and satisfaction.

Reflections on digital innovation-driven change in tourism

Great opportunities offered by the digital revolution, driven by the increasing use of AI, have been taken up mainly by large tourism companies, which have understood its application potential. As in other sectors, therefore, it is the large corporate size that has dominated the change, in which the use of standard industrialised models, mainly linked to large, planet-wide digital platforms, has become established.

On the other hand, the largest companies were also the first to customise and personalise the service offerings provided with AI.

In other words, an awareness is growing that, in order to have effective high-tech systems, it is necessary to act profoundly on the individual customer experience, 'case-by-case'.

This has modularised innovation, making it usable over time even for smaller companies.

Furthermore, the pervasiveness of technological diffusion has contributed to the increasing democratisation of technology, which, once developed, has become more and more accessible even

to smaller and least equipped businesses.

This democratisation, over the last 15 years, started with the ICT development in fields close to tourism. Just think of Google Map, or Google Street view, which benchmarked the possibility of using personal information on a global scale, becoming part of our daily lives.

Even though the large players apply advanced technology in a standardised manner, in tourism it is more necessary than ever to craft and apply industrial applications in a scalable and usable manner, favouring a tailor-made modelling, as tourism experience risks failing without it. Unfortunately, the prevalence of small and very small companies in Italian entrepreneurial fabric seems, on the contrary, to favour the innovation of large players, at a level that is still far inadequate to the potential and needs of the tourism sector: the most potential users have, therefore, a real problem of access to fruition, promotion and production of innovation, as well as a lack of useful and widespread skills to access innovation.

A relevant part of the Italian entrepreneurial system still associates "tourism" only with "promotion", which often leads to the creation of showcase portals (basic technology), neglecting or underestimating all those strategic functions of digital transformation and innovation, based on direct and virtual interaction with potential users.

Company size seems to have an impact on the low propensity of traditional entrepreneurship forms to change, representing one of the main factors of weakness of Italian tourism system. The speakers recognise that tourism lacks a managerial culture oriented towards organisation, management, integration and innovation.

Opportunities, constraints, threats and incentives

Innovation promoted by AI is characterised by a continuous effort in the evolution of process digitisation.

Since the organisation of a tourism service is a complex process (think of a large hotel), innovation should be able to interact with all the factors that characterise this complexity.

Application of AI to logistics, for example, is yielding remarkable results. Thanks to the application of AI systems, a new way of managing services can be realised, but this evolutionary process is easier for a large company (hotel chain) than for a small entrepreneur.

For small tourism enterprises, the use of digital technology could be promoted through aggregation, both in the form of chains and entrepreneurial network, also spread at territorial level, so that access to innovation can become "convenient and sustainable".

The speakers also emphasised that a key factor in digital revolution and the use of AI applications is to connect physical systems with digital systems. Somehow, the multidimensional and multisensory dimension of the tourism experience is affirmed and facilitated by digital world 'two-dimensionality'.

Moreover, to allow an leap in the Italian tourism system, the lack of skills and expertise in small businesses must be addressed (see below). In fact, knowing how to use the software available on the market is not enough, but it is necessary, first and foremost, to understand what machines do in order to correctly implement business strategies. Thus, existing limitations are cultural in nature, as well as in the entrepreneurial approach to change.

Concerning the above-mentioned concept of technological democratisation, it was pointed out that open source standards are offering new opportunities, but hardly usable by SMEs. In fact, the application of these resources should be based on new entrepreneurial strategies and organisational structures, especially those related to the standardisation and taylorisation of services and processes. Due to the lack of an adequate company size in the national production fabric, these tools are hardly used.

Small enterprises, which account for almost 90% of the sector, are still far from fully understanding the benefits that innovative ways of use and supply can bring and their potential for change. The few existing success stories are linked to the contextual presence of factors that are not all reproducible in other areas/businesses/territories.

The evolution of VR application in tourism has created phigital systems, which connect virtual enjoyment with physical experience. Experts pointed out how 3D fruition can be supported by the new virtual reality systems, which integrate the real dimension with new modes of representation (virtual + real VR).

Visiting a museum, a landscape, an urban route can be physically experienced with digital supports that amplify their cognitive potential. For example, the possibility to select additional information according to one's interests, increases the possibility of seeing and experiencing a place, an archaeological site, a street, etc. in an immersive and phigital way, 'as it was' and 'as it is'.

In other words, Virtual Reality can broaden the users share, in a phigital system it can, at the same time, enrich the experience with additional informative and cognitive elements and become an all-round cultural experience.

The exclusively virtual enjoyment of a tourist asset could also represent a 'threat' to the tourist act itself, depowering if not nullifying the appeal of the travel experience as such.

In the two years of 'isolation' due to Covid, however, the possibility of virtually representing places, experiences, cultural sites broadened users and potential tourists quota, bringing together targets of different cultures and ages. Virtual reality or the XR (metaverse) have thus proved to be killer applications for tourism, and the same can be said for training, also in the field of tourism.

Turning to the threats, one of the main obstacles to digital innovation, and in general to tourism industry digitisation, is the lack of demand for professionals with specific digital innovation skills from businesses. Technological evolution thus runs the risk of not relying on a new generation of professionals, who use it on a everyday basis exploiting its potential, and who could be its natural promoters.

Universities provide adequate digital skills within pure disciplines but, to trigger real change in tourist businesses, trade organisations must be stimulated to invest in interdisciplinary training, combining relational and technical skills, primarily digital.

Italian education system (from Universities to Master's degrees, Business Schools and Academies), despite its shortcomings, runs the risk of overloading its training offerings compared to market demands and creating a generation of "hypertrained" young people, destined to clash with an uncompetitive entrepreneurial world scarcely inclined to innovation, perceived as too radical, generating a general downgrading in the use of available skills.

Moreover, it is currently very difficult to connect AI innovation with market demand: for instance, innovative start-ups struggle to find outlets in a closed innovation market and hardly go beyond a generally average lifecycle.

Barriers to access: conditions enabling or hindering innovation; business attitudes towards digital tools (AI, VR etc.)

In summary, during the focus groups the following elements regarding barriers to accessing the use of AI emerged:

- the costs, in terms of accessibility and sustainability over time, due to the introduction of high technological systems. They imply, in many cases, great uncertainty in relation to ROI (Return Of Investment)
- the entrepreneur skills, that shape his/her mindset towards innovation
- the difficulty of transferring adequate training to staff and, more generally, to all the professionals involved in the business process.

This highlights the need to overcome emergency logics and favour of a long-term approach, starting with the digital literacy of all business practices (for micro enterprises first).

Italy's positioning in the international tourism market value chain is critical precisely in relation to its great unexpressed potential, even if the demand for tourism is still high in all market segments and for all tourism-related goods of all ages and types. This makes Italian tourism potential growth enormous.

However, it is not matched by an adequate supply, which is evolving slowly and is unable to respond to the changing practices, tastes and expectations expressed by customers, especially foreign ones.

Small and medium-sized enterprises face greater difficulties in achieving change, due to the difficulty in accessing opportunities and tools without suitable accompanying paths (financial, organisational, training).

Tourism lacks balanced 'matrix' policies, capable of offering support to progressively overcome structural deficiencies, which greatly increases the complexity of the sector.

Moreover, as shortcomings are deeply interconnected, they must be addressed in a synergetic manner (size, quality of supply, skills gap, ability to be on the international market, digitalisation).

A further knot is the cost risk perception. On this, connection is missing between those who do digital innovation and small tourism enterprises, which perceive its value but are unable to implement it.

The speakers referred to three main categories of tourism enterprises:

- the first, characterised by a strong drive for innovation and international market presence, usually larger companies
- a second group of "imitators", such as companies whose management or owner/entrepreneur already has an innovation oriented DNA
- a third group, representing most of the sector companies, reluctant to innovate either because they consider it out of reach or because they feel no need for it.

This leads to a first conclusion, the low demand for AI is linked to the company size first.

Small companies, which account for about 90% of the tourism industry in Italy, are still far from innovation and, at the same time, struggle to plan stable organisational changes that would allow for an effective internalisation of innovations.

A valid strategy for fostering innovation seems to be to promote not so much its development as its diffusion and usability: in Italy, in fact, innovation appears to be pursued mainly in an imitative way and driven by players acting at an international level.

It usually passes through the specialisation and standardisation of practices (costs, complexity of implementation, accompanying, etc.) enabling its proper dissemination: when innovations lose most of their risk potential, then they become attractive to "middle earth" businesses.

They, in fact, they are unwilling to pay the costs of change by themselves and they feel comfortable and encouraged to innovate from observing and imitating others.

Regardless of the intentions of the players, the main obstacle to innovation lays in the forms of innovation itself and in the ground of diffusion, as many tourism products and services tend to remain prerogative of big foreign players.

They have built a specific innovation market, whose tools enable companies:

- join other successful players (chains)
- to network (brands)
- to take their own risks by investing in the services customisation.

The issue is precisely the dissemination, the specialisation and standardisation of existing practices within user-friendly logics, able to produce collaborative dynamics and positive-sum games.

Moreover, some of these behaviours overcome the company size problems, which remains one of the most relevant limits to successful innovation.

Experts stressed, in fact, that good technology is technology "which cannot be seen", capable of being a model of usability for everyone, which "hides" the complexity of machine learning, AI and VR systems that underlie tourism application models.

Although high performing, this "hidden" innovation must be demanded: the question therefore remains of how to address the companies' demand for innovative services and products. The stories of the big companies attending at the focus groups suggest that aggregation is a way to accelerate and make many innovation processes sustainable.

Which factors should be invested in? How to develop the ongoing change (human capital, financial resources, management organisation)?

The starting point is that companies that turn to digital innovation, including that acquired from external suppliers, undoubtedly gain benefits from their choice. Such benefits further enrich their potential thorough the availability of valuable professionals within the organization.

In fact, besides being Labour saving in some cases, technology is above all a generator of work quality. From different possible points of view, it can be argued that:

- automation of some processes optimises working time
- staff are freed from repetitive and unrewarding tasks and can expand their range of knowledge and experience in higher-skilled fields
- freed up time allows for greater creativity at all levels within the company.

Furthermore, although low remuneration labour contracts can be a difficult obstacle to overcome, the evolution of a company into digital innovation can improve the investment.

The digitised services' cost amortisation can offset costs by overcoming the current system of low remuneration for low-skilled staff.

On another side, speakers argued that tourism enterprises, especially small and micro ones, are very pragmatically focused on their business and do not pay attention enough to the work quality.

In particular, because of the social and economic crisis due to pandemic, companies are reluctant to recruit suitably skilled staff and just manage 'known' and non-risky routes.

Despite the push towards digital innovation and the use of advanced technologies, supported by European recovery programmes, they struggle to understand how much the application of advanced technological models can support their choices and develop their market. On the one hand, tourism is becoming aware of the opportunities related to high technology, but on the other hand, it fails to imagine it applied to itself.

Intelligent systems based on Big Data change companies' processes, but to effectively change the whole business system, they must be supported by appropriate skills. A small hospitality business or a single destination does not have the skilled personnel and resources to fully enter the world of digital transformation. Without ad hoc expertise, it is very difficult to change businesses attitude towards digital innovation, for this reason, the role of the public sector is fundamental and a pact between the public and private systems must be stimulated.

This pushes for sustainable models and 'stimulating' paths for the 'smaller' business and implies that it is necessary:

- to implement and apply enabling technology, with technology models developed on an industrial scale that can be applied and scaled up in an artisanal manner for small and medium-sized enterprises. The development of large industrial AI and VR systems (e.g. the META operation) is still not the solution for the vast majority of Italian tourism systems
- to create industrial frameworks for handcrafted vertical applications, punctual and functional to the different needs of territories, destinations and tourism enterprises.

This is not enough: new ways must be found to stimulate the business world, reluctant to change, even through a reward system for companies that undertake new processes creation and industrial development.

In other words, to make public spending more efficient, one should have the courage to implement a bonus system for companies that are willing and able to make a breakthrough.

One of the most functioning mechanisms in Italy is emulation: rewarding companies that already have features of innovation could trigger in others the desire to grow. But it is necessary to select 'worthy'

beneficiaries carefully and to accompany them in a decisive manner, avoiding scatter funding, which would risk 'crumbling' results and not achieving the desired effects.

As regards the problem of entrepreneurial dwarfism, the public system should encourage enterprises to federate, developing rewarding strategies, accompanying services and supporting business risks.

How to activate learning chains

One of the key points in enabling tourism companies to use high-tech tools related to AI is training.

In Italy, 95% of companies have less than 45 employees. Italian tourist companies' small size explains, though not completely, the low entrepreneurial disposition towards innovation.

This depresses the demand for new skills, which is still generally unsuitable in relation to the tasks raised by the ongoing technological revolution, in tourism as well.

The result is a mismatch between training institutions and subjects that actually use trained personnel, but the habit of using trained personnel in an appropriate and targeted manner must start from basic processes, which are still weak and not widespread.

To open up to 'digital culture' in tourism sector, a computer literacy effort in tourism sector is essential, in the sense of wide diffusion of professional use, rather than digital tools. Understanding the potential of digital skills' widespread use in the sector is very important as well.

According to training experts, Italian education and training system is not yet ready to cope with the current evolutionary change in digital processes.

Technology, in fact, enters, disrupts and modifies production and work processes, while training paths are still set up vertically from individual technical subjects.

Moreover, whether technical (IT) training properly prepares IT technicians, on the other hand AI evolution is not well represented in Italy, even among large IT companies. They themselves have not yet fully understood the value of change, especially in terms of concrete application in services, access to information and its targeted and effective use.

Training should thus act in promoting change in processes and organisations, so as to connect technology evolutionary and disruptive thrust with its functional applications.

Businesses talk a lot about training, claim for trained personnel, but do not invest adequately in training.

A distinction should also be made between basic training (university level) and interdisciplinary training ("in-company"), or specialisation, for example in Business Schools.

This would make it possible to imagine a progressive and evolutionary training, structured in deeply integrated steps. At this stage, however, no linkage and thematic integration exist between the training chains, which implies a significant waste of resources, interests and growth opportunities.

In this context, the public sector should have the fundamental task of supporting the businesses (especially the smallest ones) by providing, for example:

- knowledge tools on financing/investment opportunities (calls for tender or subsidised financing)
- application systems adaptable to small and medium-sized enterprises, etc.

Feeding open platforms with key information coming from systems already on the market, developers, etc., would overcome access barriers to knowledge and use of technological and digital transformation and evolution models.

One solution to activate an on-site continuous learning system is taking advantage of the most innovative companies' virtuous examples in the territories (dissemination of good practices).

It is also important to focus on the valorisation of professions and skills, in order to stimulate new generations: in the last two years, in fact, especially young people have become disaffected with tourism professions.

In terms of training provision, it would be necessary to move away from scattered and fragmented training towards structured, systematic investments. Although some big companies already collaborate with Universities or Academies in segments of undergraduate or postgraduate education, university offerings often do not meet tourism enterprises demands for skills.

In summary, training on technological innovation, provided by Universities, Masters, Higher Education Academies, offer students with knowledge and skills that exceed Italian companies' request.

It is precisely the lack of a precise demand for innovation that reverberates:

- on the rigidity of university curricula
- on the low appeal of tourism professions
- on the failure of labour market to exploit innovative professionals.

New professional profiles, such as the Innovation Designer or the Destination Manager, coming from interdisciplinary training that combines technical skills with relational and economic ones, still lack legal recognition of their qualifications. Nor do they find recognition in relation to their systematic use in companies or the possibility of their skills being certified.

This is a widespread condition in Italy, despite the fact that many regional laws on tourism organisation formally recognise DMOs as public and public-private organisations useful for the development of tourism and the economy in general.

This creates an obvious contradiction between the world of training and territorial-level tourism organisations, which are betting on these figures and on formal recognition paths for new professions. These would further strengthen and recognise to the whole process.

Finally, to complete transversal and innovative training, the transfer of transversal skills (soft skills) should be adequately strengthened, within the training packages at all levels. In fact, soft skills favour and amplify the understanding of all the incentives coming from tourist offer and the relationship with its users.

Annexes

Annex 1: 27th March 2023 Focus Group Report, Panel "Experts"
Annex 2: 28th March 2023 Focus Group Report, Panel "Enterprises"
Annex 3: 28th March 2023 Focus Group Report, Panel "Training-University"

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WP2 – MARKET ANALYSIS

FOCUS GROUP ON ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY IN TOURISM

PANEL "EXPERTS"

(March 27th 2023)

REPORT

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Document title:	Qualitative Focus Groups on needs and relevant skills required by companies in the tourism sector and its supply chain about Artificial Intelligence and Virtual Reality. Annex 1: Panel "Experts" Report
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QUALITATIVE FOCUS GROUPS ON NEEDS AND RELEVANT SKILLS REQUIRED BY COMPANIES IN THE TOURISM SECTOR AND ITS SUPPLY CHAIN ABOUT ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY. PANEL "EXPERTS" REPORT

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Introductory note

This document reports the conclusions of the first Focus Group held by Italian partnership of EULEP project, specifically dedicated to tourism, a high priority industry in Italy's economy.

The Focus Group was held on March 27th 2023 and aimed at investigating the knowledge and use of Artificial Intelligence and Virtual Reality and related skills needs, from the point of view of tourism experts.

The results might indicate the best strategies for the evolution of the tourism sector, in Italy and in Europe, and provide strategic guidelines, useful to meet the demand for innovation promoted by the European Commission.

The training needs, detected with a bottom-up and end-user-centred approach, will be taken into account to develop some of the training modules of EULEP open learning experience platform, that Unioncamere will dedicate to innovative AI and VR topics applied to tourism sector and its supply chain.

Introduction of participants

Gualtiero Carraro is Founder and Owner of Carraro-LAB (Brescia), an Innovation Design studio founded with his brother Roberto in 1996.

Carraro-LAB develops platforms, technologies and innovative content in the most advanced areas of digital media: Metaverse, Virtual Reality, immersive installations, Augmented Reality, Social Magazine, immersive education, Pervasive Museum, Web 3.0 and other cross media applications. The firm created the first tourist metaverse for Procida 2022, the immersive APP for iPad "Roma Virtual History", the first mass Virtual reality experience during Expo 2015, the first street view for PG Visual (2006), the first applications for Oculus and GEAR VR, museums, video installations and immersive visitor centres. It developed a web 3.0 platform for cities and territories with immersive portals for tourism and cultural promotion, gamification solutions for discovering territories, immersive audio guides for historical centres and monumental sites, 3D maps and infrastructure simulators.

It has won 11 international awards for digital culture in Europe and the USA and contributed to the birth and success of several innovative start-ups.

In June 2022, it launched the first 400-hour course on Metaverso with the Lombardy Region.

Lorenzo Gottin is Managing Director of Develon (Altavilla Vicentina, VI), a group of digital companies that designs and implements advanced solutions based on web languages dedicated to specific market segments, supporting companies' digital transformation, helping them improve their business performance, developing technological platforms integrated with corporate assets and designed around their needs.

HBenchmark is Develon's Hospitality Data Intelligence platform, which collects data from hotels and campsites management systems and releases them in real time, anonymously and aggregated with past and future trends in the local market, to guide commercial, marketing and investment strategies.

HBenchmark provides and analyzes information in real time, allowing for the projection of future scenarios. It also allows a territory or a tourist destination to know in advance the occupancy rate and economic value of the tourist presence, highlighting positive and negative dynamics and guiding the choices of the policy maker in the most effective and efficient way. The platform's answers allow to constantly keep an eye on a destination health state, suggest actions to operators, and optimise communication actions.

Mario Romanelli is Sales Director Italy of The Data Appeal Company SpA (formerly Travel Appeal, Florence), founded in 2014 and acquired in 2022 by Almawave Spa, a company listed on the Euronext Growth Milan market of Borsa Italiana and part of the Almaviva group.

Through a proprietary algorithm, based on artificial intelligence, machine learning and semantic analysis, Data Appeal collects, measures and analyses all the feedback published online, combines it with geographic and contextual data and offers companies, from any sector, the opportunity to exploit data to guide business choices, gain in-depth knowledge of the market and obtain a competitive advantage. The company's goal is to democratise and simplify the use and understanding of data, to help companies and institutions make effective and informed decisions and accelerate progress towards a more sustainable and inclusive world.

Elena Rossi is Partner in Ad Artem (Milan), a company active since 1993 in the field of cultural heritage valorisation. It helps cultural institutions (public bodies, private companies, museums, exhibition organisers) to carry out wide-ranging cultural projects. Its main objective is, in fact, cultural dissemination at all levels: adults, tourists, students of all levels, families with children, VIPs, institutional guests. It realises initiatives for the enjoyment of the artistic and cultural heritage, from content to marketing, from communication to operational management; guided tours in different languages, conferences, educational workshops at monuments, museums and exhibitions in Milan and the Lombardy region; experiential paths, animated visits, ludic visits, workshops, worklabs, campuses, cultural walks; tailor-made cultural events for different audiences, in particular for companies.

Antonio Scuderi is Founder and CEO of Capitale Cultura Group/ARtGlass (Verona/Lugano/Monza/Roma/Catania/Richmond VA), a leading company in digital development and innovation for culture and tourism. Manager, professional journalist and lecturer, he has worked at Gruppo 24 Ore as Managing Director of 24 Ore Cultura and Alinari 24 Ore and at De Agostini Editore, as General Manager Content and Editorial Coordination. He was editor and coordinator of national and local websites and newspapers (Sapere.it, Repubblica.it, Il Nuovo.it, Mediasetonline.com, La Notte, Sei Milano TV). He graduated in Political Science, attended the Carlo De Martino school of journalism in Milan and holds an Executive International MBA. He teaches cultural and creative enterprise development, marketing and extended reality at IED, Treccani Accademia, Link Campus University.

Fabio Tarantino is Founding Partner and Sales Director of Altrama Italia (Cosenza, Rome, Salerno, Bologna), software house established in 2014 that creates web digital solutions and manages and

produces editorial content for web platforms. It supports businesses and public administrations in optimising their business and enhancing territorial services. Its constant research and development activity has led to two important projects on Artificial Intelligence in tourism:

1) Travel in the Future, a tool for forecasting the flows of tourist destinations;

2) DANTE (Data ANalysis for Tourism Experience), a dashboard for content management of tourism web portals, based on Artificial Intelligence.

Moreover, it designs, develops and manages portals and web applications, mainly for tourism and cultural heritage, Apps for iOS and Android; it worked at the integration of tourist information portals of the Emilia-Romagna and Calabria Regions with the national TDH (Tourism Digital Hub).

Findings

Recognisable features of digital-related change (ex. Artificial Intelligence)

The Covid-19 pandemic emergency has accelerated the evolution of digitisation in tourism. The trade and tourism sectors suffered more than others from the pandemic shock, but this represented at the same time a boost opportunity for micro-businesses, that had to gear up with new digital tools, in order to cope with market changes: new ways of interfacing with customer-tourists, opportunities to provide virtual experiences (virtual reality systems) to stimulate tourist shopping desires, adaptation of their equipment and services to comply with the safety distance (service booking systems, etc.), mediating customer interactions through digital tools.

Most tourism enterprises, however, have adopted opportunities and tools provided by digital innovation as an emergency response rather than as a real business strategy.

Businesses common vocabulary has been enriched by cognitive tools that only AI systems can provide for interpreting sudden market and economic changes (such as openings and closures dictated by Covid risk zones, bookings and cancellations, digitisation of concierge services, promotional activities, remote training and professionalisation, availability of big data for reading customer trends and revenue management strategies).

Reflections on digital innovation-driven change in tourism

Experts agreed that, in terms of digital transition and innovation in tourism, digital skills will continue to be increasingly sought after, in the sense of basic skills (such as the use of Internet technologies, visual and multimedia communication tools).

In the last 15 years, the evolution of digital systems has had a very strong evolutionary push: just think of the development of applications such as Google Maps or Street view, just to mention the most widely used ones, which have become part of our daily lives. But if the big digital players apply advanced technology in a standardized way, a lot of work must be done for tourism businesses, to "craft" and apply industrial applications in a scalable and usable manner, with a tailor-made modelling.

Furthermore, in Italy a widespread and persistent conception still associates "tourism" only with "promotion", which often leads to the creation of "showcase-portals", neglecting or completely underestimating the strategic functions of digital transformation and innovation. Precisely the low disposition to change entrepreneurial mentality on these topics is one of the main weakness factors of Italian tourism system, poorly oriented towards organisation, management, integration and innovation.

Opportunities, constraints, threats and incentives

Some important innovation drives have been developed in Italy, but their use and exploitation has been taken over by the big players (Google, Amazon, etc.), who tend to focus and define tourism business according to their corporate objectives.

New opportunities are opening lately in the world of digital innovation and AI: IT evolution has defined open-source standards, but to be successful in tourism, these should be tailored to the strategies of tourism SMEs.

Technology has the power to make an asset more usable and to be at the service of a project or an activity: Big Data, artificial intelligence algorithmic systems, neural networks of machine learning would allow tourism enterprises to develop the best strategies to increase their market and to introduce the most suitable services for their customers' needs. For instance, sentiment analysis systems would enable them to learn about consumers' thoughts and perceptions and adjust their ability to respond appropriately to their customers.

The evolution of AI systems makes it possible, in short, to process and understand volumes and varieties of data, otherwise unreadable. Opportunities offered by AI systems and processes are particularly suited to tourism, but business and governance system must acknowledge and use them to grow and improve performance.

The demand for AI systems is still strongly linked to company size. Small companies, which account for almost 90 per cent of the sector, are still far from fully understanding its usefulness.

As far as Virtual Reality is concerned, its application could even represent a 'threat' to the tourist act, if it were only applied as a virtual travel experience mode, alternative to the real one. It is true, however, that over the years of social 'isolation' for Covid, the possibility of virtually representing places, experiences, cultural sites, has led to a widening of the audience of users and potential tourists, bringing together targets of different cultures and ages. Virtual Reality or XR (metaverse) are killer applications for tourism, as well as for training, above all for training in tourism.

The evolution of VR applications in tourism has created 'phigital' systems, which connect virtual enjoyment with physical experience. Experts emphasised how 3D dimension of tourism can be supported by the new virtual reality systems, which explore reality in new ways. Visiting a museum, a landscape, an urban route can be physically experienced with digital media that amplify knowledge, providing the possibility to select different information and insights, according to one's interests, and to see and experience a place, an archaeological site, a street, etc. in an immersive and "phigital" way, "as it was" and "as it is".

In other words, VR, as well as all digital innovation, can expand the user quota and enrich cultural experience, whether experienced in a phigital system.

Barriers to access: conditions enabling or hindering innovation

The main resistance to innovation seems to be the size of enterprises: other barriers to access are basic skills and the lack of professionalism in small and micro tourism enterprises.

Often the problem lies in a poor information and communication strategy pursued by the public sector, which does not know how to dialogue with the private system: this makes it very difficult for small and medium-sized enterprises to access tools and opportunities, because they do not know where to find useful instruments.

The crux is precisely to disseminate technologies, specialise existing ones and make the approach to technology more user-friendly. Experts stressed, in fact, that good technology is technology "which cannot be seen", capable of being a model of usability for 'everyone', which 'hides' the complexity of machine learning, AI and VR systems that underlie tourism application models.

Another barrier is the perception of costs by businesses: this aspect is affected by the lack of connection between those who do digital innovation and small tourism businesses.

Business attitude towards digital tools (AI, VR etc.)

Small and micro tourism enterprises are very pragmatically focused on their business and often, especially after the last two years of social and economic crisis, they just manage what is already 'known'. Despite the push towards digital innovation and the use of advanced technologies, supported by European recovery programmes, they struggle to understand how much the application of advanced technological models can support their choices and develop their market. On the one hand, tourism is becoming aware of the opportunities related to high technology, but on the other hand, it fails to imagine it applied to itself.

Which factors should be invested in? How to develop the ongoing change (human capital, financial resources, management organisation)? How to activate learning chains?

Intelligent systems based on Big Data change companies' processes, but to effectively change the whole business system, they must be supported by appropriate skills. A small hospitality business or a single destination does not have the skilled personnel and resources to fully enter the world of digital transformation. For this reason, the role of the public sector is fundamental, because it is necessary to change the business mindset towards digital innovation, to inoculate skills, and this can only be achieved by fostering a pact between the public and private systems.

To stimulate small businesses, it is necessary to propose sustainable models, making technological models developed on an industrial scale applicable and scalable. Large AI and VR systems (e.g. META) cannot work in tourism systems. It is therefore necessary to adapt industrial frameworks for vertical, punctual and functional applications for different needs of different realities - territories, destinations, tourism enterprises, to make technology "enabling", to activate innovation processes.

One of the key points for this "enabling process" is training. The digital revolution is also causing strong changes in the demand for new professional profiles. On this too, tourism businesses need to reconsider their point of view and understand that change can be achieved only if new professional skills required by the market are acquired.

It is essential to act on two fronts:

- on the one hand the school, which must be able to use virtual systems with very targeted applications, advanced digital tools for training, the therapeutic metaverse, capable of bringing about a change in personal and business processes
- on the other hand, businesses: new technological processes have to be triggered within the production system, understanding the need to use technology that is already part of everyone's life in a systematic and structured way.

A new professional figure to be introduced into the world of tourism is the innovation designer, who can pave the way for new systems/processes to develop tourism products, application models for businesses and destinations, bridging the innovation gap that divides Italy from other European countries.

Public bodies have a fundamental task, which is to support the private system: by creating an open, shared platform that contains all the useful information for businesses (systems already on the market, applications adaptable to small and medium-sized enterprises, information tools on investment/financing opportunities, non-repayable or subsidised, incentives, calls for tenders, etc.), still existing barriers to access, knowledge and information on systems, models of technological and digital transformation and evolution could be overcome.

This document was edited by Unioncamere – Unione Italiana delle Camere di commercio, industria, artigianato e agricoltura, and reviewed by IFOA, INAPP and University of Genova
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WP2 - MARKET ANALYSIS

FOCUS GROUP ON ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY IN TOURISM

PANEL "ENTERPRISES"

(March 28th 2023)

REPORT

EULEP - European Learning Experience Platform
Connecting Centres of Vocational Excellence to develop and deliver
innovative transnational C-VET training in AI, VR, social innovation

Co-funded by the European Union

Project Name:	European Learning Experience Platform - Connecting Centres of Vocational Excellence to develop and deliver innovative transnational C-VET training in AI, VR, social innovation
Project Acronym:	EULEP
Work Package:	2 - Market Analysis
Document title:	Qualitative Focus Groups on needs and relevant skills required by companies in the tourism sector and its supply chain about Artificial Intelligence and Virtual Reality. Annex 2: Panel "Enterprises" Report
Authors:	edited by Unioncamere, reviewed by INAPP, IFOA, Università degli Studi di Genova

QUALITATIVE FOCUS GROUPS ON NEEDS AND RELEVANT SKILLS REQUIRED BY COMPANIES IN THE TOURISM SECTOR AND ITS SUPPLY CHAIN ABOUT ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY. PANEL "ENTERPRISES" REPORT

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Introductory note

This document reports the conclusions of the second Focus Group held by Italian partnership of EULEP project, specifically dedicated to tourism, a high priority industry in Italy's economy.

The Focus Group was held on March 28th 2023 and aimed at investigating the knowledge and use of Artificial Intelligence and Virtual Reality and related skills needs, from the point of view of enterprises in tourism sector.

The results might indicate the best strategies for the evolution of the tourism sector, in Italy and in Europe, and provide strategic guidelines, useful to meet the demand for innovation promoted by the European Commission.

The training needs, detected with a bottom-up and end-user-centred approach, will be taken into account to develop some of the training modules of EULEP open learning experience platform, that Unioncamere will dedicate to innovative AI and VR topics applied to tourism sector and its supply chain.

Introduction of participants

Allegroitalia Hotel & Condo: Allegroitalia Hotel & Condo is a hospitality model created on the value of Cheerfulness, Art and Love for Italian fashion brands, hotel group with 10 facilities in Italy between hotels and condotels, an increasingly trendy market in the international hôtellerie, of which the group has been a proud pioneer. Allegroitalia was, in fact, the first Italian hotel company to open a Condohotel in Italy, in Via San Pietro all'Orto in Milan, in the trendy location of the Quadrilatero della Moda.

Ten structures are part of the group: Allegroitalia San Gallo Firenze, an artists' hotel in the centre of Florence with a garden for aperitifs; Allegroitalia La Spezia 5 Terre: a hotel with a panoramic terrace overlooking the sea; Allegroitalia Fratta terme, a SPA hotel with a thermal centre in Romagna; Allegroitalia Nazionale Volterra among the historic villages of Tuscany. Condotels: Allegroitalia San Pietro all'Orto in Milan, Allegroitalia Terme Villa Borri, condotel with spa centre, Allegroitalia Elba Capo d'Arco and Allegroitalia Elba Golf on Elba Island, Allegroitalia Ostuni Agritrulli in Puglia and Allegroitalia Porto Cervo on the Emerald Coast.

Piergiorgio Mangialardi (President) participates for Allegroitalia Hotel & Condo is.

BWH Hotel Group Best Western: BWH Hotel Group is the largest hotel group in the world and in Italy it has 170 hotels, located in the main cities of art and tourist destinations, which stand out for their high international quality standards and authentic Italian hospitality. The User Experience of hotel guests is an important topic for BWH Hotel Group and is constantly evolving. Thanks to the Digital Customer Journey, the welcome begins at the moment of booking and continues until the guest's post-day. One of the many tools that support the customer during the booking phase, during and after the stay, is the Best Friend application: the Messenger-based chatbot allows customers to manage

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their reservation independently, personalise their stay, discover events and resources in the destination and get in touch with the hotel staff.

BWH Hotel Group brings value and innovation to the affiliated structures, also thanks to a team of 70 experts with the aim of enhancing the hotels' potential.

Stefano Lombardi, Director Dev & Digital Ecosystem, participates for BWH Hotel Group.

Radisson Hotels: international group present in more than 95 countries, with nine distinctive brands and more than 1,100 hotels. Since 2018, Radisson Hotel Group has been part of Jin Jiang International and is now one of the top two largest hotel groups in the world by number of rooms and hotels.

Mauro Vinci, Vice President Business Development, participates for Radisson Hotels.

To Florence hotels: Prestigious hotel chain in Florence, To Florence hotels offers 4-star hotels, quality restaurants, and locations equipped for events and weddings.

Giancarlo Carniani, General Manager, participates for To Florence hotels.

Yellow Square: chain of latest-generation hostels with a strong focus on the concepts of inclusion and sustainability, Yellow Square brings forward a new concept of hostel, not just a place for tourists, but an experiential hub where one can make new acquaintances, discover the city not as a tourist but as a local, with spaces that become meeting places where services and experiences can be shared.

Marco Coppola, Chief Innovator Officer & Co-Founder, participates For Yellow Square

Findings

Recognisable features of digital-related change (ex. Artificial Intelligence)

The application of AI in tourism businesses (the larger ones) is already underway, and its effects are important in terms of:

- enhancement of human resources: by delegating repetitive tasks to "machines", relational professionalism can be recovered;
- customer loyalty: CRM systems developed with AI models make it easy to identify services and provide fast and effective responses to customer needs.

Digital innovation in Italy is in its infancy and is still evolving. Application of AI systems has mainly focused on the creation of experiences and tour packages and on the possibility to respond more quickly to customers' requests for services.

Reflections on digital innovation-driven change in tourism

20 years ago, Internet revolution and the birth of the OTAs were disruptive for the tourism: this evolution challenged a certain way of doing tourism, undermining traditional models (linked, for example, to high season vs. low season rates and prices) and driving the transition towards revenue

and price management models no longer modelled on the time or seasonal factor, but on customer categories, creating price bands linked to services and no longer to periods. The great opportunity of this digital revolution has been taken up by large tourism companies, which have understood its fields of application.

Digital innovation in tourism is based on standard industrialised models and standards linked to large global platforms. Currently, however, the larger tourism enterprises are implementing customisation systems starting from standard models.

The development of such processes requires considerable effort and large investments by companies, but this is not possible in small enterprises, such as independent hotels not affiliated to large chains. On the other hand, the technology democratisation process, once developed, makes it increasingly accessible.

For technology to be effective, it has to work flawlessly and, in this sense, large standard technology systems alone can be less effective.

Change and evolution in this field must benefit from a hybrid system, based on extremely complex, already high-performance software systems based on machine learning, but subject to continuous improvement processes and implementation efforts, dictated by corporate needs.

Technological systems have to be constantly manned, e.g. in order to introduce new services to customers, with the aim of improving business performance. Technology related to the understanding of conversations (from reviews to customer requests), for example, need to be perfected for many years to become efficient.

Another aspect of change, which in the past was accepted with suspicion, is the danger of technology replacing human skills: but for tourism this cannot happen, precisely because tourism activities are carried out thanks to relational skills which, even with a highly sophisticated system, cannot be completely replaced. It therefore becomes essential, even in the current process of strong change, that the approach to technology leaves the human relationship intact.

Revenue management programmes are now also used by many independent hotels, which can thus manage the most correct rates and prices for their customers. ChatGPT-derived systems have been developed to respond to reviews: thanks to the increasingly sophisticated evolution of intelligent machines, results are astonishing, and the progress of these technologies will constantly improve.

Other interesting new AI systems are related to the automation of ordinary procedures, such as check in and check out, the possibility to customize room services, from the choice of pillow to the ideal room temperature, etc.

Opportunities, constraints, threats, incentives

The continuous evolution of processes' digitisation in tourism is an ongoing and highly complex endeavour, because it interacts with a wide range of sub-sectors. Logistics is an area that greatly benefits from it. Thanks to the application of AI systems, a new way of managing services can be realised, but this evolutionary process is easier for a large company than for a small entrepreneur.

Thanks to the effort of developing intelligent systems, large companies (such as hotel chains) can return these innovations to smaller companies, in an "aggregation chain" logic. In this regard, it should

be emphasised that not all hotel chains grow by acquiring real estate, but also by aggregating with franchising systems, small independent hotels as well.

Therefore, tourism digital evolution can be greatly facilitated from the aggregation of small enterprises both in the form of chains and entrepreneurial networks.

A determining factor in the success of the digital revolution and use of AI applications is to connect physical and digital systems. In this way, the three-dimensional and multi-sensory dimension of the tourist experience is reaffirmed, facilitated by digital world's 'two-dimensionality'.

An obstacle to the tourism evolutionary impulse in Italy is the lack of competences and skills in small enterprises. In fact, the use of application systems must be accompanied by the understanding of what machines do, in order to correctly implement business strategies.

A threat, but also a stimulus for further development, in the race for automation is the growing problem of cyber security, which is becoming the frontier of the development of advanced digital systems.

Barriers to access: conditions enabling or hindering innovation

In summary, barriers to entry relate to:

- costs, in terms both of accessibility and sustainability of advanced systems
- training of the entrepreneur, which influences his or her mentality towards innovation
- ability to transmit adequate training to staff.

Regarding costs, the speakers emphasised how this obstacle is constantly being overcome by the progressive democratisation of technology, that gets into individual contexts becoming more accessible.

It is important to focus that technology can be a booster to expand the market, as happened in the restaurant industry during the pandemic, with reservation/delivery systems: on the one hand the menu offer was considerably simplified, on the other the market was able to expand in a period of emergency. Emergency over, industry returned to its complex pre-pandemic gastronomic offerings, but at the same time it has been enriched with new digital tools, which before would not have been considered at all. Now, however, we need to overcome the logic of emergency and work towards a digital literacy of SMEs.

Another obstacle to change in Italy, paradoxically, is its attractive positioning on domestic and global market. Global customers seek out Made in Italy and come to Italy regardless of the tourist offer, and this factor, which is certainly positive, has however slowed down tourism renewal.

Business attitude towards digital tools (AI, VR etc.)

As already pointed out, there are three main groups of companies:

- the first characterised by a great drive for innovation, often identifiable with the largest companies
- the second of 'imitators', to which companies with a DNA predisposed to innovation belong

- the third, representing the most part of the sector, is reluctant to innovate, either because it considers it out of reach or because it does not feel the need for it.

Which factors should be invested in? How to develop the ongoing change (human capital, financial resources, management organisation)?

Businesses that embark on digitisation paths, even if purchased from external suppliers, benefit from it and, indeed, increase the level of expertise within the company.

In fact, technology is a generator of job opportunities in several respects:

- process automation leads to better working times
- staff are freed from repetitive and unrewarding tasks and can broaden their range of knowledge
- saving time allows both the entrepreneur and human resources to develop creativity.

Although technology is not labour saving (the risk of losing jobs on tasks that can be performed by machines is real), it is certainly an accelerator of knowledge and liberates living and intelligent labour. Another stumbling block to growth is the application of low-paying labour contracts, but a digitally evolving company, amortizing the costs of digitised services, can invest more and better in human resources, overcoming the current system of remuneration for low-skilled staff.

How to activate learning chains

One solution to activate an on-site continuous learning system is taking advantage of the most innovative companies' virtuous examples.

Larger companies, even if they tend to export their own business models with a view to expanding their market, by affiliating independent companies allow them to take advantage of already tested advanced digital systems.

It is also important to focus on the valorisation of professions and skills, in order to stimulate new generations: in the last two years, in fact, especially young people have become disaffected with tourism professions.

Companies perceive in-house training as a risk: that the trained worker might accept better job offers, also from a remunerative point of view, or to go abroad, thus nullifying the company's investment.

About university or post-graduate training, although larger companies sometimes collaborate with Universities or Academies, University training does not always reflect tourism companies' skills need.

This document was edited by Unioncamere – Unione Italiana delle Camere di commercio, industria, artigianato e agricoltura, and reviewed by IFOA, INAPP and University of Genova

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WP2 - – MARKET ANALYSIS

FOCUS GROUP ON ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY IN TOURISM

PANEL "TRAINING-UNIVERSITY"

(March 28th 2023)

REPORT

EULEP - European Learning Experience Platform
Connecting Centres of Vocational Excellence to develop and deliver
innovative transnational C-VET training in AI, VR, social innovation

Project Name:	European Learning Experience Platform - Connecting Centres of Vocational Excellence to develop and deliver innovative transnational C-VET training in AI, VR, social innovation
Project Acronym:	EULEP
Work Package:	2 - Market Analysis
Document title:	Qualitative Focus Groups on needs and relevant skills required by companies in the tourism sector and its supply chain about Artificial Intelligence and Virtual Reality. Annex 3: Panel "Training-University" Report
Authors:	edited by Unioncamere, reviewed by INAPP, IFOA, Università degli Studi di Genova

QUALITATIVE FOCUS GROUPS ON NEEDS AND RELEVANT SKILLS REQUIRED BY COMPANIES IN THE TOURISM SECTOR AND ITS SUPPLY CHAIN ABOUT ARTIFICIAL INTELLIGENCE AND VIRTUAL REALITY. PANEL "TRAINING-UNIVERSITY" REPORT

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Introductory note

This document reports the conclusions of the third Focus Group held by Italian partnership of EULEP project, specifically dedicated to tourism, a high priority industry in Italy's economy.

The Focus Group was held on March 28th 2023 and aimed at investigating the knowledge and use of AI/VR and related skills needs, from the point of view of training/Universities in tourism sector.

The results might indicate the best strategies for the evolution of the tourism sector, in Italy and in Europe, and provide strategic guidelines, useful to meet the demand for innovation promoted by the European Commission.

The training needs, detected with a bottom-up and end-user-centred approach, will be taken into account to develop some of the training modules of EULEP open learning experience platform, that Unioncamere will dedicate to innovative AI and VR topics applied to tourism sector and its supply chain.

Introduction of participants

Roberto Basili is Full Professor at the Enterprise Engineering Department of the University of Rome "Tor Vergata" and member of the Tor Vergata Artificial Intelligence group (ART) since 1991. His current research ranges from natural language processing to machine learning, knowledge representation and applications such as information retrieval and the semantic web. He teaches Fundamentals of Programming in C++, Database Systems and Information Retrieval at the Department of Computer Science, while a course on TAL (Automatic Language Processing) has been taught since 2005 at the Department of Linguistics of the University of Tor Vergata.

Stefano Armando Ceci is Adjunct Professor at IULM University of Milan where he teaches "Startup in Tourism" and "Narration and Communication of Territories". At the University of Padua he teaches "Innovation and digitization in Tourism". He is Senior Innovation Advisor of LVenture Group S.p.A. and Project Leader of the startup accelerator "Argo" promoted in collaboration with the Ministry of Tourism and CDP Venture Capital SGR. He is also a Web3 expert, founder of the Think Tank "Futurew3b", business designer and developer of some startups, including Reasoned Art (crypto art) and Takyon (travel exchange). He is an Angel Investor in Italian Angels for Growth.

Marianna di Salle is coordinator of the Master in Tourism Economics at Bocconi University (MI). Founded in 1902, Bocconi is a recognized University for training and research activities in Economics, Management and Social Sciences. Integration between research and teaching, close dialogue with companies and world of work and internationalisation are the pillars of Bocconi University, the first School in Italy to set up a post-graduate course in Tourism Economics in 1986, today a pre-experience university Master's degree.

Bocconi has recently introduced two degree courses that combine different aspects of STEM disciplines (the three-year degree course Mathematical and Computing Sciences for Artificial Intelligence and the master's degree course in Economics and Management of Innovation and Technology) and has a Lab dedicated to Artificial Intelligence.

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Roberto Mancinelli is Head of Business Development of Treccani Accademia, Management School of Treccani Istitute, historic Italian cultural institution responsible for compiling, updating, publishing and disseminating the Italian Encyclopaedia of Sciences, Letters and Arts. Treccani Accademia offers an authoritative and excellent education to recent graduates, managers, professionals and companies. The didactic methodology adopted is strongly innovative and operationally oriented and aims at developing professional skills and competences, through innovative teaching methods, focusing on individual talent and offering an important opportunity to enter and grow in the world of work. Treccani Accademia is an accredited body at the MIM (Italian Ministry of Education).

Danila Mele is Head of External Relations at Intrecci Formazione, where she coordinates the Master in "Sustainable Tourism Management". The "Accademia di Alta formazione di Sala Intrecci" (Intrecci Academy of Higher Education of Sala) at Castiglione in Teverina (Viterbo province) is a post-diploma training course with a residential formula exclusively dedicated to dining room service, oriented towards high-end and very high-end international catering. The project consists of three phases: a residential phase of lectures / practical workshops and study trips in Italy and Europe; an internship phase worldwide; a final phase of examination and overall assessment. Its proposal and methodology are innovative: each subject has a resident lecturer and multiple guest lecturers, coming from the world of work, in order to create direct contact with the market and immediately associate theory with professional practice.

Through a mix of learning, experiences and knowledge enhancement, the Master in "Sustainable Tourism Management" focuses on training profiles with technical-management skills to operate in tourism supply chain in territories with a strong vocation for cultural and "slow" tourism, from a sustainability perspective.

Susanna Mensitieri has been Coordinator and Head of the Master's degree course "Tourism and Territory: economics, marketing, eco-sustainability" at the Luiss School of Government since 2003, the year of its creation. She collaborated in defining the didactic structure and faculty and, over these twenty editions, she has overseen updating and integrating programs and faculty, relations with enterprises and supervision of placement.

Paola Persi is Manager in Institutional and Corporate Relations - Business Development- Marketing Project - Fundraising at Gambero Rosso, leading platform for content, training, promotion, and consultancy in the Italian Wine Travel Food sector. Gambero Rosso offers a complete range of integrated services for the Italian agricultural, agri-food, catering, and hospitality sectors. It has a wide range of periodicals, books, guides, broadcasting, web OTT which reach enthusiasts, professionals, commercial distribution channels in Italy and in the world; offers the Italian production system an exclusive program of B2B promotion events to encourage its constant international development and organizes national and international events dedicated to the excellence of Italian wine. It is also a community of enthusiasts and operators in the sector in continuous growth on social media. Gambero Rosso Academy is the largest professional training platform, which today includes 5 operating structures in Italy (Città del gusto Lecce, Naples, Palermo, Rome and Turin) and joint ventures with the main Italian universities and Academies in the most important foreign countries.

Findings

Recognisable features of digital-related change (ex. Artificial Intelligence)

To better understand the characteristics of the application of AI in tourism, it is necessary to start from the concept that the development of digital systems and AI takes place within computer science and has to do with pure technology. When it is transposed to applications dealing with the needs of a complex sector such as tourism, other domains come into play that have to do with both the individual, his psychology, natural language, and with the community, its economy, social relations and so on.

To graft advanced technology into tourism, interconnecting knowledge, from scientific to humanistic, is fundamental. In the modern world complexity has increased: relying only on the sophisticated AI tool, neglecting other skills (social, humanistic, economic), does not bring about any evolutionary change. In fact, AI cannot provide ready solutions but support the decision-making process.

Tourism, on the one hand is made up of people and social communities, but on the other hand it is represented by billions of data, micro-data and big data circulating on the web.

The change in digital innovation means that computer science, a STEM subject, now has to compete with other disciplines. The evolution of this interconnection has strongly influenced the provision of Higher Education and first and second level University training for tourism-related subjects (economics, geography, social studies, psychology, statistics, etc.); training offer has changed over the years, giving more space to technology, innovation, making advanced digital tools available. Specific modules have been introduced on digital innovation (Big Data, tourism analytics, machine learning and the most important software for working with data,) on data analysis and on systems that, thanks to their ability to analyze large amounts of data, can support the companies' management strategies, marketing and revenue strategies.

The training courses tend precisely to increase the skills to manage the tools useful for companies to optimize their business.

Another evolutionary step is being taken by those in charge of providing tourism training to develop start-ups and entrepreneurship, for technological innovation itself (open innovation) can evolve through innovative start-ups and the related ability to become entrepreneurs, in the sense of offering technological solutions to the tourism business system.

Training on technological innovation provided by Universities, Masters' degrees, Academies of Higher Education and Business Schools, offers students an adequate level of knowledge and competence, even higher than that required by Italian companies.

Basic training is suitable to start on a career path, the real issue to be solved is how the training system can better interact with companies on the training side, how innovation can be internalized by companies and what companies are able to do to develop transversal and entrepreneurial skills.

In fact, teaching programs are formulated in agreement with the organizations and institutional tables; as far as computer engineering is concerned, basic skills training is of an excellent standard, but its applications in transversal areas and its interaction with humanistic and economic training are still lacking.

Reflections on digital innovation-driven change in tourism

The drive for digital innovation in tourism concerns opening digital culture to all, so an effort is needed in terms of computer literacy, in the sense of culture of knowing how to correctly use and benefit from tools in tourism.

According to experts in the field of education, the Italian training system is not yet ready to ride the evolutionary changes of digital processes. Technology, in fact, enters, breaks in and modifies production and work processes, but training paths that are still vertically set on the single technical subject.

Moreover, while technical (IT) skills are sufficient to prepare IT technicians, in Italy the evolution in AI is not reflected even among IT corporate players themselves, because industrial organizations have not yet fully understood the change in production processes and grasped the opportunity for innovation.

Training must therefore act on the change of processes and organizations, in order to connect the evolutionary and disruptive drive of technology with its functional application, not only in tourism but also in many other economic sectors.

Business world talks a lot about training and demands trained personnel but does not invest in training, deeming to delegate the task to educational and training institutions: a distinction, instead, would be made between basic training (University level) and interdisciplinary training, based on in-company paths, or specialization in business schools for example, distinguishing different training stages, all aimed at professional growth.

Currently, however, there is a lack of connection between the various training chains.

Moreover, tourism appears reluctant to innovate, while digital transformation can have its positive evolution only if logistics and top management accept to be protagonists of the change process.

To make digital systems functional a great deal of technical training is needed, but to interact with the problems of communication, a greater economic and humanistic culture is essential.

In Italy the problem is not the lack of basic knowledge, but the ability of the production structure and organizational top management to accommodate and exploit knowledge.

Opportunities, constraints, threats and incentives

One of the main obstacles to digital innovation, and in general to tourism industry digitization is the lack of demand from companies for professionals with specific digital innovation skills.

The level of innovation of tourism businesses in Italy is poor, Italian enterprises are dwarfs if compared to the rest of the world.

Large companies, those for example belonging to international chains, are more advanced on these issues: the job placement of second-level Master's students or graduates in STEM subjects is also the prerogative of the international tourism offer (chains, OTAs, etc.).

Remaining Italian companies, even the largest ones, seem to require skills and knowledge directly from university which, however, fails to satisfy this demand since their role and training tasks are focused on basic knowledge.

The University systems provide for digital skills but, to trigger change, Italian trade associations need to be encouraged to invest in the aforementioned interdisciplinary training, that combines relational skills with more technical ones.

Moreover, the most advanced frontiers in AI and digital innovation (block chain, for example) are unknown and not ridden by the Italian tourist economic system.

Instead, there is a need to bridge the gap between the opportunities of advanced digitization and the current demand for technology, that still appears basic and not evolutionary.

Vice versa, the training efforts of Italian education system (from Universities to Masters' degrees, Business Schools, Academies), albeit lacking, is creating a generation of trained young people who will have to face both tourism businesses, backward and reluctant to innovation, and companies that are not able to access digital tools and their use.

One of the most worrying effects is the decline of young people's interest in job opportunities offered by tourism. Another negative consequence is the growing number of innovative startups that have no market outlets in Italy, because the corporate system lacks a widespread culture of innovation: thus, while it's currently very difficult to introduce innovation, it's equally difficult to link it to the market.

It would be essential to set up higher education pathways also for non-graduates, for those who, for example, have attended ITS (Istituti Tecnici Superiori, Higher Technical Institutes) or Vocational training, in order to provide transversal skills also to intermediate profiles in companies.

Barriers to access: conditions enabling or hindering innovation

Tourism is still conducted in a very traditional way: as a result, companies are still looking only for traditional professionals. Young people who have undergone higher education in tourism, often end up working in companies resistant to change and innovation.

A similar attitude of closure to innovation can be found in Institutions and Public Administration.

New professionals coming from interdisciplinary training, ranging from technical to relational and economic skills, are not yet legally recognized, in many cases. Figures such as innovation design or destination manager, cannot have a legal qualification or certificate their skills, despite many regional laws recognize DMO's as both public and public-private organizations aimed at developing territories in a touristic and economic sense.

This creates an obvious contradiction between the world of training and territorial tourist organizations on the one hand, which are betting on these figures, and Institutions on the other, which lack a skills' certification system, including extracurricular skills, for the definition of new professional profiles. Speakers underlined how fundamental extracurricular skills are for Italian tourism, precisely because basic (vertical) curricular training is not a sufficient condition to create new tourism managers.

A further barrier to the dissemination of digital innovation good practices is the lack of effective communication to smaller companies, that would allow them to learn about solutions and tools to draw on.

Business attitude towards digital tools (AI, VR etc.)

In Italy, 95% of companies have less than 45 employees. The small size of Italian tourism companies partly explains the low entrepreneurial culture towards innovation and consequently toward the inclusion of new figures from advanced training courses.

The result is a problematic mismatch between training providers and those who have to recruit trained personnel.

Today, tourism businesses require more relational than digital skills.

Italian tourism supply system thrives on a revenue of position from its attractiveness: this seems to satisfy businesses and does not stimulate change and investments in new innovative production processes.

Skills shortage also affects intermediate personnel: for the latter companies ask the world of training to implement interpersonal skills.

Companies do not demand for innovation and remain anchored to traditional management and organization. Changing companies, whose main asset is human capital, is very complex.

Often companies are not even interested in tailor-made training designed for their needs: many public funded training courses, workshops, accompanying services found no response and interest from tour operators.

According to the interviewees, it would be more useful and productive to include young graduates or with master's degrees, etc. in interdisciplinary projects if stimulated by the economic and labor system itself.

Which factors should be invested in? How to develop the ongoing change (human capital, financial resources, management organisation)? How to activate learning chains?

A large investment in open innovation is necessary towards the "middle earth" of tourism, made up of the majority of tourism enterprises that do not seem interested or do not know how to seize opportunities: a targeted investment on different territories, on the most attentive and interested companies in accompanying them in processes of digital transformation and innovation.

There is a need to move away from scattered and fragmented training towards a real investment in company support.

New ways also need to be found to stimulate a business world reluctant to change through reward mechanisms for companies that create new processes.

As regards the problem of entrepreneurial dwarfism and company size, the public system should suggest enterprises to federate, developing rewarding strategies and supporting business risks. It is a medium-term investment, but the timing of politics often does not coincide with medium and long-term projects.

To make public spending more efficient, one should have the courage to implement a reward system for companies that want to make a breakthrough. One of the most functioning mechanisms in Italy is emulation: rewarding companies that already have features of innovation could trigger in others the desire to grow, decisively selecting best practices and avoiding parceling out funds, which would otherwise be pulverized and have no effect.

This document was edited by Unioncamere – Unione Italiana delle Camere di commercio, industria, artigianato e agricoltura, and reviewed by IFOA, INAPP and University of Genova
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