Gap analysis of current and desired competences for the digital ICTr
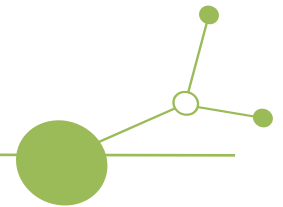
Deliverable D.3.1.1

Version 3

22. 02. 2024

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PREFACE OF THE DELIVERABLE

About the ICTr-CE project (Interreg Central Europe)

The potential of transnational cycling routes for tourism is still underdeveloped in central Europe. This includes the EuroVelo 13 Iron Curtain Trail, which connects regions across the whole Europe from the Barents Sea to the Black Sea along the European Green Belt. The ICTr-CE project improves the business case for this route by developing new tourism products. These result from a newly developed participatory business model, which strengthens the innovation capacities of local businesses.

D.3.1.1: Gap analysis of current and desired competences for the digital ICTr

This deliverable is part of the third work package (WP3) entitled: "Ensuring sustainability of developed solutions in ICTr innovation network and their transferability". The specific objective of the WP3 is to ensure uptake and sustainability of developed ICTr solutions and their multiplier effects through improved innovation skills and competences of ICTr innovation network and to ensure transferability to other similar products and areas.

To be more precise, the present report is part of activity 3.1, which aims to co-design the stewardship along the ICTr. With stewardship we mean a process by which local communities, governmental agencies, NGOs, and tourism industry take a multi-stakeholder approach to maintaining the cultural, environmental, and economic integrity of the ICTr. To achieve this, we will design multiple trainings to develop the needed innovation competences. Further we will develop a mentoring program for ICTr service providers to achieve the long-term competence upraise in the area. Mentoring will target SMEs with marketing and digital skills, providing them direct external support to create their presence in social media, new promotion channels and use of digital solutions. Trainings on sustainability criteria, quality of services, customer care, marketing, branding, cycling-friendly services and digitisation will be implemented for all ecosystem members. Budget is allocated for external training providers and organisation of workshops.

Activity lead: Iskriva, all project partners participate.

Therefore, this deliverable presents the gap analysis of current and desired competences for the digital ICTr among the project's partners. Small tourism service providers often face a lack of digital marketing as well as management competences. In order to provide them with the efficient skills upgrade a deep screening was conducted to analyse their current skill level and the level needed to equally participate in ICTr business model.

The report is based on 776 responses from an online survey questionnaire conducted among the small tourism providers and other target groups dealing with tourism in project partner countries. The online survey was carried out from mid-September 2023 until mid-January 2024. The online survey questionnaire was translated in national languages of project partners and each one was responsible of distributing the survey on their national level or in the regions where EuroVelo 13 - Iron Curtain Trail runs. This included the following countries: Hungary, Slovenia, Austria, Czech Republic, Poland, Slovakia, Croatia and Germany.

After doing the online survey's preliminary analysis, a focus group discussion with nine experts was carried out, to integrate the survey data and qualitative insights from focus group discussions. The aim was to validate the survey results, promote a more nuanced understanding and to support the overall conclusions.

1. INTRODUCTION

1.1 Digitalism in the tourism sector

Digital technologies have had a profound impact on the tourism industry, revolutionizing the way businesses operate, products are delivered, and consumers experience travel. According to Dredge et al. (2019), this transformation has led to a number of significant changes, including:

- The rise of digital platforms: Online travel agencies (OTAs) and other digital platforms have become increasingly important intermediaries in the tourism industry. These platforms allow consumers to compare prices, book accommodations, and arrange transportation. They have also enabled new business models, such as peer-to-peer accommodation rentals and on-demand tours and activities;

- The changing role of tourism producers: With the rise of digital platforms, tourism producers have had to adapt to a new competitive landscape. They are now competing with a wider range of businesses, including other travel agencies, accommodation providers, and transportation companies. This has led to a need for tourism producers to focus on differentiating their products and services;

- The evolution of tourism products and experiences: Digital technologies have also led to a change in the types of products and experiences that are being offered. Consumers are increasingly seeking out personalized and immersive experiences, and digital technologies can help to deliver these experiences. For example, tourism providers can use data analytics to understand customer preferences and develop products and experiences that meet those preferences;

- The growing importance of digital marketing: In today's digital world, marketing is essential for tourism businesses. Digital marketing can help businesses reach a wider audience, increase brand awareness, and drive sales. Tourism businesses can use a variety of digital marketing channels, such as search engine optimization (SEO), social media marketing, and email marketing;

- The emergence of new business models: Digital technologies have also led to the emergence of new business models in the tourism industry. One example is the "sharing economy," which allows consumers to rent out their homes, cars, and other assets to other travellers. Another example is the "experience economy," which focuses on providing consumers with unique and memorable experiences;

- The challenges and opportunities for tourism SMEs: The rise of digital technologies has created new opportunities for tourism SMEs. For example, digital platforms can help SMEs reach a wider audience and compete with larger businesses. However, SMEs also face challenges in embracing digital technologies. They may not have the resources or expertise to develop their own digital marketing strategies or to integrate digital technologies into their operations;

- The need for coordinated efforts: To ensure that European destinations are globally competitive, there is a need for coordinated efforts to foster an innovative digital culture in tourism SMEs. This could involve providing SMEs with the training and resources they need to adopt digital technologies, and helping them to develop digital marketing strategies;

- The diversity and complexity of tourism's sub-sectors: Tourism is a diverse and complex industry, and the challenges and opportunities for SMEs vary across different sub-sectors and destinations. For example, urban destinations may need to focus on developing digital technologies that attract business travellers, while rural destinations may need to focus on developing technologies that appeal to tourists seeking a more authentic experience;

- The challenges in different institutional systems across Europe: The regulatory environment for the tourism industry also varies across Europe. Some countries have more restrictive regulations than others, which can make it difficult for tourism SMEs to operate. There is a need for cooperation between governments to create a more harmonized regulatory environment (ibid).

The economy's digitalisation can promote innovation and productivity growth, but it is also reshaping how work and manufacturing are arranged, which presents difficulties for employment and skill sets, potentially leading to even bigger inequality between developed and underdeveloped areas. The competencies and skills of tourism employees will be essential for the successful adoption of digital technologies in the industry. However, many small and medium-sized enterprises (SMEs) in the tourism industry lack the necessary technical skills and resources among their employees to fully exploit the potential of digitalization. This can be due to a lack of knowledge about the digital skills needed, limited staff resources, or time constraints that prevent employees from learning new digital processes (OECD, 2021).

The European Commission pays close attention to the process of digital transition of tourism to support the competitiveness, sustainability, and resilience of the tourism sector in the EU. Defined as 'Europe's Digital Decade', in 2021, the Commission presented a vision for Europe's digital transformation by 2030, which evolves around:

- skilling and upskilling,

- secure and sustainable digital infrastructures,

- the digital transformation of businesses,

- the digitalisation of public services (Digital Transition of Tourism - European Commission, n. d.).

Hence, the Commission strongly focuses on helping to upskill and re-skill the sector's workforce, notably in digital skills, namely with the Transition Pathway for Tourism and the EU Agenda for Tourism 2030 to support the digitalisation of tourism SMEs and destinations (ibid.), which is further covered in the following chapter.

1.2 EU strategies and policies

1.2.1 Digital transition

Based on the Commission's transition pathway for tourism, the "European Agenda for Tourism 2030" comprises a multi-annual work plan outlining measures that the EU member states, the Commission, and tourism stakeholders must implement. It addresses five key areas, for which several initiatives are outlined: resilience and inclusiveness, skills and assistance, digital transition, green transition, and the supporting governance and policy framework. In terms of digital transition, "Digitalisation of tourism SMEs" is one of the key topics, having set the goals and objectives in "effective use of digital tools by tourism SMEs and microenterprises for resource management, internal work processes, service provision, marketing, communication with clients and supply chains and new service development" (European Commission. Agenda 2030, p. 15). Inside the Transition pathway executive summary of published commitments, we can read that public stakeholder at all levels are actively involved, with regional actors in particular making concrete pledges to support various aspects of the transition. They are implementing strategic indicators to track the impacts of tourism and monitor progress in green and digital transition efforts. These stakeholders are dedicated to enhancing the digitalization of tourism offerings and promoting sustainable mobility by expanding active and soft transport options for both residents and visitors. Furthermore, private sector stakeholders are equally committed, demonstrating strategic commitments and setting ambitious targets for sustainability in environmental objectives and community engagement. They integrate transition objectives into their internal operations and encourage partners to advance sustainability and digitalization efforts by endorsing certifications and providing training for small and medium-sized enterprises (SMEs) on digital tools. Additionally, they take concrete actions to offer informed sustainable options to consumers and educate responsible tourists. (European Commission. Transition pathway for tourism: Leading the transition, p. 1).

The digitalisation of the economy and society in general, as well as the increasing potential for data generation, collection and services, will create opportunities to transform tourism services. They can change their business model to deliver more sustainable and innovative services that provide long-lasting and digitally enhanced customised experiences. Concerning the project ICTr one key topic is closely dealing with its activities, namely "Improving the availability of online information on tourism offer". (European Commission. Transition pathway, p. 12-13).

1.2.2 Skills agenda

The tourism industry is rapidly evolving and seeing a surge in digitalization, which calls for new and specialized skills from both employees and tourism entrepreneurs.

In order to deliver sector-specific skills solutions, the New Skills Agenda for Europe has launched the Blueprint for Sectoral Cooperation on Skills, in our case for the tourism sector (2017). The Blueprint is a new framework for strategic cooperation between key stakeholders (e.g. businesses, trade unions, research, education and training institutions, public authorities) in the given economic sector. In relation to the professional skills in Tourism the Blueprint points out, that recent studies have highlighted the following weaknesses of the tourism labour market:

1) SMEs frequently lack the e-management competencies needed to stay up to date with the advancements in online marketplaces, distribution platforms, and customer engagement strategies;
2) key skills gaps (e.g. foreign languages, digital skills, interpersonal skills, communication, etc.),
3) new skills are needed to remain competitive and tackle the new tourist demand, e.g. destination management, adventure tourism, accessible tourism and green tourism (ibid.).

Support for tourism businesses also includes actions to help tourism businesses go digital, with the aim to:

1) strengthen the skill base of tourism SMEs, whose growth potential is often unexploited due to limited access to life-long learning and awareness of developments in the smart use of technologies,
2) support the integration of tourism businesses in the digital value chain and
3) boost the ICT-driven innovation potential of tourism SMEs and empower tourism entrepreneurs (ibid.)

1.3 Recent research findings on digitalisation in tourism

A study from the Next Tourism Generation Alliance[1] dealing with digital skills in tourism reveals that the analysed tourism organisations consider digital skills still an unresolved issue. Employees are willing to work in settings where technology is taking centre stage. Organizations, however, feel that much work needs to be done before staff members possess the necessary degree of digital literacy to work in the tourism industry. In one such example of research, 139 Spanish tourism organizations participated in the study, which sought to determine the gap between the present and future demands for digital skills as well as the training needs of these organizations within five subsectors: accommodation, food and beverage, destination management, visitor attractions, travel agents, and tour operators (Zaragoza-Sáez et al., 2022).

In terms of the skills that are currently required several partners in the "Next Tourism Generation" project distinguished between the prior mentioned tourism sectors. All of them have seen a significant surge in digitalization during the past few years. Especially in the areas of communication, information, and distribution, technology innovations have been important game changers. Findings from that research considering primary digital skills for employees working in each subsector is presented below (PANTOUR. Desk Research Summary, 2019).

Travel agent and tour operator:

- computers and mobile devices
- MS Office - Word, Excel, PowerPoint

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[1] Erasmus + Programme, Next Tourism Generation Alliance 591982-EPP-1–2017-ITEPPKA2-SSA-B.

- databases
- Internet and Intranet systems
- e-mail correspondence / digital communication
- Global Distribution Systems - Amadeus, Sabre, Travelport/Galileo, Worldspan
- other online booking/reservation systems
- social media and review sites (Facebook, Twitter, Trip Advisor, and other media)
- specialized travel agency management software, e.g. DCS
- basic digital security measures

Destination Management Organisation (DMO):

- computers and mobile devices
- MS Office - Word, Excel, PowerPoint
- databases
- Internet and Intranet systems
- e-mail correspondence / digital communication
- online booking/reservation systems
- social media and review sites (Facebook, Twitter, Trip Advisor, and other media)
- basic digital security measures

Visitor Attractions:

- computers and mobile devices
- MS Office - Word, Excel, PowerPoint
- databases
- Internet and Intranet systems
- e-mail correspondence / digital communication
- online booking/reservation systems
- social media and review sites (Facebook, Twitter, Trip Advisor, and other media)
- basic digital security measures
- cash registers / QR or barcode scanners/sound, light & video equipment

Accommodation and food & beverage:

- computers and mobile devices
- MS Office - Word, Excel, PowerPoint
- Databases
- Internet and Intranet systems

- e-mail correspondence / digital communication
- online booking and reservation systems
- social media and review sites (Facebook, Twitter, Trip Advisor, and other media)
- basic digital security measures
- cash registers / online billing systems/property management and electronic point of sales systems

Taking all this into account, future digital skills across all mentioned sectors might consist of:

- Self-learning capacities (permanent education, adaptability, agility, and flexibility - necessary to cope with digital innovations and disruptive business models);

- Digital fluency (based on DigComp2.0);

- Skills for conducting E-business: all skills necessary for online branding, marketing, and distribution (including websites, social media, reviews); data collection, data analytics, and data management (including protection and cybersecurity);

- Since AI driven technologies will be increasingly important in all tourism sectors, a better understanding of AI is essential;

- Unique, customized and personalized experiences are the future in all tourism sectors. Therefore, skills in creating experiences, both in the real world and with the use of AR, VR, or in mixed reality with special attention to gamification as well as creating online and video content will become more important;

- Although beyond the scope of the NTG project, it is important to note that profession-specific knowledge (about attractions, hotels, food, "non-googleable" travel options) will remain important (PANTOUR. Desk Research Summary, 2019, p. 66-67).

This raises some questions about the future of education for tourism; we see a growing need for technical skills in tourism-related industries, but it is highly unlikely that tourism education can deliver the type of technical specialists that are increasingly needed. Data analysts, technical staff and AI specialists working for OTA's, for example, do not necessarily need to have a degree in tourism (ibid.)

A similar research by Carlisle et al. (2023) was recently published and included a much larger sample with 1,668 respondents (1,404 survey respondents and 264 interviewees) in 5 tourism sectors (accommodation establishments, tour operators and travel agents, food and beverage, visitor attractions and destination management organisation) in 8 European countries: UK, Italy, Ireland, Spain, Hungary, Germany, the Netherlands and Bulgaria. The findings show that the most crucial digital skills for the future are those related to online marketing and communication, social media, Microsoft Office, operating systems, and monitoring online reviews. The abilities related to robotics, augmented reality, virtual reality, and artificial intelligence showed the biggest gaps between present and future skill levels; yet, these skills, along with computer programming, were also regarded as the least significant digital skills.

Moreover, considering the research findings, future digital competencies in all tourism subsectors should involve the following:

- Self-learning capacities (permanent education, adaptability, agility and flexibility – necessary to cope with ongoing digital innovations and disruptive business models);

- Digital fluency;

- Skills for conducting E-business: all skills necessary for online branding, marketing and distribution (including websites, social media, reviews), data collection, data analytics and data management (including protection, ethics and cybersecurity);

- As AI, VR and AR driven technologies will be increasingly important in all tourism sectors, a better understanding of these fields is essential;

- As unique, customised and personalised experiences are the future in all tourism sectors, skills in creating experiences both in the real world and with the use of AR, VR or in mixed reality with special attention to gamification, as well as creating online and video content will become more important; and

- It is important to note that profession-specific knowledge (about attractions, hotels, food, "non-googleable" travel options) will remain important (ibid., p. 260)

2. RESEARCH DESIGN AND METHODOLOGY

2.1 Survey methodology

2.1.1 Online survey

An online survey questionnaire was used to collect answers or data provided by the respondents. When using a survey questionnaire method of data collection it is important that the questions in it are unambiguous and straightforward to comprehend, as there is no one to provide clarification on question meanings to respondents like in an interview. Additionally, the structure and order of the queries in a questionnaire should be straightforward and intuitive to read (Kumar, 2011, p. 138). Online surveys have evolved significantly since the emergence of the internet and web browsers, becoming the predominant method of survey data collection. Since online surveys are essentially surveys with particular details, the standard principles of survey methodology are used (Callegaro et al., 2015, p. 4).

The open-source application for online surveys 1KA was used to design, create and carry out the implementation of the online survey. 1KA is an online service (SaaS - Software as a Service), developed by the Centre for Social Informatics, at the Faculty of Social Sciences, University of Ljubljana. In 2019, 1KA service hosted more than 10 million completed questionnaires and had a total number of over 65,000 registered users (1KA | General Description, n.d.).

Advantages of online surveys are lower costs, when compared to mail, telephone or face-to-face surveying; higher speed of data collection, i.e. in terms of returning responses and accumulation of data; ease of implementation due to user-friendly data collection; time and geographic flexibility; and most of all convenience as the respondent can answer at any location at any time of the day, using a computer, tablet or a smartphone. disadvantages are lack of interviewer, therefore, the respondent can avoid certain questions, misunderstand them or superficially read the instructions meaning the collected data will probably be of a lower quality; limited access, considering the minimum requirement of an internet-connected computer smartphone, or telephone for accurate participation in this survey, meaning the access to the survey is restricted to a predetermined socio-demographic user profile; and finally, non-representativeness, if only certain groups of individuals who are either more motivated, have greater internet skills or are invited to take part in the survey, then the results could be biased and less reliable (Callegaro et al., 2015, p. 18-23; dell'Olio et al., 2018).

The survey questionnaire was designed among project partners from June 2023 until August 2023. the following categories were included: general questions regarding the respondent's organization or type of business, demography, cycling tourism, management of organization/ business, digital skills and ICT and software solutions, marketing and sustainability (with the final total number of 50 questions and 236 measured variables).

The online survey was translated into the national language of each project partner to increase the response rate, including the introduction and the cover letter. English language as a lingua franca was included as well, meaning that 8 language variants of questions and accompanying text were prepared. The online survey was carried out from mid-September 2023 until mid-January 2024 on the 1KA online survey application.

2.1.2 Types of question, distribution and sampling

Closed questions were primarily used in the survey. This type of question predetermines the answer option in the questionnaire, and the respondent selects the category that most accurately represents their answer. The category "Other" was included to deal with any responses that were not included (Kumar, 2011).

The summated rating scale, also referred to as the Likert scale, was used to evaluate the intensity of their attitude. This scale operates under the assumption that each statement on the scale carries equal attitudinal value, significance, or weight in terms of expressing an attitude towards the issue being evaluated (ibid.).

Each project partner was responsible of distribution of the survey on their national level or in the regions where EuroVelo 13 - Iron Curtain Trail runs. This included the following countries: Hungary, Slovenia, Austria, Czech Republic, Poland, Slovakia, Croatia and Germany. In Slovenia, the EuroVelo 13 route runs in its far north-eastern part along the border, therefore it was decided to include the respondents on the entire national territory.

The project partners distributed the link to participate in the online survey directly or by asking relevant sector stakeholder to forward it via their own contacts and communication channels. these included: national, regional and local tourism organizations or boards, destination management / marketing organizations, tourism associations, local and regions authorities, travel agencies and tour operators, business and development support organization, and most of all, so called small tourism providers and other SMEs and target groups dealing with tourism in project partner countries.

The following report is based on 776 responses and has a non-probability sample frame, since specialised target groups were invited to participate in the survey. As a result, this report is only valid for the particular group of respondents and cannot be generalized to the wider population.

The sampling techniques included convenience sampling, whereas the invitation was sent to contacts of tourism stakeholder's databases or were posted on their social media. Specialised target groups form the sector were contacted directly and asked to forward to relevant stakeholders, hence snowball or referral sampling was used as well (Sue & Ritter, 2007, p. 27–33).

2.2 Thematic focus group

Extracting the shared perspectives and experiences from focus group data demands a systematic approach. Thematic analysis offers a robust framework, guiding researchers to unearth the underlying narratives that illuminate a group's collective voice.

Thematic analysis is a qualitative research methodology that involves systematically identifying, analysing, and reporting recurrent patterns (themes) within a dataset (Braun & Clarke, 2006). Its key strength lies in its theoretical flexibility, adapting seamlessly to diverse research questions, theoretical frameworks, and methodological approaches (inductive, deductive, semantic).

Braun and Clarke's Reflexive Thematic Analysis is a versatile and robust methodology within qualitative data analysis, through a six-step process involving familiarization, coding, theme generation, review, definition, and reporting (2012). The analysis commences with an in-depth examination of the transcribed data, reading and rereading to actively engage with participants' voices, identify key phrases and recurring ideas. Initial codes are created and represent the foundation for further analysis. The next phase moves beyond the individual codes and shifts towards identifying patterns and connections. Codes are grouped based on shared characteristics, revealing potential thematic clusters. As similarities and relationships emerge, initial themes begin to take shape, tentatively organizing the

data into meaningful categories. This comprehensive approach surpasses mere identification by offering a structured means to analyze themes systematically, facilitating the development of rich insights into the phenomenon under investigation (ibid.).

2.2.1 Conducting the thematic focus group discussion

In the end of January 2024, after finishing the preliminary analysis of the online survey, a focus group discussion via a videoconference call was conducted involving nine field specialists representing project partner. By combining quantitative data from surveys with the qualitative insights gleaned from focus group discussions, we tried to confirm or challenge the initial survey findings and foster a more nuanced interpretation and strengthen the value of the overall findings. Surprising or inconclusive results were further explored and contextualized by experts. Moreover, engaging with the insightful analysis of experienced experts enriches the qualitative interpretation of the results.

Finally, understanding the "why" behind the data is crucial for translating findings into actionable insights. By integrating quantitative and qualitative data we gained a more holistic understanding of our research topic, with the shared knowledge from the participating experts, tailoring recommendations and discussing the design and development of trainings and mentoring programs for ICTr service providers to achieve the long-term competence upraise in the area.
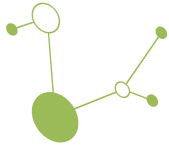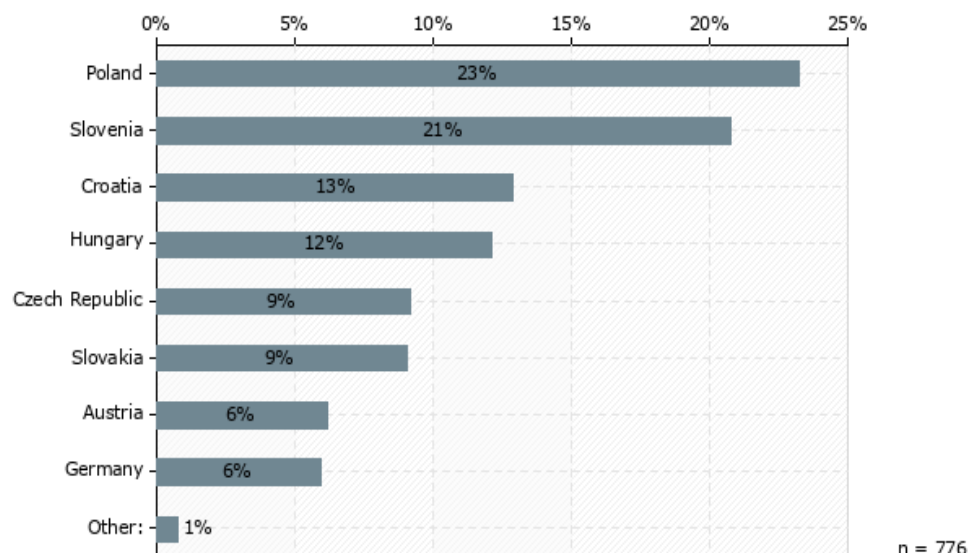
3. ANALYSIS OF THE RESULTS

3.1 Survey results

3.1.1 Organization/company data and demographics

As of January 16, 2024, 776 valid responses have been received from the following countries: Poland (23%), Slovenia (21%), Croatia (13%), Hungary (12%), Slovakia (9%), Czech Republic (9%), Austria (6%), and Germany (6%).

Figure 1: Location of respondent organization

According to the EU's Commission recommendation, the main factors to determine whether an enterprise is an SME are staff headcount and either turnover or balance sheet total. The survey has collected the number of employees in the organization, thus, we can deduce only partially. Small and medium-sized enterprises (SMEs) are defined as following by the number of staff employed: micro for 10 or less staff, small for 50 or less staff, medium-sized for 250 or less staff (2003/361/EC).

Most respondents fall into the category of micro providers (81,43%), followed by small (12,80%) and medium-sized enterprises (4,22%). Almost a quarter (24,70%) of all micro providers are self-employed, as they have declared zero employees, but for the purposes of this report, self-employment is considered a micro-sized enterprise.
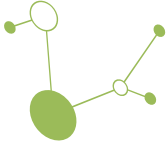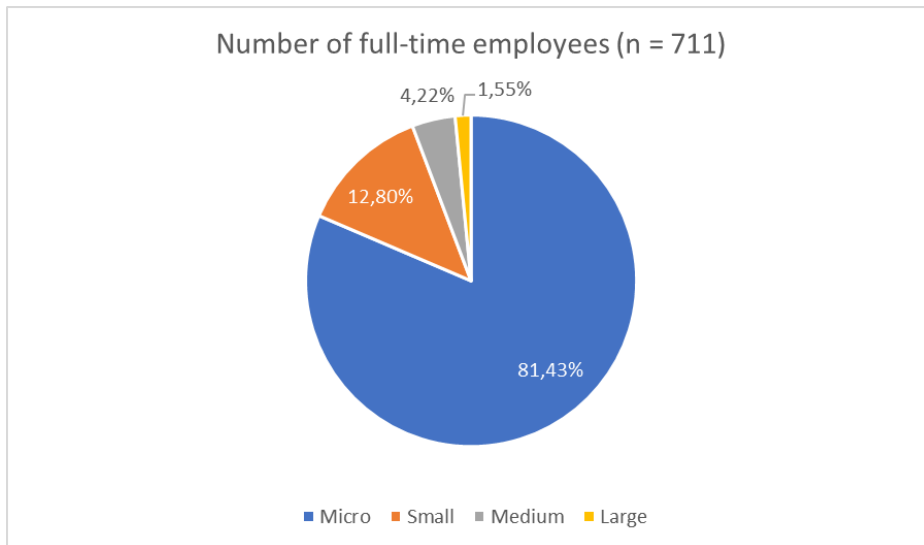
Figure 2: Number of full-time employees

More than half (52%) of all respondents are from the accommodation sector, followed by 13% representing other uncategorized organizations in the questionnaire (e.g., farms, clubs, wine bars, museums, etc.), 7% are representatives of destination marketing organizations (DMO), 5% are from tourist information centres and restaurants. Organizations such as tour operators, travel agencies, bike shops, inns, etc., make up to 3% or less of the remaining respondents.
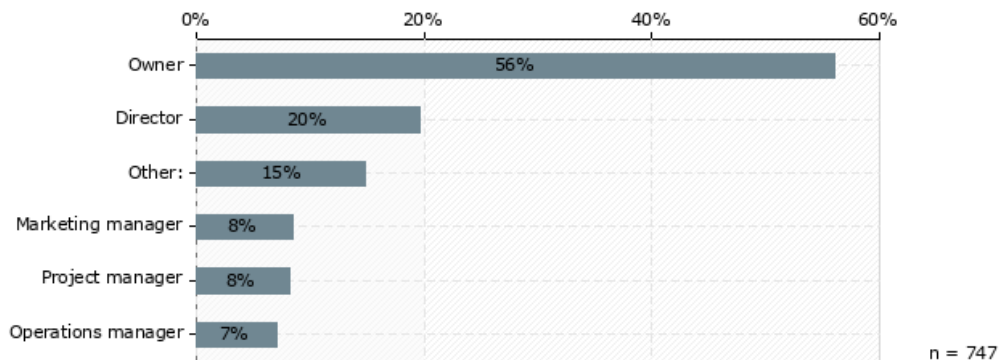
Figure 3: Type of your business
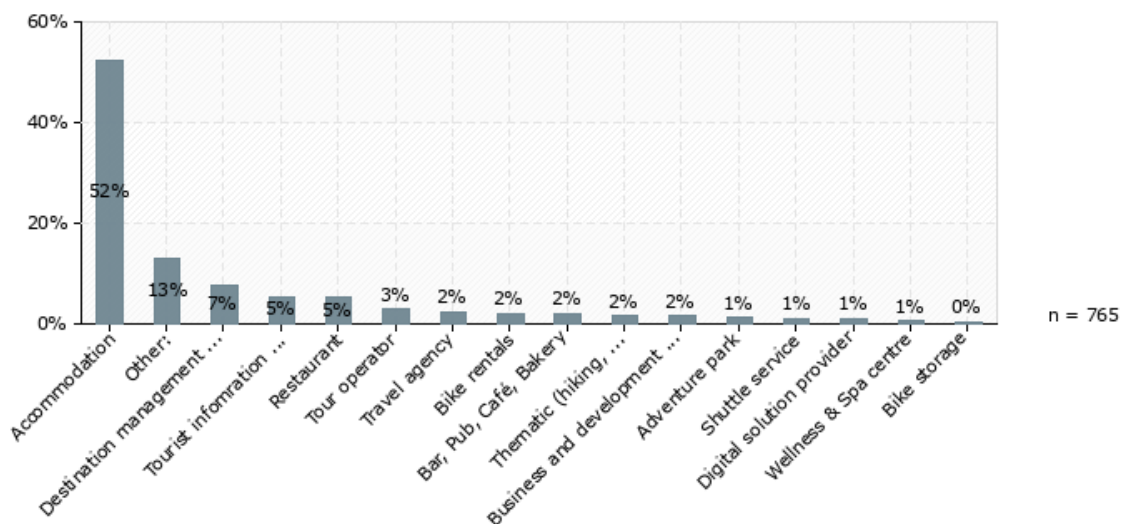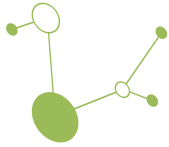
Owners constitute 57% of all respondents, followed by directors at 20%, with the remaining percentage comprising other managerial roles.
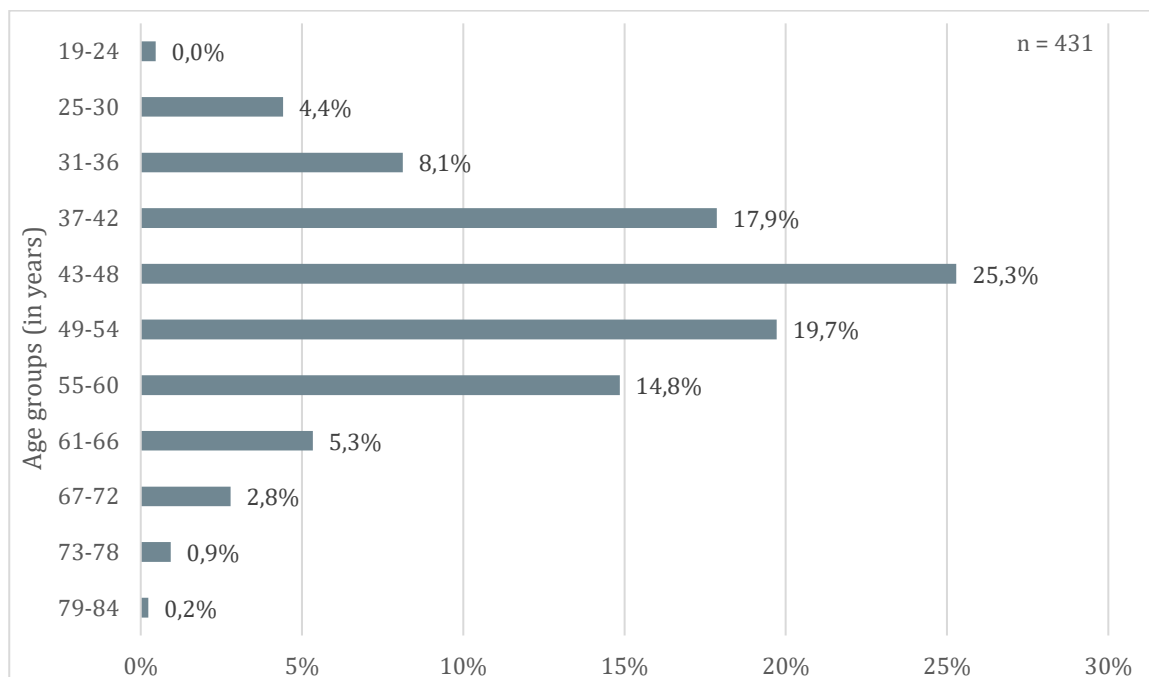
Figure 4: Respondent's position within the organization/company

Men constituted a larger share of the surveyed population (55%).

A quarter (25.3%) of the respondents are between 43 and 48 years old, followed by those between 49 and 54 years of age (19.7%).
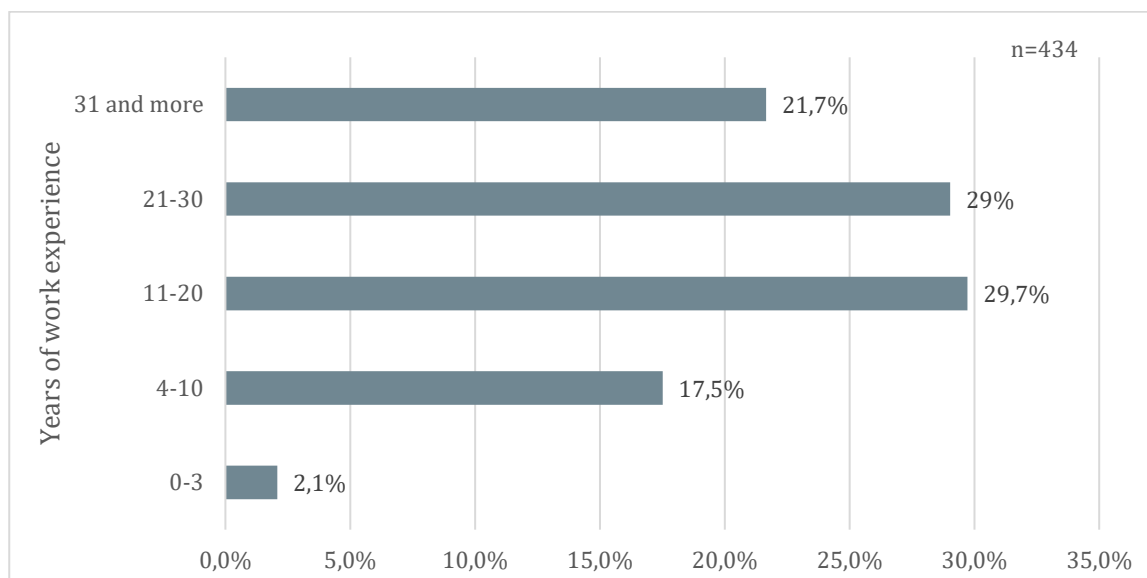
Figure 5: Age of the survey participants

Most respondents have 11-20 years of work experience (29.7%), followed closely by those with 21-30 years of experience (29%). More than a fifth of respondents (21.7%) have 31 years or more working experience.

*Figure 6: Years of work experience of the participants*

3.1.2 Digital skills

Respondents were asked to evaluate the level of digital skills currently held within their company (n=493; from 1 to 5, with 1 meaning basic skills and 5 advanced skills) and to assess if they need to improve their digital skills in the future (n=483) from 1 to 5, with 1 meaning no need for improvement and 5 high needs for improvement).

The current level of digital skills is on average rated between 3.41 and 3.93 among partner countries and it is best rated in Croatia and Poland (both close to 4.0). The biggest gap between the current level and the need for improvement is in the Czech Republic and Slovenia. These two countries have the highest rate of improvement desire (4.26 and 4.39). The survey shows partner countries from Austria, Croatia, Germany and Hungary have a small gap of 0.2 or less between the current level of digital skills and the need for their improvement. Notably, the current level is already higher than the need for improvement in the following countries: Germany, Poland and Slovakia.

Figure 7: Evaluation of the current level of digital skills per country and the need for their improvement
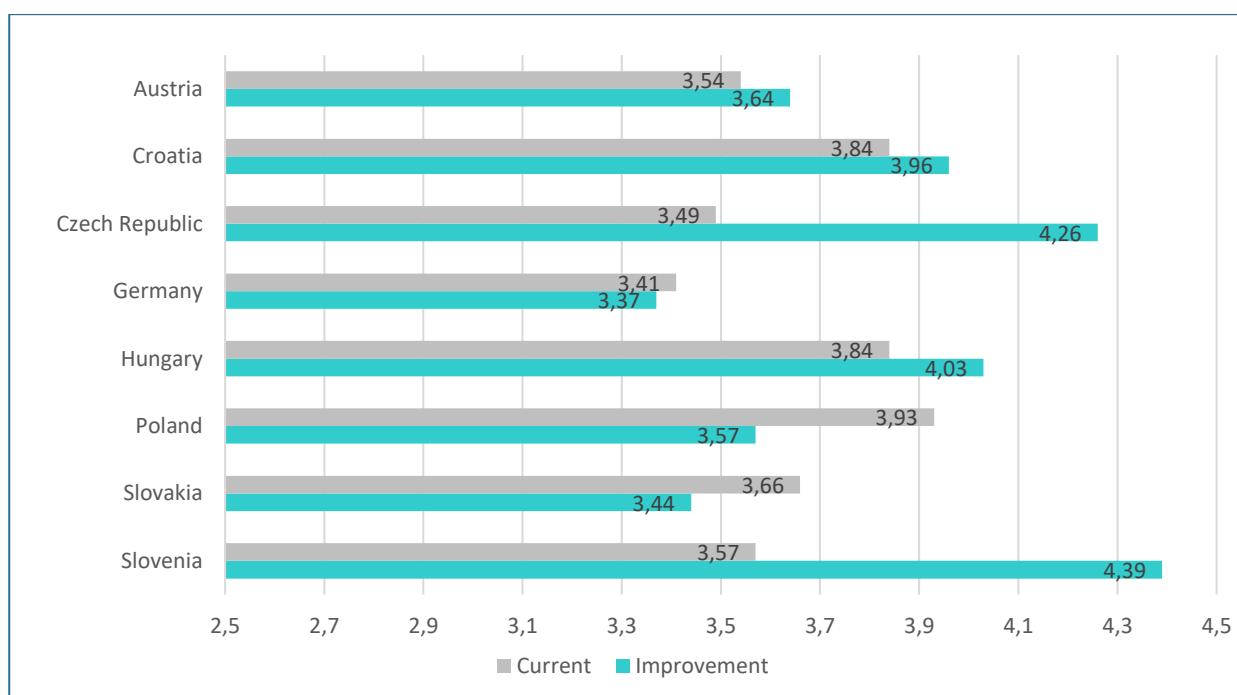
"What are the main obstacles to improve the digital skills of your organization?", was the next question where the SMEs had to evaluate the terms of difficulty from 1 to 5, with 1 meaning the least difficult and 5 meaning the most difficult).

The lack of funds as an obstacle for the improvement of the digital skills in their organization had a rather high average among the obstacles in four partner countries (M between 3.7 and 3.9). Partner countries with biggest obstacle in lack of funds are Poland (M 3.9), Croatia (M 3.9), Austria (M 3.8) and Slovenia (M 3.7) yet less in Slovakia (M 3.5) and much less in Germany (3.3) and Czech Republic (3.3).

Lack of knowledge as an obstacle has been evaluated similarly by the project partners, as the range of rate is from 3.2 to 3.6. Slovakia stands out somewhat below average with the rating of 3.2 in comparison with other project partners.

The results concerning "lack of mentoring programmes" show a rather large span among the participating countries, namely from mean values ranging from 2.7 to 3.8. The highest level of lacking mentorship programmes is seen in Poland (M 3.8) and Croatia (3.8). On the other hand, countries such as Austria (M 2.9) and Slovakia (M 2.7) are not facing problems with the lack of mentoring programmes.

"Lack of time" is seen as the main obstacle in improving the digital skills of the SMEs, with an average of 4.1 in all partner countries (also the lowest standard deviation, meaning the respondents were very consistent and uniform in their responses). The highest score concerning the "lack of time" is seen with SMEs in Austria (M 4.5) and the lowest in Poland and Hungary (M 3.9).

On the other hand, regarding the respondent's issues with "lack of interest" or "lack of language knowledge", the data suggests that these are not perceived as a critical problem by the majority of respondents (both M around 2.5). Concerning the lack of language knowledge, we can see the SMEs from Hungary (M 3.4) stand out with the need for improving the language expertise.

*Figure 8: Obstacles to improving digital skills in organizations*
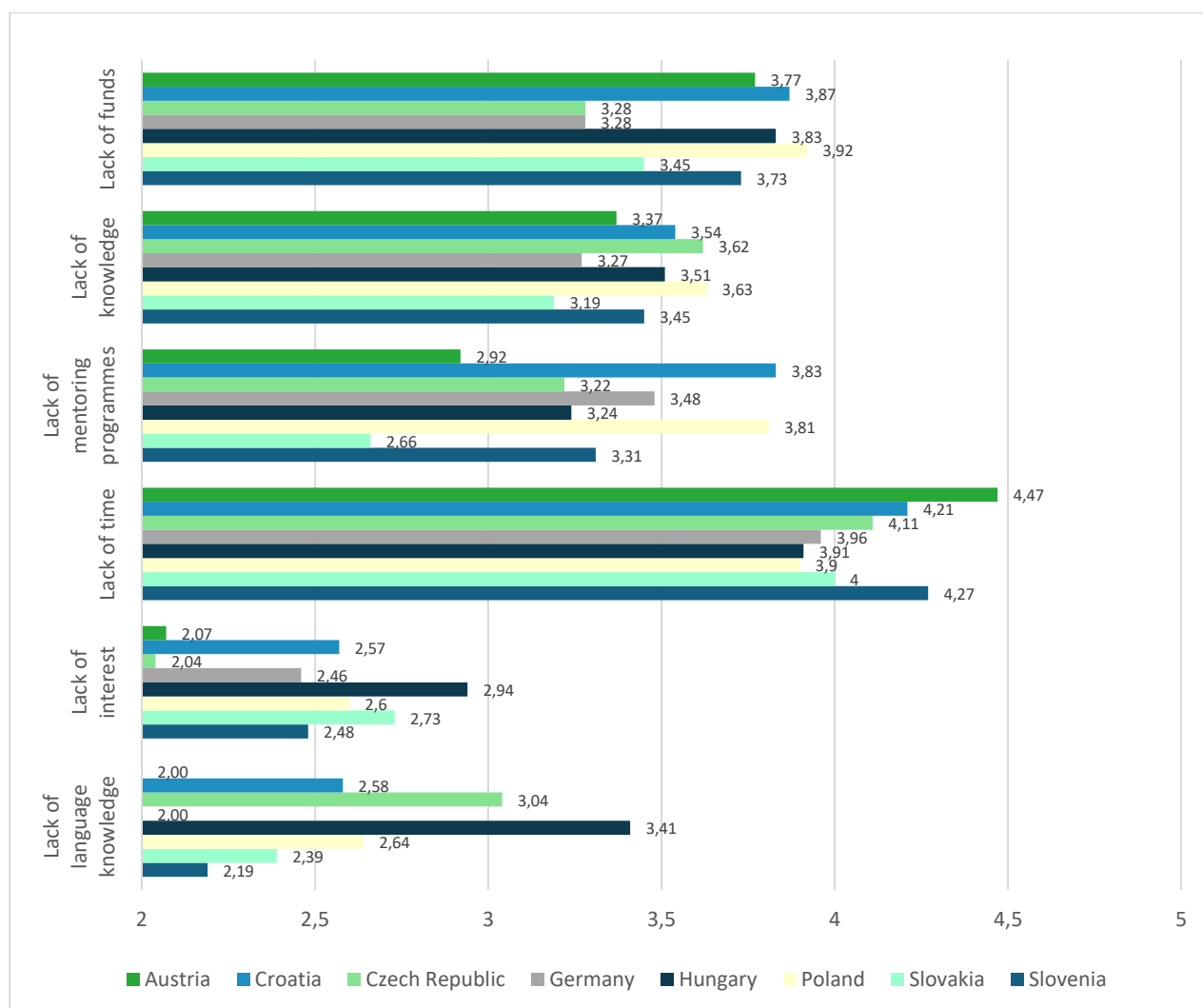
3.1.3 Digital tools and software

The graph in figure 9 presents the importance of the communication channels and platforms among cycling tourism SMEs from partner countries. The results show that all main communication platforms (Facebook, Instagram and Youtube) will grow or remain of the same importance also in the future of the communication process of the cycling tourism SMEs integrated to the survey. There is growing importance of the platforms such as "Google my business", Tripadvisor and "Booking.com". The survey respondents' grade "Platforms for booking experiences" rather low in the present operations (below M 1.5) but in the future cycling tourism SMEs expect much more importance of the booking experiences platforms (M 2.7).

Figure 9: The current and future importance of communication channels and platforms per country
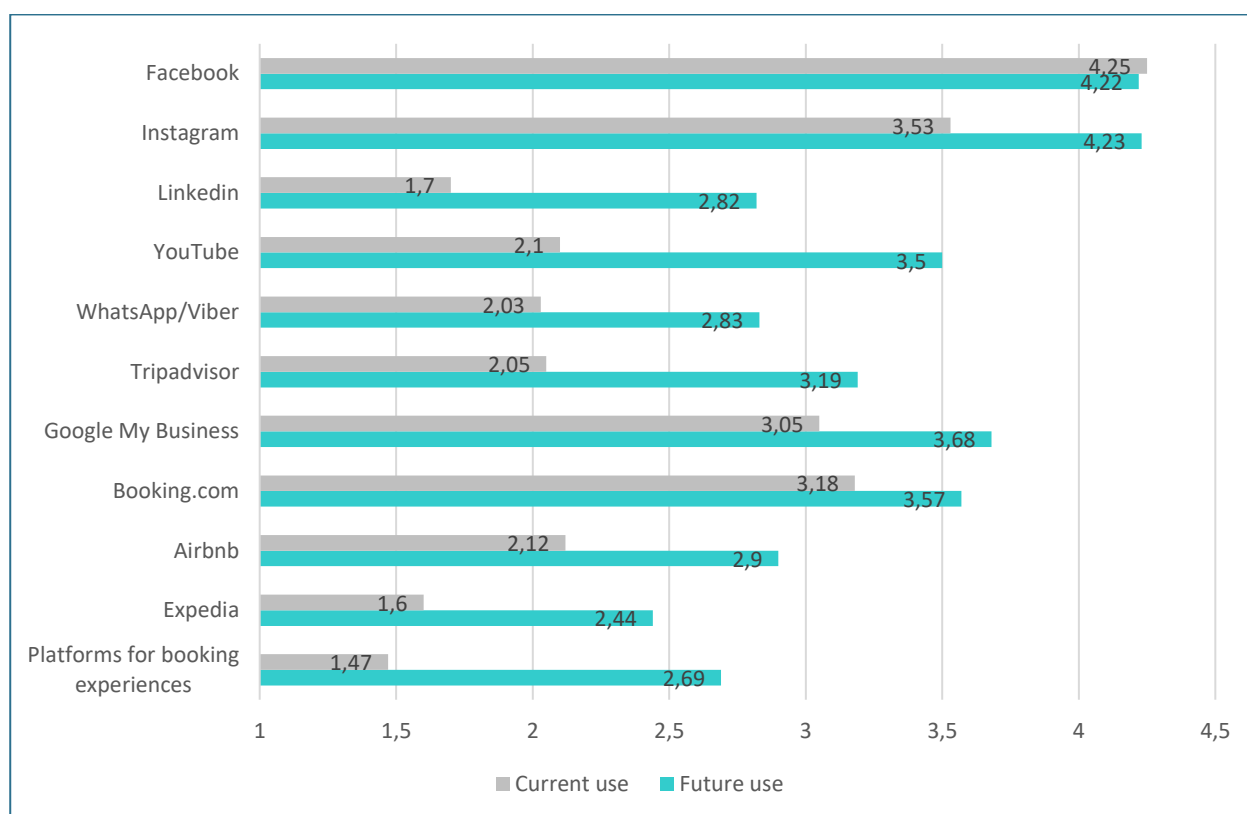
The graph in Figure 10 presents present current and future types of digital skills which are important for the cycling tourism SMEs. Skills or tools such as social media skills, Microsoft Office and "Video and photo editors" are already very important for the cycling tourism SMEs and will also continue to stay important in the future based on the results of the survey.

The data reveals we can see a shift in importance of the virtual reality/touch screens and artificial intelligence (AI) digital tools in the future. The present use of both these types is rather low (M 2.8 and 2.7), but their importance seems more important for the cycling tourism SMEs in the future of doing business. A similar situation is connected to the "Online marketing skills" (M 3.6/4.3) and "Content management systems for home page" (M 3.6/4.1) where both types of digital skills will be even more important for the cycling tourism SMEs in the future of operations.

Figure 10: Types of digital skills important for your business
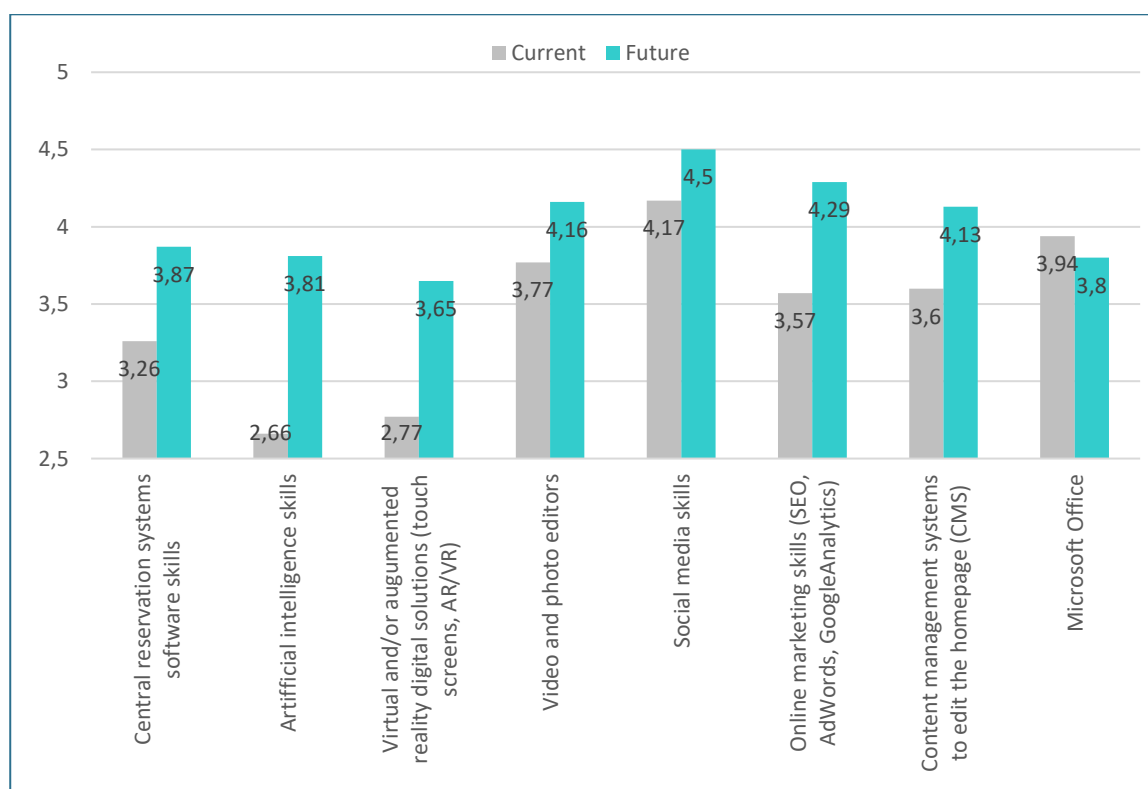
The next question was assessing the importance of software solutions for conducting business in cycling tourism (n=332). According to the survey results, we can conclude that most of the software is very important for executing daily operations, with the "online booking engine" and "online calendars" being the most important ones. We live in the digital era and, therefore, the need for adequate software is a need. The results also point out that most of the cycling tourism SMEs are aware of software solutions and use them to make their business process easier and faster.

Figure 11: The importance of the software solutions for conducting your business
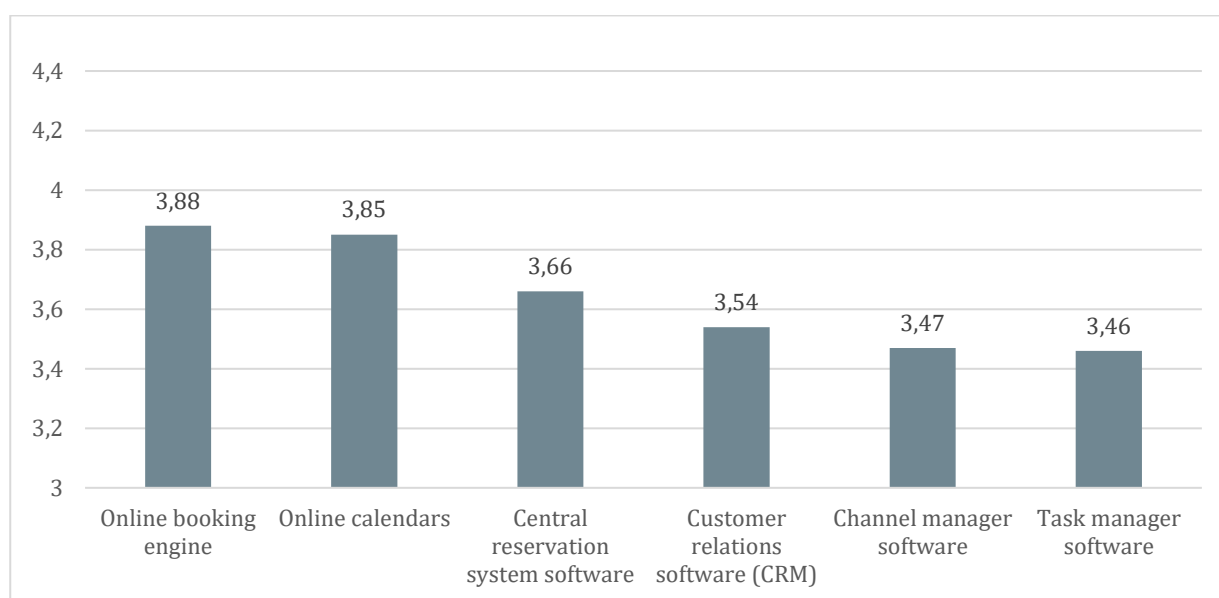
There are some significant differences between the SMEs partners countries. Figure 12 highlights notable distinctions between partner countries in their utilization of software solutions for business operations.

Figure 12: Importance of business software solutions: partner country comparison
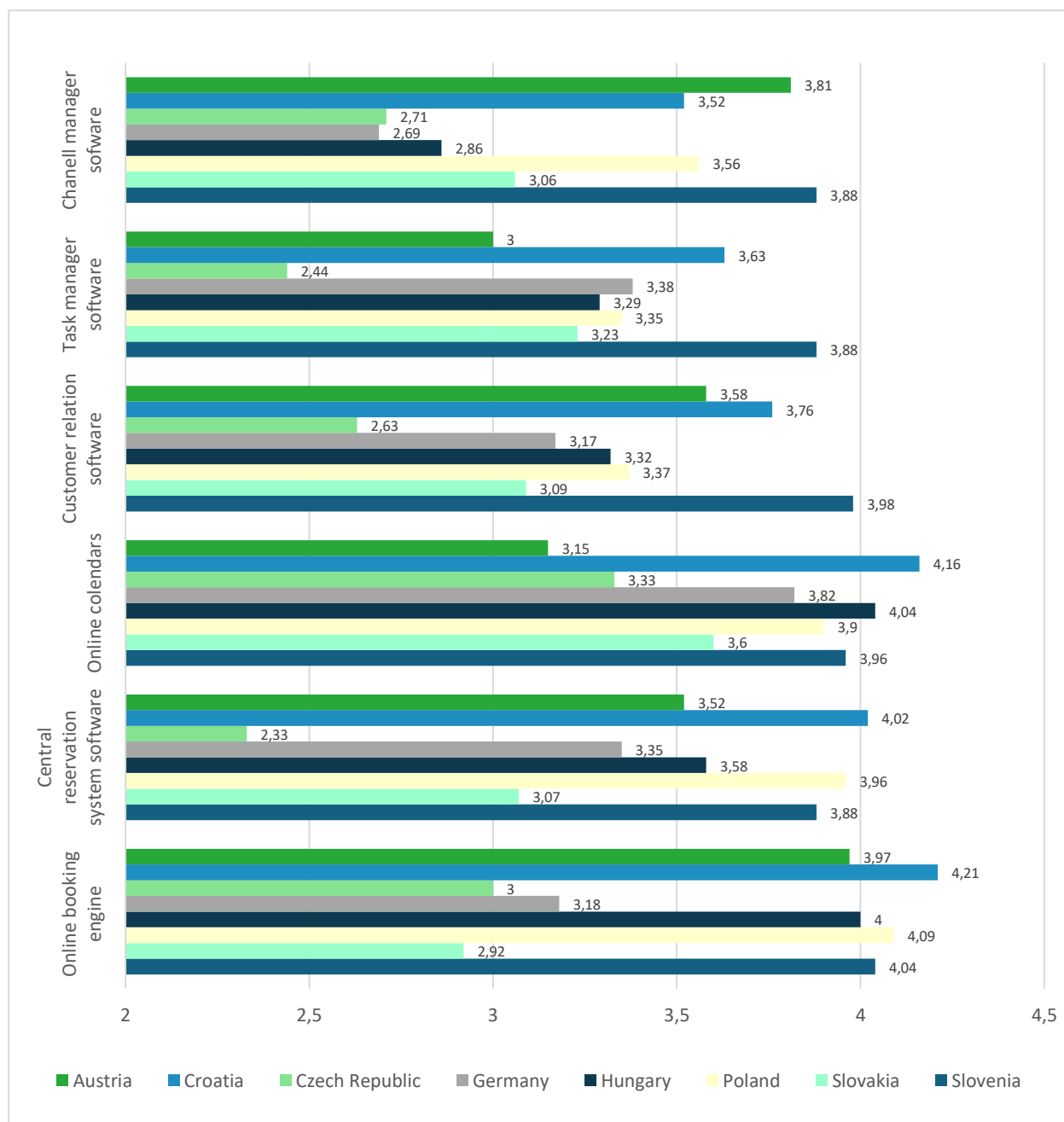
Participants were prompted to evaluate their motivations when selecting software/IT solutions for cycling tourism SMEs. From the results we can compare the present of future importance for the business from 1 to 5, with 5 meaning the most important and meaning least important.

The simplicity of use represents the importance of user-friendly interfaces and systems for stakeholders in the cycling tourism sector. From the results we can see those aspects such as "Simplicity of use (M 4.6/4.7), Performance (4.3/4.5), Costs (4.3/4.4) and Reliability (4.7/4.8)" are very important for present and future cycling tourism SMEs which participated in the survey. This likely relates to the speed and efficiency of the used software. High-performing systems can contribute to faster transactions, better user experiences, and overall improved operations. Stakeholders perceive the importance of software and IT solutions in relation to their costs, including initial investment, maintenance, and potential savings. Software that is reliable, easy to use can enhance efficiency and user adoption.

Lower mean (M 4.0/4.1) is only seen with the aspect connected to "Support in my own language" which is somehow less important for the cycling tourism SMEs. This may include those items such as customer support, documentation, or interfaces available does not need to be presented in multiple languages. Additionally, there is a bit bigger gap between the present and future relevance for the aspect connected to "Tasks it allows me to perform" with the mean (M 4.4/4.6). Stakeholders in the cycling industry should put more focus in the future on implementing the types of solutions that are truly tailored to execute the function each stakeholder needs and provide services that help the SMEs select the most appropriate and tailor-made software solutions for them.

Figure 13: Motivation for current future selection of software/IT solutions
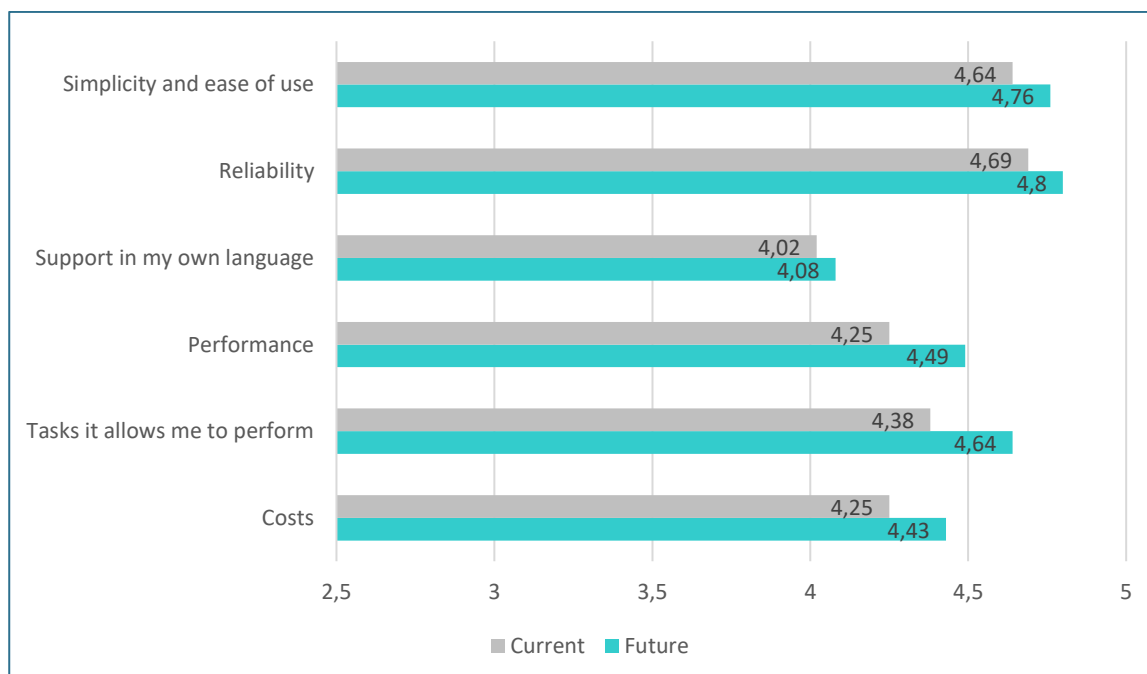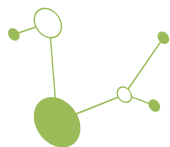
3.2 Thematic focus group discussion results

The focus group discussion centered around digital skills, particularly in the tourism sector. Key topics include the evaluation of current digital skills across countries, gaps in digital skills, obstacles to improving these skills, and the impact of digital platforms and software in business operations. There is a noticeable emphasis on understanding the varying levels of digital competence in different regions, with discussions about rural versus urban digital skill gaps and generational challenges in digital adaptation. The conversation also touches on cultural influences on the self-evaluation of digital skills, highlighting differences in perception among different nationalities. The participants discuss the importance of digital skills for small and medium enterprises (SMEs), mentioning specific tools like booking platforms and social media. The role of destination management organizations in driving digital transformation is also debated, with varying opinions on their effectiveness.

3.2.1 Key challenges within the discussion

1. **Digital Skill Gaps**: There is a disparity in digital skills, particularly between different regions and among various players in the tourism sector.
2. **Training and Education**: There is a lack of specialized digital training tailored to the specific needs of the tourism industry.
3. **Digitalization Challenges for SMEs**: Small and medium enterprises face significant barriers in digitalizing their operations, such as resource limitations and lack of technical knowledge.
4. **Adapting to New Technologies**: The industry shows hesitation or slow adaptation to emerging digital technologies like VR and AI.
5. **Cultural Differences**: Cultural variations impact the perception and self-evaluation of digital skills, leading to uneven digital competency levels.

3.2.2 Identifying key training needs: what should be addressed?

1. **Basic Digital Literacy**: Training programs focused on basic digital skills to bridge the foundational skill gaps.
2. **Specialized IT Training for Tourism**: Tailored training that addresses the specific digital needs of the tourism sector, such as digital marketing, online booking systems, and customer relationship management.
3. **Emerging Technology Adoption**: Courses on how to utilize and integrate emerging technologies like virtual reality (VR) and artificial intelligence (AI) in tourism services.
4. **Cultural Sensitivity in Digital Communication**: Training on cultural nuances and effective digital communication strategies across different cultural contexts.
5. **E-commerce and Social Media Strategy**: Workshops on leveraging e-commerce platforms and developing effective social media strategies to boost tourism business.
6. **Data Analysis and Management**: Training in data handling, analysis, and using data insights for strategic decision-making in tourism.
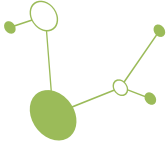
3.2.3 Form of trainings suggested by the participating experts

To best address the key digital gaps identified in the discussion, training formats should include:

1. **Online Modules and Webinars**: Flexible and accessible, allowing for wide participation regardless of location.
2. **Interactive Workshops**: Hands-on training for practical digital skills, enhancing engagement and retention.
3. **Blended Learning Approaches**: Combining online and in-person sessions to cater to different learning styles.
4. **Case Study Analysis**: Real-world examples to understand practical application of digital skills in tourism.
5. **Peer-to-Peer Learning Sessions**: Encouraging collaboration and exchange of ideas among professionals in the sector.
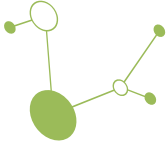
4. IN CONCLUSION: KEY TAKEAWAYS AND IMPLICATIONS

The report discusses the impact of digital technologies on the tourism industry, highlighting how these technologies have transformed the way businesses operate, products are delivered and consumers experience travel. The report highlights significant changes brought about by the digital transformation in the industry, including the increasing popularity of digital platforms, shifting roles of tourism producers, evolving tourism products and experiences, the growing significance of digital marketing, the emergence of new business models, and challenges and opportunities for tourism SMEs.

The purpose of this report was to conduct a gap analysis of current and desired competences for the digital ICTr among the project's partners. This analysis was conducted to identify the skills gap among tourism SMEs and to develop a skills development strategy to address this gap. The first research method used was an online survey, which was administered to a sample of tourism SMEs in the project area. A total of 776 valid responses was collected. Following the completion of the online survey's preliminary analysis, nine field specialists from the project partner participated in a videoconference call focus group discussion. Through the integration of quantitative survey data and qualitative insights from focus group discussions, our aim was to validate or refute the preliminary survey results, promote a more nuanced understanding, and reinforce the significance of the overall conclusions.

The survey results revealed that the self-evaluation of the current digital skills and their need of improvement varies among the project partners, e.g. the biggest gap between the current level and the need for improvement was in the Czech Republic and Slovenia. Partner countries from Austria, Croatia, Germany and Hungary have a small gap of 0.2 or less between the current level of digital skills and the need for their improvement.

The survey results revealed that the most significant barriers to improving digital skills among tourism SMEs are a lack of time, funding, and knowledge. Thus, to address these obstacles, the project intends to develop and offer training programs to enhance their digital and innovation competencies.

Further on, the study findings indicate that mainstream social media platforms like Facebook, Instagram, and YouTube will continue to be prevalent and hold equal significance in the future of cycling tourism communication. As well, the growing importance of platforms like Google My Business, Tripadvisor, and Booking.com is evident.

Concerning the current and future use of digital skills for cycling tourism businesses, the survey results indicate a shift in the prominence of virtual reality and artificial intelligence (AI) tools. This trend mirrors the increased significance in the future for the online marketing skills and content management systems, according to the respondents. Other types of digital tools and skills, such as Microsoft Office, social media expertise, and video and photo editing skills, are already deemed highly valuable by cycling tourism SMEs and are projected to remain essential in the future.

The survey results firmly establish the indispensable role of software solutions in the efficient operation of cycling tourism businesses. Online booking engines and online calendars were identified as the most critical

tools, enabling smooth daily operations in the digital age. These findings underscore the widespread recognition among cycling tourism stakeholders of the need for effective and user-friendly software solutions to optimize their business processes.

The focus group discussion identified several key training needs, such as organizing basic digital literacy training programs focused on basic digital skills, instead on advanced ones, to bridge the foundational skill gaps. Moreover, there is a need for specialized and tailored made IT training that addresses the specific digital needs of the tourism sector, such as digital marketing, online booking systems, and customer relationship management.

In order to increase tourism business, courses on using e-commerce platforms and creating social media strategies that work should be arranged. Additionally, training on cultural quirks and effective digital communication tactics across various cultural contexts should be provided.

Advanced training programmes can cover topics such as data processing, analysis, and applying data insights for strategic decision-making in the tourism industry. These may even address how to use and integrate cutting-edge technologies like virtual reality (VR) and artificial intelligence (AI) in tourism services.

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