Interreg CENTRAL EUROPE

Co-funded by the European Union

ICTr-CE

O2.2.

Pilot action on climate neutral ICTr travel by testing the environmental footprint calculator and cycling product impact measurement system

Version 2

10/2025

Tartalom

O2.2.

Pilot action on climate neutral ICTr travel by testing the environmental footprint calculator and cycling product impact measurement system

1. About the document O2.2

This document has been developed within the framework of Work Package 2 (Creating an Impact Measurement System for Climate-Neutral Travel) of the Innovative Participatory Sustainable Business Model for Cycling along the Iron Curtain Trail (ICTr-CE, CE0100401) project, funded by the INTERREG Central Europe Programme.

The aim of this document, *O2.2 – Pilot Action on Climate-Neutral ICTr Travel by Testing the Environmental Footprint Calculator and Cycling Product Impact Measurement System*, is to provide a comprehensive overview of the pilot actions implemented under Work Package 2. In line with the project application form, this document addresses:

- The functionality and usefulness of both tools.
- The reliability of input and output data.
- The performance of both tools and data storage.
- A step-by-step implementation guide to support adoption of the developed system(s) by other destinations or EuroVelo regions.

To meet these requirements, O2.2 has been structured to include all relevant information reflecting the criteria outlined above. A dedicated chapter summarizes the methodology of the pilot actions, including:

- How the pilot actions were implemented in each region.
- The shared responsibilities and tasks among the partners.
- The timeline of the pilot actions.

The detailed methodology for implementing the pilot actions is documented in D2.4.1 – Design of the Pilot Testing of the Environmental Footprint Calculator and Impact Measurement System.

After reaching a common understanding of the pilot action frameworks, the ICTr-CE partners proceeded to the preparatory phase, during which guiding documents, templates, and other supporting materials were developed by the activity and work package leader partners.

The testing phase was the most critical stage of the pilot actions. Together with ICTr-CE partners and stakeholders—including SMEs, tourism boards, and Associated Strategic Partners—both selected (environmental footprint calculator: Carmacal and the tailor-made Excel tool) and newly developed (Impact Measurement System) innovative tools were tested. This chapter describes how the testing procedure was initiated and the steps taken to implement the pilot actions successfully in each pilot region.

Finally, the document provides a comprehensive overview of the key results of the pilot actions. Both tools were evaluated by the ICTr-CE partners through a Google Form survey. The collected responses were analyzed to identify further development potential, enabling fine-tuning of the final tool. This final tool constitutes one of the solution and result indicators of the ICTr-CE project (O2.1 – Impact Measurement System for the Cycling Tourism Product).

The document includes three annexes:

- Annex 1: Step-by-step implementation guide, describing the suggested learning path for adapting the impact measurement system to another EuroVelo route or other cycling route.

- Annex 2: Evaluation form of CO2 footprint calculators
- Annex 3: Evaluation form of IMS
- Annex 4: Summary form to be completed by the project partner responsible for the output document, including information on the innovative aspects of the output, target group involvement, transferability, sustainability, and potential lasting effects.
- Annex 5: Quality assurance document to ensure transparency and maintain high-quality standards regarding the output document.

2. About the methodology

The methodology for the pilot action activities was developed by Westpannon, in collaboration with PP5 Trail Angels (WP1 Leader), PP2 Crost, and PP12 OETE (WP2 activity leaders). The detailed methodology is documented in D2.4.1 – Design of the Pilot Testing of the Environmental Footprint Calculator and Impact Measurement System, which was submitted in PR4.

During the design of the methodology two main principles were taken into consideration: the requirements stated in the project application form and the definition of the pilot action activity itself. Based on the definition of the INTERREG Central Europe programme, the pilot action itself has to be developed jointly and implemented and financed within the framework concerned project (in this case ICTr-CE). It is also stated that new procedures, instruments or tools could be tested within a pilot action as an "experimentation or demonstration". Additionally, the output indicator requires the involvement of organizations from at least two participating countries and should result in the lead to the development of at least one project solution.

Important to mention that the primary intention was to strictly follow the application form of the project in order to satisfy the requirements of the Interreg Central Europe JS/MA and to be in line with the dedicated and allocated budget to each project partner. The application form states which pilot activities have to be implemented in which pilot region, because not all WP1 and WP2 results have to be tested in each pilot region (total 3 regions).

Pilot area	Involved Partners)	Tasks
Pilot Area North	City of Gdansk (PL)	✓ O.1.1 Pilot Action
	WZP (PL)	✓ O.2.2. Pilot Action
	OETE (DE)	X Booking center is not required
Pilot Area Center	Trail Angels (AT)	✓ O.1.1 Pilot Action
	Partnerstvi (CZ)	O.2.2. Pilot Action
	Ekopolis (SK)	✓ Booking center is required (D3.1.3)
Pilot Area South	Westpannon (HU), CROST (HU)	✓ O.1.1 Pilot Action
	Iskriva (SI)	✓ O.2.2. Pilot Action
	KKZ (HR)	✓ Booking center is required (D3.1.3)

Aim of WP2 Pilot Action

If the aim of the Work Package 2 pilot action has to define in one sentence, it can be stated as following:

"Test the functionality and usefulness of the ICTr-CE innovative tools, test the reliance of input and output documents and test the performance of the Carmacal online system (and offline tailor-made excel sheet) and the impact measurement system"

Methodology of WP2 Pilot Action

If the methodology of the Work Package 2 pilot action has to define in one sentence, it can be stated as following:

"Use both systems and complete the evaluation form to assess the tools' performance, operations, and usability."

But the approach of the ICTr-CE partnership was different. To ensure full transparency in data collection and the overall pilot action procedure, this document summarizes all steps and results related to the pilot actions in each pilot area.

Based on the previous results of the ICTr-CE project in the framework of Work Package 2 (Act. 2.2), the partnership selected the Carmacal as suitable tool for measuring environmental impacts of tourists, while the Impact Measurement System was developed as a tailor-made tool for measuring the economic- and social impacts of tourists (Act. 2.3).

During the development of the impact measurement system and the adaptation of the environmental footprint calculator, it became clear that both tools will be operated by the selected booking center(s), which will be responsible to manage bookings along the EuroVelo 13 – Iron Curtain Trail after the project concludes. Since WP1 also included a pilot testing activity focused on the business model - developing and testing the 10 stage daily linear product, the digital tools and booking system - the partnership decided to combine the testing of WP1 and WP2 together, as a frame of one single pilot action.

Accordingly, each pilot region organized a joint field trip, where participants tested the tourism product and evaluated both the business model (WP1) and the innovative tools (WP2). In addition, guided explorer tours were organized in the South and Center pilot areas with invited guests.

While D2.4.1 contains detailed information on all pilot action activities and the exact tasks each partner had to implement, this document provides a transparent and comprehensive overview of the four core activities implemented jointly by the partnership:

1. **Desk Research** – preparation, analysis, and review of relevant materials.
2. **Field Trips** – on-site testing of the tourism product and tools.
3. **Guided Explorer Tours** – additional engagement and evaluation with invited participants.
4. **Travel Reports** – documentation and assessment of pilot action outcomes

Desk Research

Desk research is an integral component of the pilot action and significantly contribute to the Travel Report (see the dedicated section below). While desk research traditionally involves collecting and analyzing existing data or literature, in the ICTr-CE pilot action this activity was complemented by empirical methods, including on-site visits, interviews, and stakeholder consultations across the North, Center, and South pilot regions.

The desk research addresses the following topics:

- **Route Evaluation:** Assessment of the overall condition of the route, including signage, surface quality, cycling-related services (e.g., restaurants, accommodations), cycling infrastructure, and points of interest linked to the Iron Curtain as cultural heritage.
- **Stakeholder Mapping:** Identification of stakeholders for potential cooperation within the ICTr-CE business model. This map supports business model development by highlighting potential partners along the pilot areas.
- **SME Competences:** Overview of the skills and capacities of tourism service providers, including digital skills, collaboration potential, and certifications, to ensure they meet ICTr-CE quality criteria and could cooperate with ICTr-CE booking centers.
- **Tour Operator Interest:** Summary of tour operators' interest in becoming official ICTr-CE booking centers and an outline of the open call procedure conducted in the relevant pilot areas.

Each project partner was responsible for conducting the desk research in their respective pilot region. The inputs were gathered into a spreadsheet document (based on a template) and were summarized the key findings in the travel report document.

Field Trip

Each pilot region conducted a field trip to evaluate the overall condition of the EuroVelo 13 – Iron Curtain Trail, assess available cycling tourism services, engage with service providers, and validate the findings from the desk research. A total of three field trips were conducted, each following four key principles:

1. **Stakeholder Involvement:** Include ICTr-CE stakeholders, such as project partners, representatives of local DMOs, and Associated Strategic Partners (ASPs).
2. **Cross-Border Organization**: Ensure shared responsibilities between partners for planning and implementation.
3. **Coverage**: Complete a minimum of five continuous daily stages along the route.
4. **Evaluation:** Complete the evaluation tools (evaluation forms) developed in WP1 and WP2 (results are described in Chapter 5).

Each partner had to prepare a field trip document, based on the field trip guideline provided by Westpannon. Additionally, a comprehensive overview about the field trip was included int the Travel Report, and the results of the field trip significantly contributed to both O.1.1 and O.2.2 documents.

Guided explorer tour

As part of the ICTr-CE pilot action implementation, two guided Explorer Tours were organized in the pilot areas Central and South pilot areas to test the ICTr-CE cycling product. These tours were coordinated by the selected regional booking centers under the supervision of Trail Angels. This means these explorer tours were launched only in Central and South pilot areas. In the Northern pilot region, project partners are only observers, and the collected information will be used in O1.2 in order to explore implementation possibilities of ICTr-CE business model.

The primary target groups for the guided explorer tours were invited guests, including cycling tourists and cycling enthusiast. All guided explorer tours had to adhere to the following core principles:

1. **Participants:** A minimum of five invited participants per tour, with costs covered by project partners.
2. **Organization:** The tour was organized and implemented in a cross-border manner by the booking centers under Trail Angels' supervision, with regional partners supporting the process.
3. **Coverage:** The total distance covered at least five consecutive daily stages.
4. **Evaluation:** Completion of evaluation tools by both participants (WP1) and booking centers (WP2).

These tours were more customer- and market-oriented than the field trips and aimed to assess the ICTr-CE product's appeal and functionality from the end-user perspective. All the feedback gathered during the explorer tours supported Trail Angels and the project's capacity-building efforts. The results of the guided explorer tours will be integrated into deliverables D1.3.1, D3.1.3, and outputs O1.1. and O1.2.

Travel Report

The Travel Report is a key document providing a structured overview of the pilot action activities implemented in WP1 and WP2, including desk research, field trips, and guided explorer tours. It serves as the foundation for the comprehensive project outputs **O1.1** and **O2.2**.

The report consists of two main sections:

1. Summary of Desk Research Activities – detailing the findings from each pilot region.
2. Analysis of Field Trip Results – including insights from the guided explorer tours.

The Travel Report is a content-driven document aimed at supporting the ongoing development of the EuroVelo 13 – Iron Curtain Trail and future cycling tourism products. To ensure transparency and compliance with INTERREG Central Europe Programme requirements, all reports will be made publicly available on the EuroVelo 13 official website, BookYourTrail.com, and the ICTr-CE project website

A standardized template and detailed guidance for preparing the Travel Report were provided by PP5 Trail Angels. Each of the three pilot regions (North, Center, South) produced one Travel Report, with all relevant partners involved in its preparation.

Timeline of the pilot action implementation

1. May 2025 - Desk Research activity: mapping of stakeholders, collection of relevant information about tourism service providers, POIs, route conditions etc.
2. June 2025 - Development of the tour script: based on the developed tour script template, partners filled in the tour script related to the planned field trip – based on the results of the desk research activity
3. June 2025 - Partners learned more about the innovative tools developed in the frame of the ICTr-CE project: online events were organized by PP2 Crost and PP12 OETE in order to present the operation of both innovative tools
4. July 2025 - Based on the experiences gained on the online meeting(s) focused on the innovative tools, the partners started to use them and started to fill in the carbon footprint calculator and IMS system related to the field trip (tour script document) - based on the inputs of desk research or the directly collected inputs by the service providers involved in the field trip activity
5. June/July 2025 - Implementation of the field trip – ICTr-CE partners organized and implemented the 5 daily stage long cross-border cycling trip and tested it based on the WP1 evaluation form
6. July 2025 - Evaluation of the pilot action activities: basically 3 evaluation forms were filled in:
    a. WP2 innovative tool: Carbon footprint calculator
    b. WP2 innovative tool: Impact Measurement System
    c. WP1 business model and cycling product: the experience design cycling product
7. August 2025 - Elaboration of the field trip report: based on the guideline, 3 field trip reports (1-1 for each pilot region) were elaborated jointly by the regional partners of the ICTr-CE partners
8. September/October 2025 - Guided explorer tour: A guided explorer tour was organized in South and Center pilot regions by selected booking centers – the direct feedback of the travellers (guests) was included into the WP1 experience design evaluation form. The innovative tools related evaluation forms will be used in O2.1 – develop the final solution of the Impact Measurement System

9. October 2025 - Elaboration of the Travel Report – This document serves as a summary of the desk research, field trip and guided explorer tour activities, and give a comprehensive overview about the previously mentioned tasks at pilot region level
10. October 2025 – Elaboration of O1.1 and O2.2 documents by the work package leaders PP5 Trail Angels and LP1 Westpannon

3. Preparatory phase

As mentioned earlier, D2.4.1 was developed by Westpannon together with WP1 Leader PP5 Trail Angels by the end of PR4. This document served as a general guide for the methodology of the pilot action, clearly outlining the tasks, responsibilities, and timeline for each partner in a transparent and understandable manner.

To ensure clarity and a common understanding among all partners, Westpannon, together with the host PP7 City of Gdansk, organized the 7th Steering Committee and Partner Meeting on 13–14 May 2025, focusing mainly on the pilot action activities planned in Work Package 1 and Work Package 2. During the meeting, the implementation plan for the pilot actions was presented, providing a comprehensive overview of the approach, partner responsibilities, detailed tasks, and timeline. The Q&A session proved highly useful for partners and pilot action leaders alike.

Following agreement and a shared understanding among all partners, all supporting documents were prepared and distributed to the ICTr-CE partnership. These documents facilitated the preparation and implementation of the pilot action activities, particularly the evaluation forms designed to collect all relevant inputs and feedback regarding the Carmacal Carbon Footprint Calculator (online and offline versions) and the developed Impact Measurement System (IMS).

Prepared supporting documents:

- **Desk research template + joint excel sheet (per pilot area in Google Drive)**

The Desk research template provided a structured format for collecting all inputs relevant to WP2 innovative tools. The Excel sheet contained information on service providers, points of interest, general route conditions, and cycling-friendly infrastructure, all recorded at a daily stage level. Uploading the sheet to Google Drive allowed partners to collaboratively fill in one joint document, ensuring a co-creation process.

- **Field trip Guideline - Organizational tasks**

A field trip guideline was prepared by Westpannon to guide partners on organizing field trips, detailing participant tasks and partner responsibilities. The document outlined all necessary steps for successful implementation. Once a joint agreement on the field trip itinerary and programme was reached, partners were able to organize and implement the tours effectively.

- **Travel Report Template + Guideline**

PP5 Trail Angels prepared a template and short guideline for the Travel Report. This document aimed to provide a comprehensive overview of the results of the desk research and field trips for all three pilot areas, as well as summarize the results of the guided explorer tours in the Central and South regions. The Travel Report serves as the basis for the pilot action-related outputs, namely O1.1 and O2.2.

- **Preparation for Pilot Area Meetings (Guideline Documents for Carmacal and IMS)**

To facilitate online meetings regarding the innovative tools developed in WP2, PP2 Crost and PP12 OETE developed guideline documents for the tools. The Carmacal guideline explains system use from a user perspective, while the IMS guideline focuses on the included indicators and describes how users can collect

the data. This distinction reflects the simpler user interface of the IMS versus the more detailed interface of Carmacal. These guidelines were distributed to all partners prior to the online meetings.

- **Evaluation Forms and Questionnaires (CO2 and IMS)**

Before the the online meetings in each pilot region, evaluation forms for both tools were prepared by PP2 Crost (Carmacal/CO2) and PP12 OETE (IMS). The forms were digitalized in Google Forms and shared with ICTr-CE partners after the field trip calculations were completed. These surveys were the main instruments for collecting feedback from ICTr-CE stakeholders regarding the innovative tools and their operation. The responses also served as primary inputs for the elaboration of **O2.2** in Work Package 2. The questions regarding both evaluation forms can be found in Annex 2 and Annex 3.

4. Testing phase and results of the pilot action in WP2

4.1. Results of the Desk Research activity

Desk Research in the Northern Pilot Area

The desk research in the Northern Pilot Area was a transboundary effort carried out jointly by one German partner (OeTE) and two Polish partners (West Pomerania Region and the City of Gdańsk). Most businesses in the area are small, often family-run companies that cater to a wide range of customers, including cycling tourists. However, they generally lack the time and resources to follow complex CO_2 emission reduction policies, calculate emissions, or provide additional operational details—particularly during the high season. Despite these limitations, all visited places expressed openness to adopting eco-friendly solutions and services.

Some service providers are unaware of their region's connection to the Iron Curtain and therefore do not use this heritage in promoting their products or services. It is important to emphasize and promote the historical aspects of the EuroVelo 13 – Iron Curtain Trail (ICTr) at the local and regional levels to enhance product visibility and availability. Along the route, there are only a few mobility service providers and tour operators offering dedicated services for cyclists.

In the Points of Interest (POIs) section, the route features numerous tourist attractions, both natural and cultural. Many POIs are related to military history, primarily from World War II and the Cold War, making them highly relevant for promoting the ICTr. However, a significant number of cultural attractions—particularly those located in smaller towns and villages—operate only during the summer vacation season, resulting in limited access during other times of the year.

The Route Condition section indicates that, as the most popular cycling route in Poland—and also highly popular in Germany—the trail is generally well-maintained and in good condition. Most sections are separated from car traffic and paved with asphalt, and the route is almost fully signposted, making navigation easy. It offers a relatively flat surface and numerous rest areas, making it suitable for cyclists of all skill levels and any type of bicycle. However, due to its popularity, the trail can become very crowded during the summer months, especially in coastal towns and villages. It can also be challenging on windy days because of its coastal location.

Overall, the desk research provided a clear overview of the ICTr Northern section and highlighted both its strong potential and key challenges for further development.

Desk Research in Center Pilot Area:

The desk report was prepared by two partners. Ekopolis Foundation covered the Slovak sections and was responsible for overall coordination, and Partnerství o.p.s prepared the Czech and Austrian parts.

Mapping service providers proved challenging, as several long route segments lack adequate accommodation and dining options—particularly certified Cyclists Welcome providers, which would be highly desirable. Many providers were not deeply interested in participating in the survey, as they were busy during the tourist season and not motivated for calls or meetings. The only incentive offered was potential inclusion in a future Iron Curtain Trail (ICTr) product, which was not sufficient to ensure strong cooperation.

Obtaining data for Carmacal and IMS was also difficult. The staff responsible for communication - marketing managers, receptionists -, often lacked the necessary technical or operational knowledge and perceived the task as additional work. Nevertheless, thanks to our experience and reputation, we succeeded in including suitable providers and expect their willingness to continue cooperating in the future

In the Points of Interest (POIs) section, the focus was mainly on places related to the Iron Curtain, as this is the defining theme of the ICTr. More general POIs, such as architectural landmarks or local museums, were included only when particularly relevant, since information about them is already widely available. Overall, there is a significant number of POIs connected to the Iron Curtain, providing strong potential to shape the product specifically around this theme.

The Route Condition section was of particular importance. The project team has detailed knowledge of the routes in Slovakia and the Czech Republic, allowing for comprehensive input. However, some Austrian segments could only be updated following the field trip. The first two stages of the route require special attention when selecting appropriate paths. During the field trip, several sections were identified as technically demanding or having steep elevation, making them unsuitable for general cycling tourism products—except when using e-MTB bicycles and clearly informing users about the level of difficulty.

Overall, the desk research provided a solid overview of the ICTr Central section and served as a valuable and well-integrated component of the ICTr project.

Desk Research in the Southern Pilot Area

During the desk research phase, it became evident that a significant challenge along the Southern section of the Iron Curtain Trail (ICTr) is the poor infrastructure, particularly in the Croatian–Hungarian border region. In the small settlements located in Hungary's Baranya border area, the number of accommodations, restaurants, and other service providers is very limited.

When contacting the few available service providers by phone, we assessed their willingness to cooperate in the development of the ICTr as a tourism product. During these telephone conversations, all contacted providers expressed interest and enthusiasm for participating in the ICTr initiative. However, approximately 70% did not respond to follow-up data requests sent by email. Consequently, the relevant section of the desk research table for the Croatian–Hungarian route was completed using information available online—primarily from the service providers' websites and from the phone interviews conducted.

This lack of infrastructure also presents practical problems for travellers. If a bicycle breaks down or gets a flat tire, there are almost no repair options along the route. Moreover, refreshment opportunities are limited, as shops are few and far between in these sparsely populated areas.

The main foreign language spoken by service providers is English, though Croatian is also commonly used due to proximity to the border, while German is not widely spoken. All service providers along the route maintain some form of online presence, but only about half use digital booking systems. This reflects the small scale of most businesses in the region, which host relatively few guests and therefore do not require online booking tools.

Mapping the route also presents challenges. Certain sections are not displayed on Google Maps, and no street view is available for verification.

Despite the generally positive attitude expressed during phone conversations, many service providers shared that similar initiatives in the past had led to negative experiences, making them reluctant to engage out of concern for potential obligations. The lack of awareness about international projects and the limited experience of service providers in cross-border cooperation have led to a degree of isolation within the region.

Additionally, there is no transfer service available in the area. Only general package delivery companies operate there, and they do not offer same-day delivery, which can be challenging for less experienced cyclists in need of logistical support.

The situation is more positive in terms of Points of Interest (POIs). The region offers a wide range of attractions, including country houses, castles, wine regions, historic towns, and waterfront areas—ensuring that every visitor can find destinations suited to their interests.

4.2. Results of the Field Trip activity

Field Trip in North Pilot Area:

The North Pilot Area field trip, conducted from 1 to 7 July 2025, aimed to test and validate selected stages of the Iron Curtain Trail (EuroVelo 13), focusing on route quality, infrastructure, services, and thematic Points of Interest (POIs). The transboundary route followed a five-stage plan from Stralsund (Germany) to Kołobrzeg (Poland), coordinated by PP12 OETE in cooperation with PP7 WPZ and PP8 Gdańsk.

The field trip was based on joint desk research and a detailed Tour Script, which outlined daily routes, accommodations, service providers, and key stops. All logistical elements were organized in advance, and a WhatsApp group was established for real-time coordination during the trip.

Each day, participants carried out practical evaluations of the route, infrastructure, and POIs, and completed structured Experience Design evaluation forms (via Google Forms) assessing services, cycling conditions, and the thematic relevance of Iron Curtain-related sites. Daily narrative reports and route condition data were also collected and compiled into the field trip report.

Additionally, the environmental and socio-economic aspects of the pilot were measured using two project tools: the CO_2 footprint calculator (CARMACAL) to assess the environmental impact of travel and service consumption, and the Impact Measurement System (IMS) to evaluate the broader effects of the route experience on tourism, sustainability, and service quality.

Prior to the trip, online training sessions were organized to familiarize all Pilot Area partners with the use of these tools. After the trip, each partner submitted their completed evaluation forms, and the results were compiled to identify key findings and recommendations.

This report summarizes the full field trip implementation and evaluation process for the North Pilot Area and contributes to the overall Travel Report Document developed for the ICTr-CE project.

Date and location of field trip: 01.07.2025 - 06.07.2025 between Stralsund and Kolobrzeg

General experiences:

- Section 12: Stralsund to Greifswald: General experience was good, but users pointed out several areas for improvement with ICTR signage and quality of surface.

- S11: Greifswald to Wolgast: Mostly very good experience thanks to dominating smooth surfaces and well-marked trails.
- S10: Wolgast to Swinoujscie: Rather good but challenging experience due to elevation changes and mixed surfaces.
- S9: Swinoujscie to Dziwnowek: Mixed: POI's on the route were interesting and relevant for the ICTr theme but the quality of the route and it's signage left much to be desired.
- S8: Dziwnowek to Kolobrzeg: General good experience thanks to, mostly good quality of surfaces, flat terrain, good rest places and interesting POI's, but some of the sections were crowded.

Weaknesses or what needs improvement:

- S12: Participants noted moderate rideability in some sections due to mixed surfaces: cobblestones, fine gravel, and coarse gravel made parts of the route less comfortable, even on mountain bikes; no ICTr signs.
- S11: After Peenemünde, the surface changed to loose gravel or concrete plates, which made riding less comfortable; no EV13 signs at Greifswald.
- S10: A lot of mixed surfaces of the route and challenging elevation changes. Some signs were missing. Limited bike storage in hotel.
- S9: Overall, the stage was physically demanding due to sandy sections and hilly terrain. Participants noted that deep sand made riding impossible in parts. Some crossings or signposts were missing.
- S8: The section included changing surfaces: paved sections, gravel stretches, and occasional cobblestones. Some sections, especially shared with pedestrians, can be crowded.

Strengths or what has already worked well:

- S12: Generally good signage along a route.
- S11: Sections at the start with smooth surfaces and well-marked trails. The Iron Curtain-related sites were interesting.
- S10: POI's were understandable and interesting, with good educational panels. The sites were accessible and well-integrated into the trail. Coastal POIs were appreciated for combining nature with cultural storytelling.
- S9: POI's on the route were interesting and relevant for the ICTr theme.
- S8: The ride was mostly flat and comfortable. The group highlighted good quality multiple rest places. POI's were found interesting and accessible, with good educational signage. The Monument of Poland Marrying the Sea was a symbolic final highlight.

Recommendations for further developments:

- S12: Consistence of signage for EV 13 and quality of the surfaces should be improved at some sections.
- S11: As above
- S10: As above.
- S9: The trail surface and signage could be improved for smoother cycling.
- S8: The trail surface between Pogorzelica and Mrzezyno is manageable, but it could be improved in the future.

Most accommodations require to work on increasing the satisfaction of cycling tourists (visible cycling-friendly certification, limited or inconvenient spaces for bike storage, not providing dinner for guests and lack of language skills).

Field Trip in Center Pilot Area:

Date and location of field trip: 12.07.2025 – 16.07.2025 between Lipno and Drosendorf

The field trip for the Central Pilot Area took place from 12 to 16 July 2025, covering the cycle route EuroVelo 13 – Iron Curtain Trail along the Czech-Austrian border from Frymburk/Lipno n.Vlt. to Drosendorf (5 stages from 10). The trip was carried out according to the agreed Tour Script and Desk Research, with daily route testing, evaluation of services, and visits to key POIs.

Each day, the route conditions, missing signage, and rideability were documented, and the Experience Design evaluation forms were used to capture feedback on services, infrastructure, and Iron Curtain-related sites. The Field Trip Report for the Pilot Region Central presents dialy summary with key finding from the evaluations, supported by photos and short tables. These tables have been summarized as a condensed overall result table in this Travel Report, as presented above.

The five-day field trip covered a total of 257 km on EuroVelo 13 and took in the Czechia and Austria. Although the field trip was carried out by two cycling experts with decades of experience in cycle tourism, it provided a wealth of experience for the further development of EuroVelo 13 in the Central pilot region.

On the one hand, the field trip highlighted the tremendous potential and attractiveness of EuroVelo 13 in the Central pilot region. This section in particular is able to impressively convey to cyclists both the history of the Iron Curtain and the scenic beauty and cultural richness of this region.

On the other hand, the results of the field trip can be summarized by saying that there are still many challenges ahead for the further development of EuroVelo 13 in this section. For individual sections, this includes improving the cycle route, from improving the surface of the route and avoiding busy roads to optimizing EuroVelo-related signage. In addition, the tourist infrastructure in individual sections still has room for improvement in terms of both quality and quantity. This means that even more accommodation providers need to be inspired by the EuroVelo 13 concept and, above all, improve their services for cyclists.

Another challenge will be to work with the selected EuroVelo 13 booking center to integrate the tools for Carbon Footprint (Carmacal) and sustainability measurement (IMS) into the cycling products and, above all, to improve the associated sustainability indicators step by step. The qualitative improvement of public transport and the increase in the sustainability performance of the service partners involved will certainly be a longer-term challenge.

- Infrastructure:

Some sections are in need of improvement in terms of road surface.

Some sections have to be avoided, because they are public roads with heavy traffic.

Some sections require improved signage, in particular there is often a lack of signage relating to EuroVelo 13.

- Service providers:

It is necessary to integrate more service providers into the EuroVelo 13 concept.

The quality of service for long-distance cyclists must be improved in accommodation facilities.

The quality of information for long-distance cyclists must be improved with regard to the opening hours of attractions and access to services.

The user-friendliness of the digital tools (Carmacal, IMS) was OK but needs to be optimized for use in the booking centre.

- Strengths:

Experience value: the section of EuroVelo 13 covered in the field trip is very attractive in terms of landscape and offers numerous cultural sights. In particular, the diverse facilities relating to the history of the Iron Curtain offer concrete added value for long-distance cyclists.

Service providers: the good quality of the regional food and the hospitality of the service providers tested are particularly noteworthy.

Capacity building: testing Carmacal and IMS improved the environmental and socio-economic assessment skills of the project partners. The Excel version of Carmacal was considered simpler and more user-friendly.

- Key recommendations (Top 5):

1. Improve the quality of the route, by improving the road surface in various sections and avoiding busy traffic roads
2. Improve and implement standardized signage for these sections, communicating EuroVelo 13
3. Increase the quantity of service providers involved in the EuroVelo 13 concept as well as improve the quality of services they provide
4. Implement an online information tool to improve the quality of information for long-distance cyclists on EuroVelo 13
5. Consistent integration of sustainability tools (Carmacal and IMS) to position and profile EuroVelo 13 as a sustainable long-distance cycle route.

Field Trip in South Pilot Area

Date and location of field trip: 20.07.2025 – 24.07.2025 between Szentgotthárd (HU) and Durdevac (HR).

The five-day trip along EuroVelo 13 – Iron Curtain Trail (Szentgotthárd–Đurđevac) offered a rich mix of cycling, cultural experiences, and sustainability testing. On the approximately 244 km route spanning three countries, participants were able to discover diverse landscapes, historical heritage sites (e.g. Iron Curtain Museum, Lovászi Bunker, Naive Art Gallery) and authentic gastronomy. Cycling was generally enjoyable, with moderate physical exertion, balanced stages, and e-bikes positively influencing comfort. Swimming in the lake and shaded rest areas contributed to the participants' well-being. The usability of Carmacal and IMS was also tested in practice, providing valuable learning opportunities for future sustainable tourism planning.

Weaknesses or areas for improvement:

- infrastructure deficiencies: several road sections (especially in Croatia) were gravelly or poorly maintained; missing or demolished bridges resulted in unexpected detours
- availability of services: limited access to drinking water, bicycle repair points, and shops made some sections less comfortable and risky in case of breakdowns
- traffic safety: while traffic was low on most sections, some Croatian sections had fast vehicles and agricultural machinery, which reduced safety
- digital tools: Carmacal caused registration/login problems, did not offer an “electric car” option, and required time-consuming data entry. IMS occasionally reported technical errors (e.g., "500 server error") and offered limited filtering and display options.

Strengths and what already worked well:

- route experience: participants unanimously rated the cycling conditions highly (average score 4.6–4.8), even though in several places the road was not of the best quality and there were also some busier sections. Overall, however, they appreciated the well-marked, mostly paved roads, picturesque landscapes, and low-traffic sections.
- cultural and natural stops: there was very positive feedback on museums, monuments, towers, river confluences, and local heritage sites. Swimming opportunities (Kistolmács, Šoderica, Cingi Lingi lakes) were particularly appreciated.
- accommodation/catering: hotels and restaurants provided high-quality local food (including vegetarian options), secure bike storage, and charging stations. Tour guides and hosts were friendly and knowledgeable.
- Capacity building: Testing Carmacal and IMS improved the environmental and socio-economic assessment skills of the project partners. The Excel version of Carmacal was considered simpler and more user-friendly.

Recommendations:

- Infrastructure development: Invest in consistent asphalt pavement, reliable bridges, and wider bike lanes where possible. Expand shaded rest areas with drinking water.
- Cycling services: Encourage local service providers to install bike repair stations and provide bike-friendly facilities (secure storage, charging, tool kits).
- Sustainability tools: Develop Carmacal by adding electric car option, simplifying data entry, and resolving login issues. For IMS, provide filtering, sorting and visual improvements.
- Safety: Improving route planning to avoid busy sections and raising awareness of cycle tourism among local drivers.
- Tourism product development: Continue to combine cultural heritage, natural landscapes, and gastronomy into cross-border packages to reinforce the unique selling points of the Iron Curtain Trail.

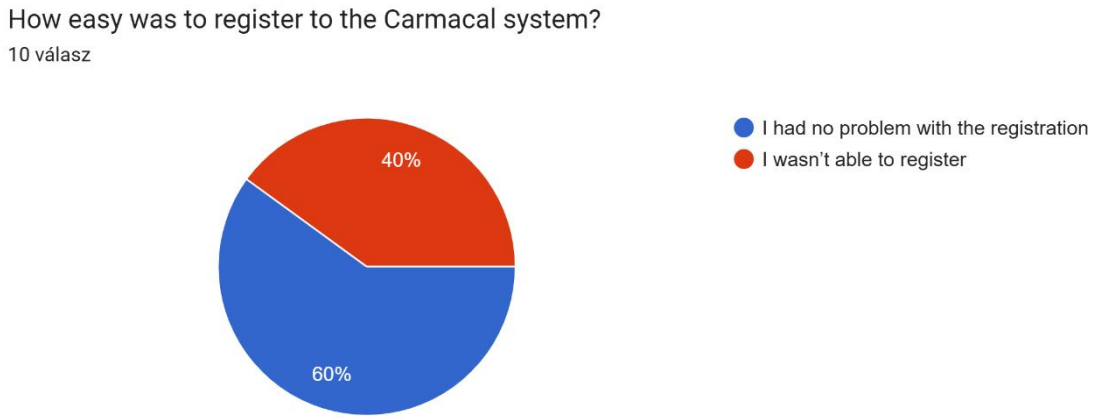
4.3. Results of the WP2 carbon footprint evaluation form

The following analysis is based on the experiences gained by partners during the online meetings, which were organized in order to present the operation and functions of the ICTr-CE innovative tools. The online meetings were organized for pilot area regions (inviting all regional partners to participate) on 25.06.2025, 26.06.2025 and 27.06.2025. After the end of the meetings, based on the tour script document (which was the basis for the field trip activity) the project partners had to do the calculations in both tools regarding the field trip, and had to calculate their own CO2 footprint and IMS score regarding their cycling holiday. The evaluation form was filled in by 10 project partners (except PP4 UP FTS and PP10 ECF) - LP1 – Westpannon, PP2 CROST Nonprofit Ltd., PP3 ISKRIVA, PP5 Trail Angels, PP6 Partnerství, o.p.s., PP7 WZP, PP8 City of Gdansk, PP9 Ekopolis Foundation, PP11 Koprivnica Križevci County, PP12 Ökologischer Tourismus in Europa e.V.

Evaluation of using the Carmacal online tool

Based on the responses from the evaluation form, in the following an analysis of the user experience with the online Carmacal CO2 footprint calculator will be described. The feedback is largely positive, but few key areas for improvement were identified.

Registration was easy. Based on the survey results, the registration process for the Carmacal system appears to have a mixed success rate. While 60% of respondents reported no issues with registration, a significant 40% were unable to complete the process.[1]



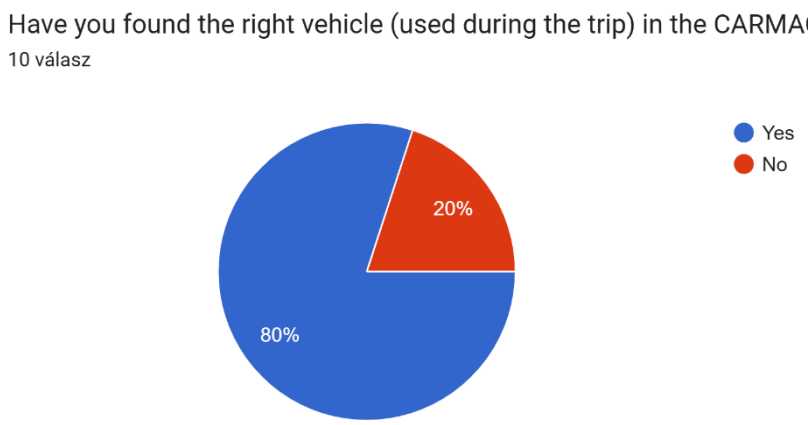
The difficulties encountered by users who could not register can be summarized as follows:

- Lack of a clear registration path: Several users reported that the registration option was either non-existent or confusing, with the system redirecting them to a sign-in page instead of a registration form.
- Complex login and support process: Users who forgot their login details found it difficult to contact a help desk, as no readily available contact information was provided. Although Travelife offered assistance, the process for resetting a password was not straightforward.
- User interface and accessibility issues: One user had trouble finding the direct login method, as the system repeatedly offered a login via a Travelife account, despite the user's multiple attempts to find an alternative.

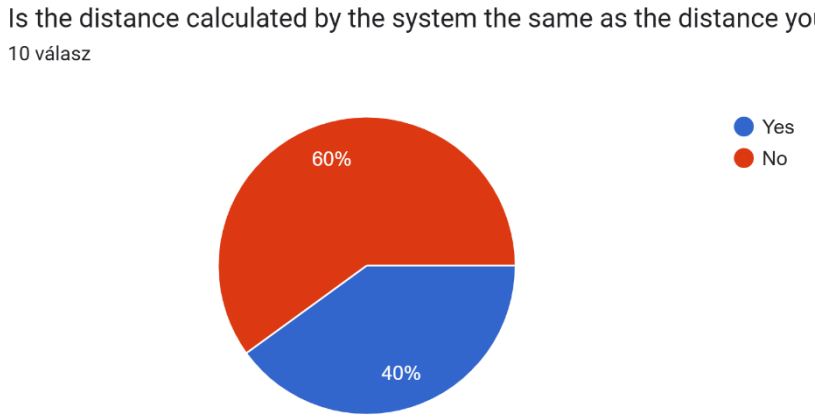
Accommodation search: A strong majority (80%) of users were successful in finding accommodations associated with the ICTr Cycling product – of course, only a small portion of accommodations can be found in the database of Carmacal. During the desk research process, some partners experienced that there are some accommodations, who are registered in the Carmacal database, but unfortunately the accommodation management department was not aware about it. When searching, users predominantly relied on the name of the accommodation (62.5%), while a smaller portion used the map feature (37.5%). For the 20% of users who could not find the specific accommodation, most (80%) were still able to find a relevant hotel category.

The list of vehicles section was very interesting. 80% of users found the correct vehicle from the CARMACAL list. However, 20% of users noted that specific vehicle types, particularly electric cars (E-car) and Battery Electric Vehicles (BEVs), were missing from the list. Hopefully, Carmacal will develop its system in the near future by integrating the possibility of electric cars in order to comply with the increasing share of e-car users among tourists.

[1] There was a temporary system bug (it was not possible to register) in Carmacal online tool, but the problem was solved by the operator of Carmacal. Now the login and register option works properly.

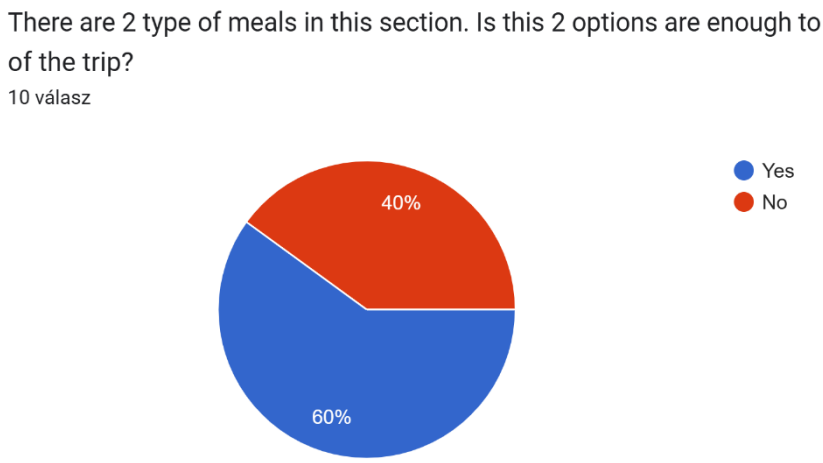


Distance Calculation: Users were divided on the accuracy of the system's distance calculations. While 40% found the system's calculated distance to be the same as their pre-calculated distance, a majority of 60% found some discrepancy. Of those who noted a difference, 50% reported it was less than 10%, and the other 50% stated it was between 10% and 30%. When recording the route, 55.6% of users entered the exact locations on a map, while 44.4% preferred to input the pre-calculated distance. No users reported a difference greater than 30%.



Activities: The Carmacal provides for tourists several opportunities to choose what kind of activities they would like to include during their holiday. Majority of the partners (90%) found the activities from the list provided by CARMACAL which are included into their ICTr field trip. The visiting of SPA facilities would be relevant to extend the list of activities in the system.

Meal Categories: The two provided options for meals were found to be insufficient. A respondent suggested adding more detailed categories, such as "International buffet," and further breakdowns like "fried vs. not fried meals" or "pasta vs. burger." Vegan, gluten-free, lactose-free, intolerance to one food significantly limits the diet, at the same time there is a big difference in the diet of people who have limited choices. Another user noted that "Regional produced food" would be an important category to add.



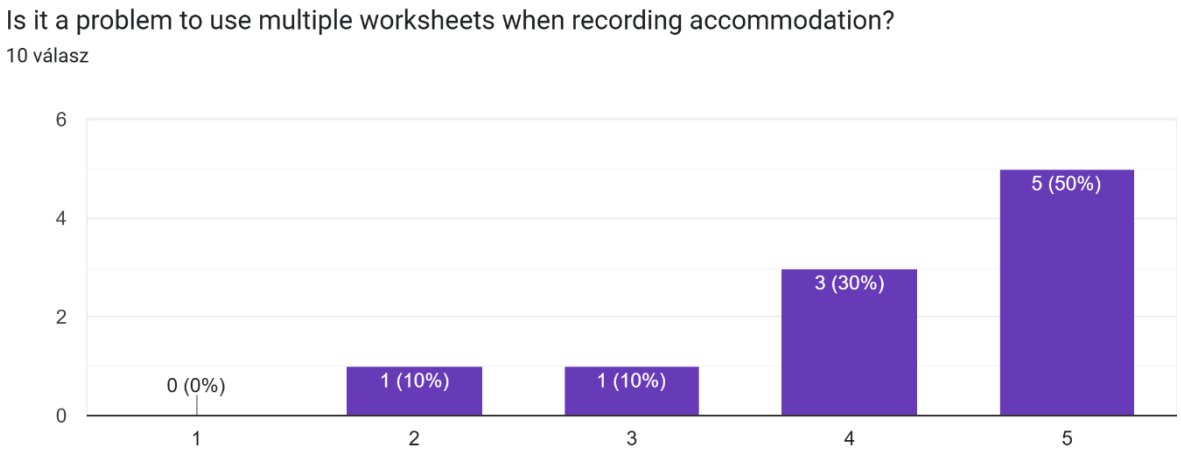
As a general conclusion, majority of the partners are satisfied with the evaluation provided by CARMACAL and its presentation.

Using the tailor-made digital tool (excel sheet)

In this section, we will introduce how the tailor-made excel sheet was evaluated by the ICTr-CE partners. This offline excel tool was developed by PP2 Crost based on the Carmacal database, the aim of this excel tool was to make it more user-friendly for the users of the Carmacal tool, especially for future booking center staff.

Calculation of travel distance: 80% of the respondents think that it is easier, faster and sufficient to determine the distance to enter the exact distance travelled into the excel sheet than to determine the distance travelled on the map can be found in the online Carmacal system.

The excel sheet contains several sheets (esp. accommodation section), which might be problematic or might could make it difficult to use the excel tool. Based on the feedback by the partners, this issue is not a problem, as 80% of the partners evaluated that did not caused any problem using the excel tool despite the excel sheets.

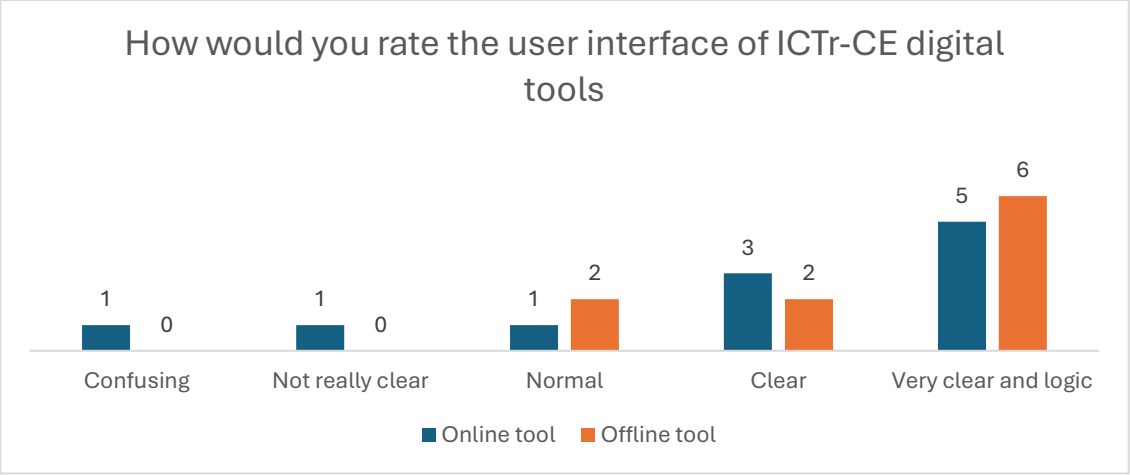


As a general conclusion, all partners evaluated the offline excel tool as a good and easy-to-use digital tool and are also satisfied with the presentation of the CO2 carbon footprint results and its visualisation.

Evaluation of CARMACAL online system and tailor-made digital tool

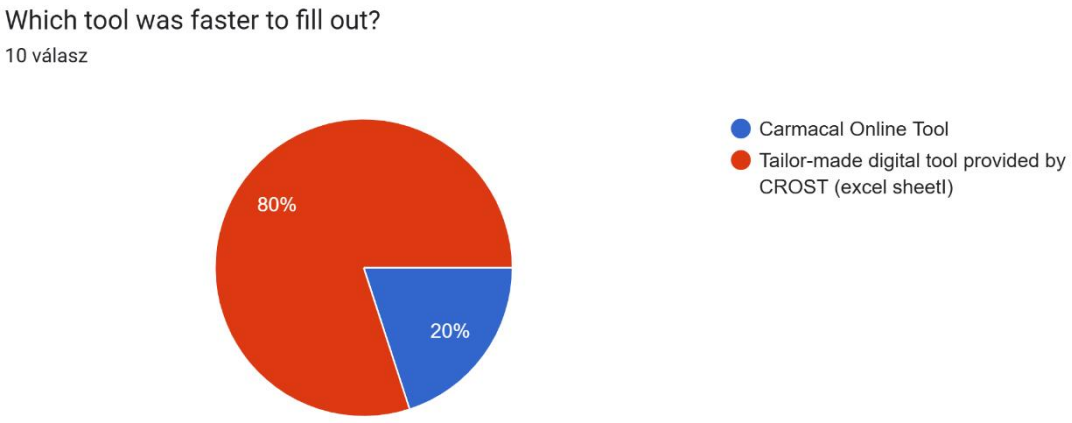
Based on the user's feedback, in the following an analysis will be presented as a comparison between the tailor-made digital tool and the Carmacal tool regarding ease of use.

Based on the answers of respondents, we can say that the offline tailor-made excel sheet received better feedback regarding the general user interface compared than the online tool. The online tool received "confusing" and "not really clear" feedback as well – in order to attract and retain the users of the online Carmacal tool, the user interface should be further developed.



Most of the respondents (80%) were satisfied with the received guidance provided about the tools by PP2 Crost. On the website of the Carmacal online tool, there is no information about any official guideline how to use the online system, or what is the exact definition about the indicators. This is one of the reasons why the guidance developed in the framework of the ICTr-CE by PP2 Crost was really useful, and it is an added value.

Based on the feedback of partners, the majority think that the tailor-made digital tool (Excel sheet) is easier and faster to use compared to the online Carmacal system.



The tailor-made tool is considered more user-friendly due to its clear, static interface that displays the entire dataset at once, eliminating the need for repetitive clicking. This design also contributes to its superior

efficiency, as it avoids the frustrating and disruptive reloading issue that plagues the Carmacal tool, which causes users to lose their place and makes data entry cumbersome. Furthermore, the tailor-made tool's focused design, specifically for the ICTr purpose, streamlines the process by omitting unnecessary functions found in the more comprehensive Carmacal tool, ultimately making it a more practical and effective solution for the users' specific needs. It was also an interesting observation, that who having completed the Carmacal online tool first, the process of entering data into the tailor-made excel sheet was much faster.

As a general conclusion, in the frame of the ICTr-CE project the partners were not intended to develop a new CO2 footprint calculator, the task was to identify and select the best available carbon-footprint calculator which can be used for the goals of the ICTr cycling products and the ICTr-CE projects. Therefore, the partnership can not influence significantly nor the performance and/or the functionality of the online Carmacal footprint calculator, nor its database. The ICTr-CE partnership can only encourage the service providers to register/update their data into the Carmacal database in order to calculate the ICTr cycling product's emission more accurately.

The partners were satisfied with the selected carbon footprint calculator and its functions, operation and performance, the reliability of data and the presentation of the carbon footprint results, which is a significant indicator for the core functionality of the tool. Of course, it does not mean that the tool is perfect: the ICTr-CE partnership suggestion that further improvement would be needed related to some indicators (e.g. to include more options regarding the meals or to add some e-vehicle transport options) and related to the general user interface: a more user-friendly interface would ease the use of tool for everyone. The feedback provided by the partners can justify the last suggestion: the evaluation highlights a strong preference for the tailor-made digital tool (Excel sheet) over the online Carmacal tool – because it can be used faster and easier, and the general structure of the excel tool is better or clearer compared to the online calculator. It is important to note, that both tools generate consistent results when the same input data are used; however, the Excel-based version offers slightly higher numerical precision, as it allows for the interpretation of decimal values.

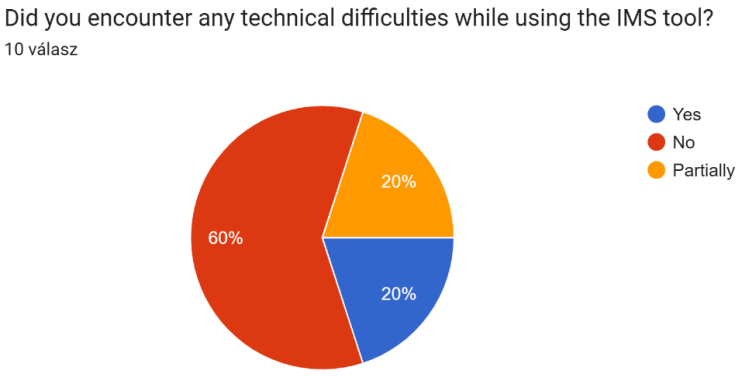
4.4. Results of the WP2 Impact Measurement System evaluation form

The following analysis is based on the experiences gained by partners during the online meetings, which were organized in order to present the operation and functions of the ICTr-CE innovative tools. The online meetings were organized for pilot area regions (inviting all regional partners to participate) on 25.06.2025, 26.06.2025 and 27.06.2025. After the end of the meetings, based on the tour script document (which was the basis for the field trip activity) the project partners had to do the calculations in both tools regarding the field trip, and had to calculate their own CO2 footprint and IMS score regarding their cycling holiday. The evaluation form was filled in by 10 project partners (except PP4 UP FTS and PP10 ECF) - LP1 – Westpannon, PP2 CROST Nonprofit Ltd., PP3 ISKRIVA, PP5 Trail Angels, PP6 Partnerství, o.p.s., PP7 WZP, PP8 City of Gdansk, PP9 Ekopolis Foundation, PP11 Koprivnica Križevci County, PP12 Ökologischer Tourismus in Europa e.V.

Based on the feedback provided by partners, the impact measurement system (IMS) is relatively user-friendly, the user interface and data inputs are straightforward, which is crucial for encouraging consistent use and data entry – and the system performed well and the performance of it is in line with the goal of the project.

90% of the partners were satisfied with the received guideline developed by PP12 OETE, but despite the relatively clear structure of the system, one partner noted that the guideline does not correspond with the IMS interface and it is mainly focusing on the IMS indicators. Majority of the partners (80%) evaluated that the user interface of the IMS system is very clear or clear, 90 % evaluated that the required time to complete the data entry process for the IMS tool is acceptable (60%) or short (30%), and only one partner said that it took too long time to insert data into the system.

During the testing of the IMS system, some partners (40%) encountered some technical difficulties while using the IMS tools.



The identified technical difficulties:

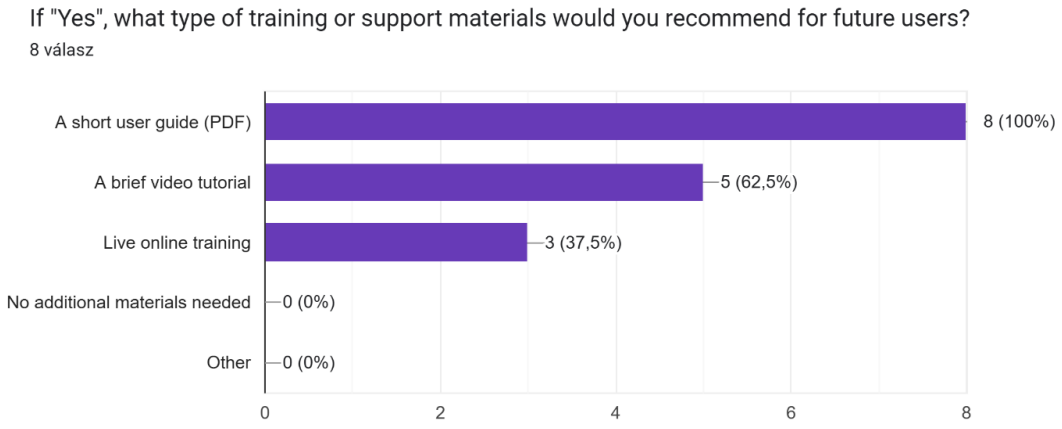
- several users received a "500 server error" when trying to access the results or help sections – the reason of this: if there is a compulsory data which was not filled in into the system, the result of the IMS score can not be generated, and usually a server error message is shown.
- data input: the system had trouble processing specific input data types, such as decimal points for CO2 values.
- usability: the lack of filtering or sorting options made it difficult to find specific entries, especially when lists were long and the system kept resetting.

To the question “What features or functions do you think should be added or improved in the IMS tool?“, based on the responses, several features and functions were mentioned which could be added or improved in the IMS tool:

- Partners suggested adding filtering and sorting capabilities, specifically by city or country, and the option to remain logged in.
- They also requested the ability to open reports in a new tab.
- Some respondents felt the overall data entry process should be streamlined to save time for the daily work of booking centers.
- A key recommendation was to enhance the visual appeal of the tool by adding colors, bold letters, and highlighting to improve user clarity and ease of use.
- It was also noted that brief descriptions or instructions should be added to the items within the form.
- Other suggestion was to include ICTr-CE specific visualization elements (such as a CO2 logo, and IMS score visibility).
- It would ease the entry of data if the widely known and accepted certifications in Europe could be selected as options to choose from
- Last but not least, a few users mentioned the need for newly added items to appear at the top of the list would be useful in order to avoid search for them on the last page.

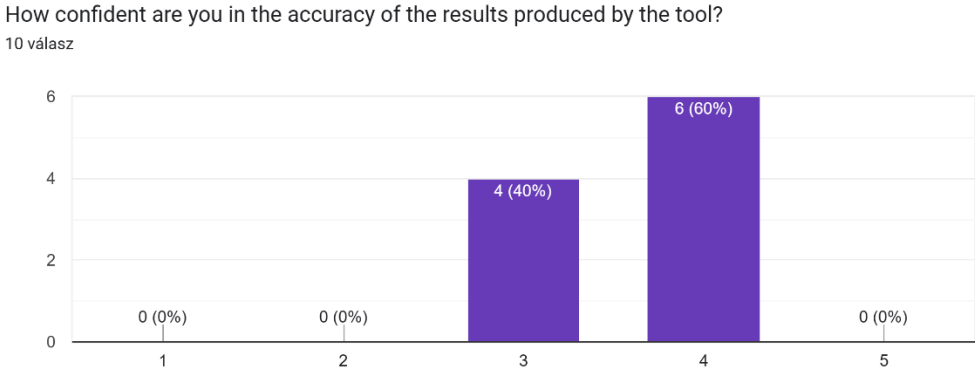
Based on the survey results, a significant majority of the respondents would recommend training or support materials for future users of the IMS tools. Specifically, 80% of the respondents answered "Yes", indicating a clear need for additional guidance in order to use the IMS properly. In contrast, only 20% of the respondents answered "No".

Among the eight respondents who recommended training or support materials, a short user guide in PDF format was the most popular choice, with all eight respondents selecting it. A brief video tutorial was also highly recommended, chosen by five of the eight respondents. Live online training was recommended by three of the respondents, while none of the respondents felt that no additional materials were needed.



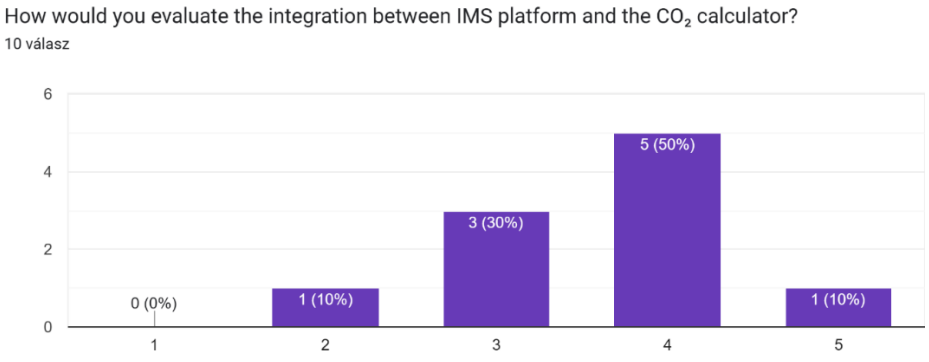
Based on the survey result, 60% of respondents thinks that the IMS is completely supports the goals of the pilot action activity (the other 40% thinks it well supports), and majority of respondents (70%) found that the IMS tool provided useful insights for planning and decision-making. However, 30% of the respondents disagreed with this. Those who felt the tool is not useful for this purpose clarified that it is not primarily designed for decision-making. One respondent suggested that the tool should be more suitable for a Destination Management Organization (DMO). Another user recommended to add graphical evaluation levels to the tool to help users make decisions about trip quality. It is important to highlight here once again, that during the development of the IMS the main principle was to create a calculation system which is applicable at trail level.

Regarding the data accuracy of the IMS, the users were not really confident – the potential reasons of it could be the fact that there are some “sensitive” indicators where the service provider is not giving totally true answer, or maybe providing false information (e.g. regarding the salary level of staff, etc.), which can not be validated with 100% by the booking center (who are responsible to fill in all the data required by the tourism service providers).

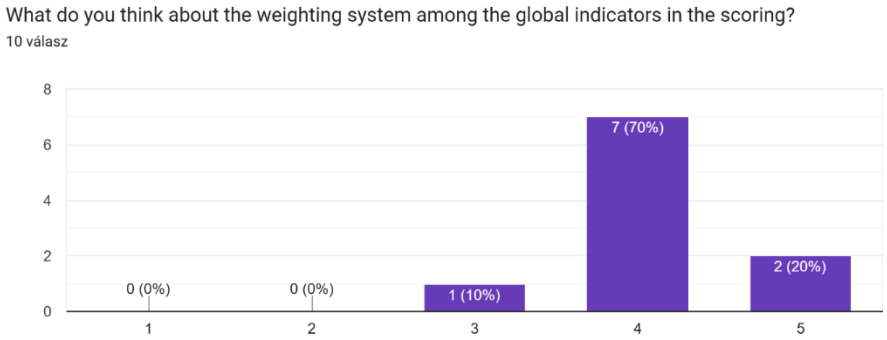


Based on the previous line of thought, there is a mixed but generally positive outlook on the potential for the IMS tool's regular use. A majority of respondents (60%) believe the tool could be used regularly by booking center staff or other stakeholders - however, a significant portion, 40%, are unsure regarding this topic. Those who were "Not sure" raised concerns about the tool's complexity and the time it takes to use. They noted that during periods of heavy workload or understaffing, staff might not use the tool or would only use it partially. Another key point was the need for cooperation from service providers, as the system relies on their commitment to provide reliable data. Finally, one respondent highlighted that in some regions, like in Poland, tourists are not yet aware of or demanding of eco-friendly information, which could limit the tool's practical use in the near future – here we have to highlight once again, that the tool right now was not developed for tourists, but for booking centers.

The evaluation of the Impact Measurement System's (IMS) integration with the CO_2 calculator was highly positive. Most respondents rated the integration favourably, with 50% giving a rating of 4 out of 5 and 10% giving a perfect score of 5 (well-integrated), while a smaller portion of users were less satisfied (40%) – their opinion is that the CO2 calculator is not really integrated into the IMS.

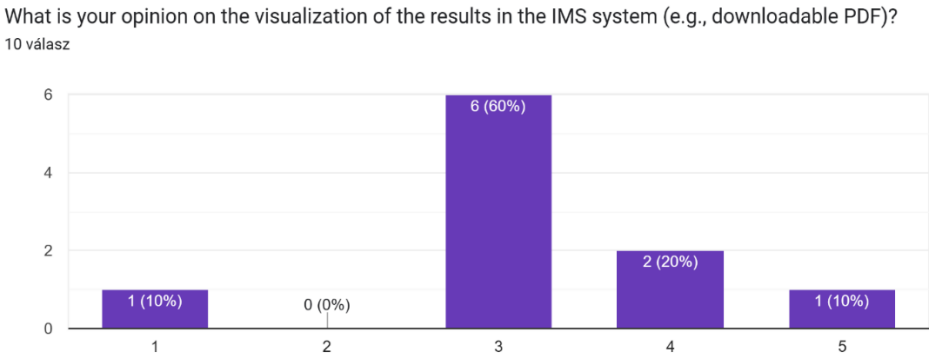


The weighting system of the global indicators received a strong support. A large majority of respondents, 70%, rated the system in a five scale to 4, and 20% gave it the highest score of 5. Only 10% gave a rating of 3, indicating a high level of satisfaction with the methodology.



In the optional comments regarding the weighting system, partners generally found it as well-defined. One partner noted that the weights could be adjusted by the booking centers, while another felt that the system was already good. However, one specific suggestion was made to increase the importance of the "Transportation on site and related services" indicator, arguing that it can have a significant environmental impact. A respondent also noted that since the tool is a prototype, adapting the weights might be necessary after a full evaluation process.

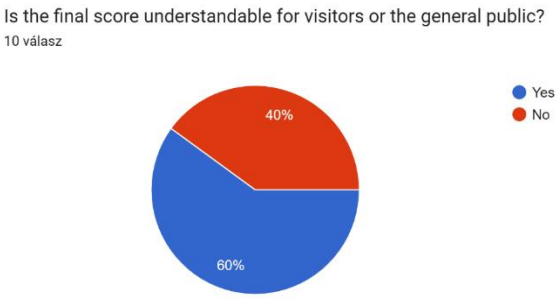
Based on the feedback from the survey, the visualization of the results in the IMS system needs some further improvement in the future. The majority of users rated it as average (a score of 3 out of 5).



Users had several specific suggestions for making the results easier to understand:

- make it more visually appealing: the current design is not really attractive
- use more visuals: the tourists would like to see diagrams and other graphics, similar to another tool like Carmacal
- add colour coding: highlighting good results in green and bad results in red would make it easier to see what needs to be improved
- allow for comparisons: users want to be able to visually compare their results to other similar businesses

Mainly based on previous results, there is a split opinion on whether the final score is understandable to the general public, or not. While 60% of respondents said "Yes", a significant portion, 40%, said "No".

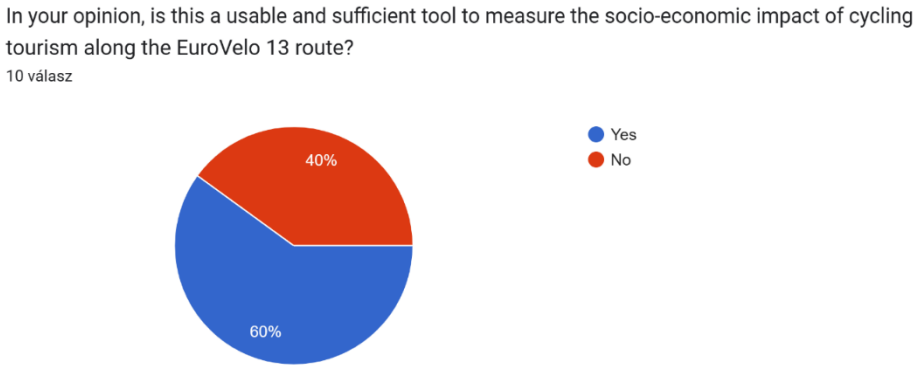


Those who believe the final score of the impact measurement system is not understandable for the general public, offered several suggestions for improvement:

- add more context: instead of just a number, they recommend a short summary explaining what the score means and how it was achieved
- use narrative descriptions: the booking centers should translate the data into easy-to-understand narratives for each global indicator
- incorporate visuals: suggestions were made to use graphical elements or color-coding to help visitors understand if a score is good or bad (see previously the general opinion about the visualization of the IMS score)

A comprehensive review of the survey responses reveals a unanimous consensus on the potential for the IMS tool's broader application. All ten participants, representing 100% of the respondents, agreed that the tool could be effectively transferred and utilized on other EuroVelo routes.

Based on the survey results, there is a divided opinion on whether the IMS tool is a sufficient and usable tool for measuring the socio-economic impact of cycling tourism on the EuroVelo 13 route. 60% of respondents believe it is sufficient, while 40% believe it is not really.



Those who responded "No" clarified that while the tool is a good starting point and highly innovative, it is still a pilot project that requires further development. They feel it is not yet "sufficient" to be a comprehensive tool. Suggestions for improvement include adding more detailed indicators and relying on evidence-based information from service providers. Some respondents were also unsure if the tool provides enough data for accurate measurements.

Regarding the IMS's effectiveness in specific contexts, several use cases were highlighted:

- evaluating service providers: the tool is seen as particularly useful for evaluating service providers in a specific region and comparing the tourism offerings of different regions

- targeting eco-conscious tourists: it is considered effective for use with ecologically-oriented tourists
- state-of-the-art tool: one respondent praised the IMS as a "state-of-the-art tool" for measuring the sustainability of tourism products

Conversely, some limitations were also noted:

- data reliability: the tool's effectiveness is limited by the cooperation and commitment of service providers, as unreliable data will lead to false results
- scope: it was suggested that the tool could be even more effective if it could also measure the impact of tourists at destination level
- inclusivity: one respondent noted its potential ineffectiveness in ensuring inclusivity for all users.

A clear majority of the project partners, 90%, recommend the continued development and broader rollout of the IMS tool. This suggests strong overall satisfaction with its potential and direction.

Last but not least, additional comments and suggestions for improvement highlight both the tool's strengths and potential topics for future development:

- positive feedback: the tool is recognized as "state of the art" for measuring the sustainability and impact of tourism products. It is considered innovative and a good, easy-to-use tool for booking center staff.
- areas for improvement:
    - technical issues/problems: one user mentioned persistent "500 server errors" when trying to view results, indicating a need to address core technical bugs
    - user interface: suggestions were made to improve the visual design, such as using more pastel colors and adding pictures to make the results page more user-friendly
    - functionality: Respondents requested more "guidance remarks" or help text within the forms and the addition of a comparison tool to compare two or more objects in the same category
- the impact measurement system is currently operating with a well-defined framework and an intuitive user interface. It is widely perceived as having substantial potential for future growth, particularly through the development of a dedicated mobile application and the expansion of its application to a broader audience
- however, realizing this potential presents significant challenges, including ensuring the system's comprehensive applicability and building the necessary capacity among tourism stakeholders.

The evaluation of the IMS tool, developed to measure sustainability impacts in cycling tourism destination at trail level, reflects generally positive user feedback with some areas for improvement (this was specifically requested by the project partners, as this was a tool developed in the frame of ICTr-CE project). Most partners found the tool user-friendly, with 80–90% satisfied with the interface and guidance materials. The majority rated the data entry process as acceptable or quick - however, technical issues — such as "500 server errors" and input limitations (e.g., decimal values for CO_2) — affected negatively on the usability of the tool. Suggestions for improvement include enhanced filtering, sorting, further development of visual design, and contextual help.

Feature requests focused on streamlining data entry, improving report visuals, and increasing clarity for end-users. While 60% said the IMS fully supports the pilot goals and 70% found it helpful for planning, concerns about data reliability (due to self-reporting by service providers) were noted. Integration with the CO_2 calculator was seen as partially successful. The weighting system for global indicators received strong support (90% rated 4 or 5 out of 5), though some adjustments were proposed.

Visualization and final score clarity need enhancement; 40% found current outputs difficult for general audiences to interpret. While 60% believe the IMS is sufficient for measuring socio-economic impacts, others stressed that it remains a prototype. Despite limitations, all respondents agreed on its broader applicability to other EuroVelo routes, and 90% recommend continued development—highlighting its innovation and strong future potential.

To sum up, the testing results of the IMS and Carmacal tools obtained across all three pilot areas provide essential empirical evidence and practical feedback that will serve as key inputs for refining and finalizing the ICTr-CE innovative tool under Output O2.1.

5. Annexes

5.1 Annex 1 - Step by step implementation guide

This guideline provides a comprehensive overview about the methodology how could the pilot activity be transferred to other cycling destinations or EuroVelo routes. It is based on the experiences gained during the implementation of the pilot action launched and is intended to support the transfer and adaptation of the tested tools — the Carmacal Carbon Footprint Calculator and the Impact Measurement System (IMS).

The process follows a structured, eight-step guide that could ensure smooth implementation, active stakeholder involvement, and the long-term sustainability of the results. Of course, adapting the guide into local/regional context is needed, but this description will guide the reader how to start to launch this activity, and which could be the necessary steps during the implementation process.

By following these eight steps, other cycling destinations can effectively apply the ICTr-CE pilot methodology, contributing to develop more sustainable (to achieve climate-neutral packages in the future) cycling tourism offers along European long-distance trails.

Step 1: Identify the destination and an organisation responsible for trail management

It is crucial to find a commitment organization which is responsible for a cycling trail or cycling destination and have a clear commitment to develop sustainable and climate-neutral cycling tourism. This coordinating organisation could be e.g. a booking center, a Destination Management Organization, a local/regional tourism board, who are responsible for managing the cycling trail. It is also needed to assess the pre-conditions of the trail: the existing cycling product (if any), quality of cycling infrastructure, potential cross-border cooperation, and assessment of the local stakeholders (such as tourism service providers, business support organizations, DMOs etc.).

Step 2: Establish the cooperation framework

Develop a local cooperation and governance framework could enhance the level of cooperation among the local stakeholders, and also could defines roles, tasks between the partners. Additionally, the whole communication could be more transparent among the involved partners. In case of a long-distance or international cycling trail, identifying and involving strategic stakeholders (public authorities, NGOs, tourism service providers, other key experts) from all involved countries are needed in order to ensure the transparent, jointly developed and participatory-based activities across the borders. This cooperation framework could be an agreement or memorandum of understanding among the key stakeholders.

Step 3: Capacity building and learning process

Organise targeted training sessions on how to use the two innovative tools developed in the framework of ICTr-CE project is important, especially for those potential stakeholders will use these tools. Based on the experiences, it is also relevant to introduce the Carmacal and IMS system for the tourism service providers (preferably by an umbrella organization responsible for the destination), who won't be the users of the tools, but will give inputs into the database – the reason of it is that the whole procedure would be more transparent and clear for the service provider sector. Additionally, in the framework of these events can highlight the importance of cooperation – why is it important to collect data and what kind of information are requested to be involved in this cooperation. Besides this, these events could also enhance the cooperation attitude to join other initiatives (e.g. registration to Carmacal platform). Sharing concise user manuals and guides could also enhance the understanding of the tools before the pilot starts through simple examples.

Step 4: Stakeholder involvement and data collection

Mapping and engaging local stakeholders actively in this process is of preparation is very important. Without commitment local stakeholders it is impossible to achieve our goals, as the most important actors in the whole process are the service providers. Even the best cycling trails will fail if the service providers are not able to give adequate services to the customers. To collect information about service providers, route conditions, and points of interest into a comprehensive database is important, because these stakeholders are the backbone of the cycling products. Establish direct communication with local SMEs to raise awareness and secure their commitment to participate could also ensure that the system's operation is based on reliable and valid data provided by service providers.

Step 5: Using the tools and testing

When all the pre-conditions of our cycling product are developed (there is a safe and well-rideable itinerary, there are POIs and other sights, there are service providers), we are basically ready to use the ICTr tools. The organization responsible for the cycling trail uses the tools based on the inputs of the service providers and could do the calculations about the socio-economic and environmental impacts of the cycling tourists who book the cycling package. These calculations should be clearly communicated towards the customers (= cycling tourists) and towards the local stakeholders (=service providers) as well.

It is strongly recommended to test the entire process under real conditions and in a real environment. The testing method may vary (e.g. test tours), but it is important to identify specific regional challenges or problems that may require a solution which are in line to the local context.

Step 6: Evaluation of tools and feedback

Collect, analyse, and summarise all feedback on the tools' functionality, usability, and performance would be an added value for the tool developers and for the organization which is responsible for the trail itself. The evaluation form could be designed vary, based on the local context and in line with the regional specifics. These forms are ideal to identify strengths, weaknesses, and improvement needs (e.g. user interface, indicator list, visualisation). It is also important to make the final refinements based on the feedback – both related to the tools and the whole cooperation-based process.

Step 7: Communication and dissemination

Communication always ensures transparency. It is important to communicate the results, lessons learned towards both the customers and the local community. Communicate the benefits of cycling products which are calculated by using Carmacal and IMS would be needed in order to ensure the awareness-raising process among the local tourism SME sector, and it would be also an added value for the destination as well – because in ideal case, as a result, more conscious cycling tourist would visit the cycling trail. The results could be disseminated in various ways: through project websites, social media channels of the destination and the trail, and newsletters. Promoting success stories or using infographic to attract tourists are important, highlighting the climate-neutral and socio-economic aspects of the cycling packages – "where it is good to cycle, it is good to live" and vica versa. So, developing cycling packages is a benefit for conscious tourists and for the local community as well.

Step 8: Monitoring and continuous improvement

Of course, no one can expect immediate results (it takes time and efforts) but maintaining the framework of cooperation and continuously evaluating the working process and impacts are essential. Regularly (e.g. annually) update the database of IMS and the CO_2 calculator would be needed in order to create new cycling products or to update the existing ones. Collecting feedback from the booking center and service providers can enhance to measure the improvement of the sustainability performance of tourism within the destination.

5.2 Annex 2 – Evaluation form of CO2 calculator

Using the CARMACAL system:

- How easy was to register?

I had no problem with the registration / I wasn't able to register. The reason why?

Accommodation:

- Could you find the accommodation which are involved in the ICTr Cycling product?

YES/NO

If YES, what have you used to find the selected accommodation? Map/Name of the accommodation

If NOT, were you able to find a relevant category among the hotel types? YES/NO

If NOT, what type of category was missing? Please describe

Transport/flight:

- Have you used the flight section? YES/NO

If NOT, you can jump to the Transport/vehicle section!

If YES, were you able to find the chosen:

- *Departure Airport: YES/NO*
- *Arrival Airport: YES/NO*
- *Aircraft: YES/NO*

- Which impact type have you chosen, and why?

Carbon Impact / Climate Impact

Transport/vehicle:

- Have you found the right vehicle (used during the trip) in the CARMACAL list?

YES/NO
If NOT, which one did you use, which one is missing from the list? Please describe

If YES, how did you record the start and end points of the route and the distance?

- *I used a map, entered the exact locations.*
- *I have entered the pre-calculated distance and simply typed in the names of the start and end points.*

- Is the distance calculated by the system the same as the distance you calculated in advance?

(YES/NO - If NOT, what is the percentage of difference? Less than 10%, Between 10-30%, More than 30%)

Activities:

- Did you find activities from the list provided by CARMACAL which are included into the ICTr cycling product?

(YES/NO - If NOT, what activities would you add to the list?)

- Which activities could not be categorized?

(Please describe)

Meal:

- There are 2 types of meals in this section. Are these 2 options enough to calculate the CO2 emission of the trip?

(YES/NO - If NOT, what other options would you add to the list?)

Evaluation phase

- Are you satisfied with the evaluation provided by CARMACAL and its presentation?

(YES/NO)

Using the tailor-made digital tool (excel sheet)

- Is it easier to determine the distance using a map, or is the option to enter the exact distance travelled sufficient?

(map option is better / better to insert the exact distance manually)

- Is it a problem to use multiple worksheets when recording accommodation?

(1: did not cause any problems to 5-cause a lot of problems)

- Are you satisfied with the evaluation provided by the digital tool and its presentation?

(YES/NO, if NOT, how would you like to see the results you receive?)

CARMACAL system and tailor-made digital tool:

- How would you rate the user interface of the CARMACAL system?

(1-very clear to 5-very confusing)

- How would you rate the user interface of the tailor-made digital tool?

(1-very clear to 5-very confusing)

- How difficult was it to categorize the activities into the given categories?

(1-very easy to 5-very difficult)

- Were the instructions and supporting materials sufficient for understanding how to use the CARMACAL and the tailor-made digital tool?

(Yes / No / Partially – please explain)

- Which tool was faster to fill out? CARMACAL/tailor-made digital tool
- Which tool is easier to use and why?

(Please describe)

- Did you encounter any technical difficulties while using the CARMACAL platform or the tailor-made digital tool?

(1: No, 2: Yes. If yes, please describe)

5.3 Aneex 3 – Evaluation form of IMS

- How would you rate the user interface of the IMS system?

(1 – Very confusing, 5 – Very clear)

- Were the instructions or supporting materials sufficient for understanding how to use the tools?

(Yes / No / Partially – please explain)

- How much time did it take to complete the data entry process for the IMS tool?

(Short / Acceptable / Too long)

- Did you encounter any technical difficulties while using the IMS tool?

(No / Yes – If yes, please describe)

- Was it clear which data needed to be collected for the IMS tool?

(Yes / No – please elaborate)

- What features or functions do you think should be added or improved in the IMS tool?
- Would you recommend any training or support materials for future users of these tools?

(No / Yes – If yes, what kind?)

- To what extent do you think the tools support the goals of the pilot action activity?

(1 – Not at all, 5 – Completely)

- Did the IMS tool provide useful insights or analytics for planning or decision-making?

(Yes / No – please explain)

- How confident are you in the accuracy of the results produced by the tool?

(1 – Not confident at all, 5 – Very confident)

- Do you see potential for the IMS tool to be used regularly by booking center staff or other interested stakeholders?

(Yes / No / Not sure – please explain)

- How would you evaluate the integration between IMS platform and the CO_2 calculator?

(1 – Not integrated at all, 5 – Well-integrated)

- What do you think about the weighting system among the global indicators in the scoring?

(1 – Very inappropriate, 5 – Very appropriate)

Optional: Please explain which weights you would adjust and why.

- What is your opinion on the visualization of the results in the IMS system (e.g., downloadable PDF)?

(Effective, Not effective - What specific visual improvements would you suggest)?

- What features or functions do you think should be added or improved in the IMS tool IMS tool?
- Is the final score understandable for visitors or the general public?

(Yes / No – If not, how would you improve the communication of the results?)

- Do you think the IMS tool could be applicable to other EuroVelo routes as well?

(Yes / No – please explain)

- In your opinion, is this a usable and sufficient tool to measure the socio-economic impact of cycling tourism along the EuroVelo 13 route?

(Yes / No – please explain)

- Are there specific use cases or contexts where the tool would be especially effective or ineffective?
- Would you recommend the continued development and rollout of these tools for broader use?

(Yes / No – please explain)

- Any additional comments or suggestions to improve the IMS tool before finalising them?

5.4 Annex 4 - O2.2 Output factsheet

5.5 Annex 5 - O2.2 Output quality report