D 5.2.1 – Business model simulation

Activity 5.2 – Business simulation

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ACRONYMS / ABBREVIATIONS

ACRONYM	DEFINITION
PP	Project partners
PT	Project Team
TC	Technical task coordinator
WP	Work package
IT	Information Technologies

1. SIMULATION INTRODUCTION

In order to test and validate the Business Model of E-CHAIN, it is first necessary to simulate the usage of the E-CHAIN platform and all its features, involving the different stakeholders, to understand:

- How they would interact with the platform,
- The relevance of the features of the different phases of the project,
- The validation of the assumptions of the Business Model, that should be verified in order for the project to work correctly,
- The improvement suggestions.

This Simulation Phase should then show the E-CHAIN's platform to a panel of potential users from the different stakeholder segments (Tourists, Local Businesses, Transport companies, Institutions) to receive as much feedback as possible. Their answers, in fact, are fundamental to verify the assumptions made to define the Business Model and the Business Plan.

Specifically, in order to validate the E-Chain project it is necessary to answer some questions related to specific issues about sustainability and the stakeholders' interest to use the platform. Therefore, the main topics that are covered in the Simulation Phase are meant to validate the following points:

- **Needs and Problems**: it will be validated that all parties involved in the project really have the needs and problems hypothesized through the value proposition described in the previous phases of the project.
- **Usage the platform:** through the simulation of the platform functions and channels (trip calculator, totem, etc.) it will be validated how all parties involved in the project would really use the software. In this section, we will also validate that the stakeholders (suppliers, transport companies and local businesses) are interested in sharing their data to use the platform.
- **Improvement:** through the simulation of the value proposition and the channels identified in the previous phases of the project, it will be validated that the use of the platform in all its services would improve the economic situation of the areas involved and the virtuous behavior of travelers
- **Impact**: in the previous phases of the project, impact metrics were hypothesized (Awareness Metrics, Sustainability Metrics, Economic Metrics) that in this phase will be validated to understand that if really used there would be total benefits and not just for individuals.
- **Sustainability of the platform**: it will validate the hypothesis that in case of transformation into a startup the platform will be able to sustain itself with revenues.

The methodology chosen to simulate the platform's usage is described in the next chapter, explaining the different data sources. Then, this document is divided into two main parts: one describing the simulation for the Tourists (chapter 4.) and the second for the Stakeholders (chapter 5.) Each of them are divided into the steps describing the phases of the E-CHAIN platform, retracing the flow that a real user would follow from the first interaction, to the registration, to the other features. Concluding, some first insights that could be derived from the simulation.

This document is then the base for the next phase, the Business Plan Review.

2. SIMULATION METHODOLOGY

2.1 Data collection methods

In this simulation phase, three main data collection methods have been be used in order to obtain results able to validate the supported assumptions.

1. Platform Simulation Surveys

To collect some data about how the potential users would use the platform, two different surveys (in the following referred to as "Simulation" surveys) had been conducted:

1. one for the Tourists (link to access it in English, in Italian and in Croatian, link to access the results report in Italian)
2. and the other for the Stakeholders, such as local businesses, transport companies and other tour operators (link to access it in English, in Italian and in Croatian; link to the results report in Italian).

The survey questions had been conceived to mainly understand two types of information:
- the real needs and interests of the potential users, such as the decision triggers that would make them really benefit from the platform;
- the interaction flow the users would have with the platform, that is the user experience journey.

In particular, for the stakeholders the goal has been to understand their intentions to join the E-Chain project by including and updating their business data and their activities in the platform.

The surveys have been developed and distributed through a CAWI (Computer Assisted Web Interview) technique using the software Typeform. The links to access the surveys had been distributed on social media, in tourists/stakeholders groups and through partners' mailing lists.

The goals of the surveys have been several:

- show the first phase of the E-CHAIN platform to potential users;
- have a better understanding of their interest for the features of the E-CHAIN project;
- get more valuable feedback;
- increase the users' awareness about sustainability in travel.

The last goal of increasing sustainability awareness has been achieved also by offering to the respondents an e-book, a free guide about the 15 Tips to travel sustainably, that had

been downloaded more than 100 times in the first week and will be available in three languages for the next months.

The survey has been processed in Italian language to collect data more easily and reduce the barrier to participation.

The number of answers have been:

- **Tourists survey:** 193 answers, distributed as follows: 39,5% <30 years, 31% between 30 - 50 years, 17% over 50 years.
- **Stakeholder survey:** 20 answers, from 12 local businesses, 3 restaurants, 3 transport companies and 1 textile shop.

2. Assessment and Evaluation Survey (WP 5.3.2)

Another source of information has been the survey conducted in the WP 5.3.2, aimed to understand the most important habits of travelers between Italy and Croatia. In particular, this survey (in the following referred to as "Assessment" survey) helps to understand:

- the tourists' approach towards the most used means of transport for traveling
- the triggers that influence the choice for traveling
- the most used travel planning apps.

Moreover, some questions had intercepted the needs of some categories of travelers who have been profiled more precisely (families with kids, caravans, etc.) to define the functionalities of the platforms that would interest them.

The survey has been processed both in Italian and Croatian language to collect data more easily: if it had been delivered in English, it would have been a barrier in participating.

The survey has been developed and distributed with a CAWI (Computer Assisted Web Interview) technique using Google Forms. The link to access was delivered via email to a list of internal contacts and it was posted on social media on dedicated pages or groups almost visited by Italians.

3. Focus groups (during the Training Sessions of the WP 5, D 5.1.1)

During the Training Sessions held for the WP5 - D51.1 and the Public Event in Trieste, four "focus groups" have been held, such as discussion moments around specific topics, when the participants have been free to express their opinion on some initial questions.

Specifically, during the Training Sessions held on 12 December 2021 there had been 3 focus groups to discuss 3 topics: Green challenges, Connectivity challenges and Experience in tourism. Participants from three main categories (public administration, transport sector, tourism sector) had been divided into three groups, each associated with one of the main themes of the project.

The group moderator introduced the theme, inviting the participants to express their ideas and experiences on the topic under discussion. Results of each focus group were finally presented in a conclusive plenary session.

In addition, a fourth focus group was held during the public event held in Trieste on 7th April 2022, where more topics related to the E-CHAIN project were discussed.

These four focus groups helped to understand the potentialities of some E-CHAIN main topics, through discussions that spontaneously moved the conversation towards the key points to address.

The approach that has been taken into account is the *Double Diamond Framework model* that starts with the "main problem" about the topic in discussion, then the "discover" and "explore" area are researched through the discussion of the participants, then defining the potential solutions in the last phases.

Image 1 - Double Diamond Framework
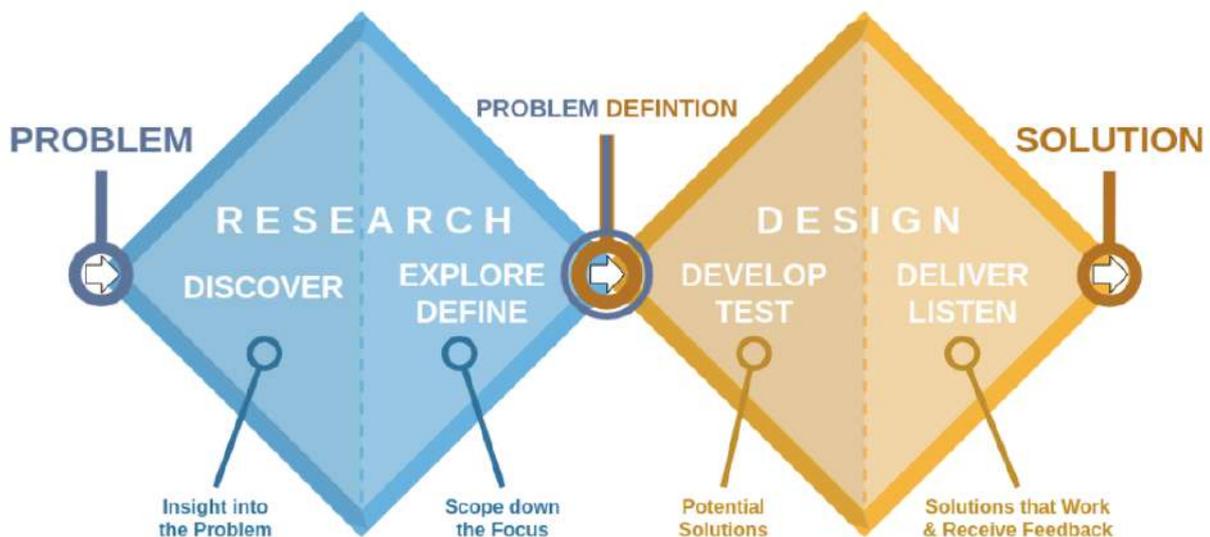
2.2. Bonus to Respondents: Free Guide on Sustainable Travel

The goal of increasing the awareness about sustainability in travel has been achieved by offering to the respondents an e-book, a free guide about the 15 Tips to travel sustainably.

This guide has been created in three languages, accessible at these links:

- Link in English: https://bit.ly/echain-guide-15tips
- Link in Italian: https://bit.ly/echain-guida-15consigli
- Link in Croatian: https://bit.ly/echain-guide-15savjeta

The Italian version has been visualized more times than the others, since it has been shared with the surveys' respondents. The guide has been viewed by more than 100 unique visitors, with a total of 154 views from the respondents.

Then, after this research, the three ebooks will be freely shared on social networks by the E-CHAIN account and the partners ones, to even increase the awareness on these topics.

2.3. Simulation flow of the Platform

The Simulation is based on showing to the potential users the E-CHAIN's user experience, guiding the user to simulate the steps to plan a trip thanks to the platform.

The simulation is different for the Tourists and from the other stakeholders, since the platforms are different for the two groups. Then, for the two groups the simulation is divided into the three main phases of the E-CHAIN project, such as Before the Trip, During the Trip and After the Trip.

The main distinctions are:

- Before the Trip, such as the Trip and CO2 Calculator;
- During the Trip, such as the interaction with the travelers during the trip through the messages and the totems;
- After the Trip, only for stakeholders, such as the usage and sharing of data.

Then, to better understand the flow of the user experience, for each phase had been defined **some steps** that the users would take from their first approach to the platform, to use all the features. For each step some questions had been appositely created to define the attitude that potential users could have and their importance.

In the next chapters the user experience of the platform would be briefly presented.

3. E-CHAIN PLATFORM FOR TOURISTS: USER EXPERIENCE AND SIMULATION

3.1. Phase 1: Before the Trip

3.1.1 Step 1: route calculator

When the travelers enter the E-CHAIN website, the first step is to plan their journey using the Route planning feature (Image 2). By entering the starting/arrival points and the date of the trip, then the calculator elaborates the different routes that are possible by car and by other means of transport, if available.

Image 2 - Travel calculator form
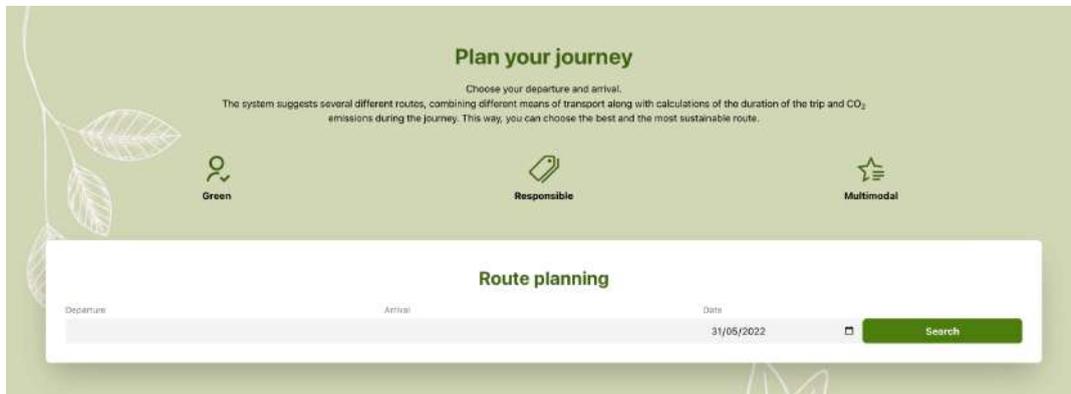
To simulate the interest of the tourists, the first way is to understand the importance of using online services to plan a trip. According to the Assessment Survey, 54% of the respondents would use an app to plan a trip between Italy and Croatia, in particular Google Maps or Guida Michelin (Graph 1)

Graph 1 - Use of travel planning apps or websites

Then, in the Simulation Survey it's evident that most people would start searching on Google to then visit other websites (67,9%), while 32,6% would use a generic app; the

usage of a specific application on those destinations would be a less important choice, for 24,9% of users (Graph 2).

Graph 2 - Where travelers get information to plan a trip
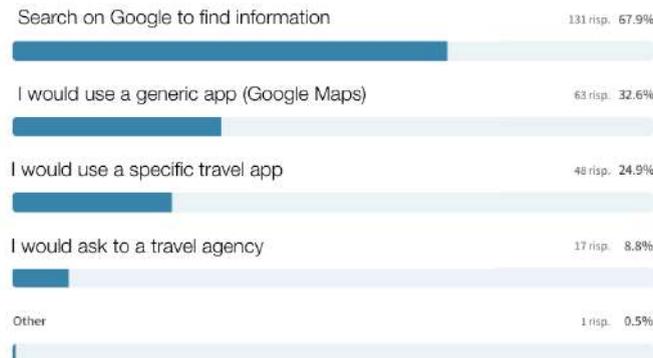
This means that it's very important to be well indexed on Google, positioned high in the results page to be found by the potential users. On the other hand, to be chosen as the source of information, is necessary to create value for the users who then would like to start their trip from the app.

3.1.2. Step 2: CO2 Calculator importance

Then, after entering the data in the calculator, in the next page the system shows the trip options, with the indication of the CO2 amount that would be emitted through that means of transport.

Image 3 - CO2 calculation for the trip
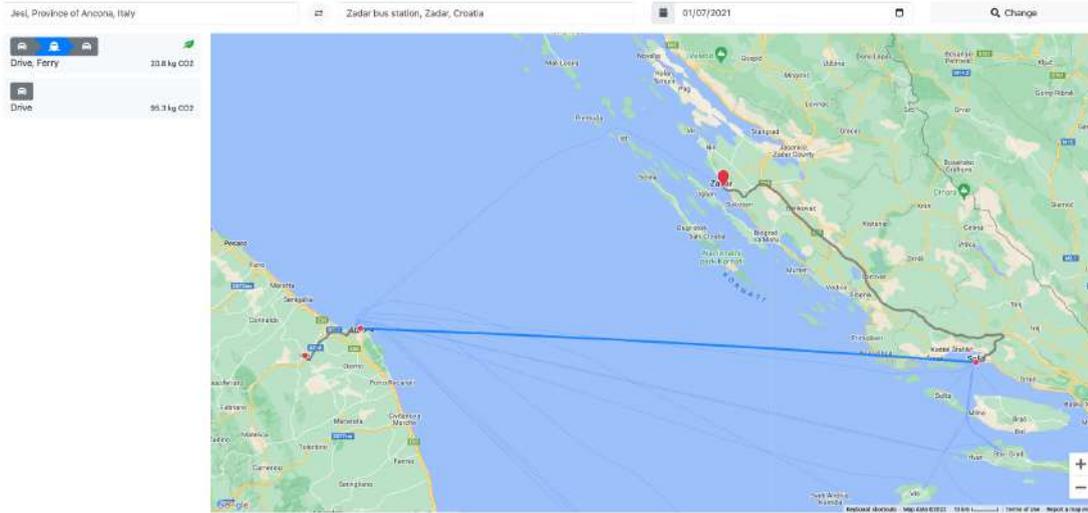
In the simulation, the main goal was to evaluate how important this information would be and how much it would help to make the tourists choose a more sustainable option.

From the answers it is evident that the environmental information is of some level of importance for the majority of the users, but it is **less important than other information such as the costs of the ticket, the distance and the total time.** In fact, causing a lower impact on the environment would be a reason to change means of transport choosing the ferry instead of the car only for 25.9% of the respondents, while 71% would choose in case of economic savings and 61.1% to save time (Graph 4).

Graph 3 - Travelers' interest in ferry services
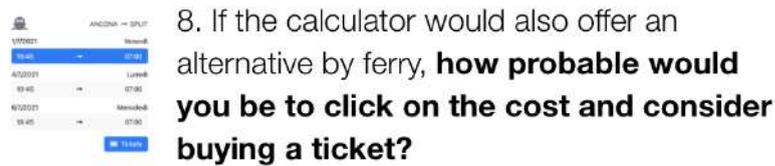
Graph 4 - Travelers' preferences for choosing a ferry

9. Which aspects do you consider sufficiently relevant for you to prefer travelling by ferry over only using your car/camper?

Aspect	Responses	Percentage
Economic saving	137 risp.	71%
Time saving	118 risp.	61.1%
Ferry very close to the point of departure	78 risp.	40.4%
Special offers for ferry travellers	51 risp.	26.4%
Lower emissions	50 risp.	25.9%
Nothing, I prefer to travel independently	6 risp.	3.1%
Other	2 risp.	1%

Graph 5 - Information influencing travelers to choose the route

10. At this point, the E-CHAIN platform allows you to extend the information provided.
Which of this information do you consider most important for your choice of route?

Put them in order from the most important to the least important, based on those you would click on first to explore in detail:

Distance in kilometres

	1	2	3	4	5
%	17.1%	22.3%	31.6%	29%	0%
count	33	43	61	56	0

Weight of CO2 emissions

	1	2	3	4	5
%	2.6%	8.8%	37.3%	51.3%	0%
count	5	17	72	99	0

Travel duration

	1	2	3	4	5
%	35.2%	39.9%	18.7%	6.2%	0%
count	68	77	36	12	0

Ferry ticket cost

	1	2	3	4	5
%	45.1%	29%	12.4%	13.5%	0%
count	87	56	24	26	0

From the Assessment Survey similar results are shown: the interest to travel in an alternative way from car, thanks to information about sustainability, is average with less than half respondents who would be probably ready to pay more to travel more sustainably. The ability to receive information about the sustainability of the trip is a fundamental notion to take into account decision criteria different from the normal ones.

Graph 6 - Travelers' interest and influence on sustainable aspects

9. "I care about the environment, and I expect the solutions I choose will follow sustainability criteria".
Please rate the following statement.
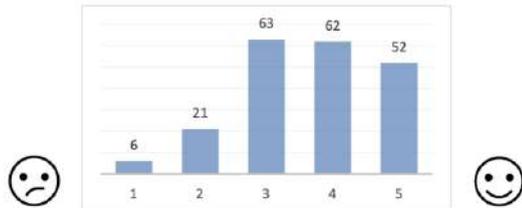
10. "My priorities are comfort and value for money, ahead of services and practices considered "green"".
Please rate the following statement.
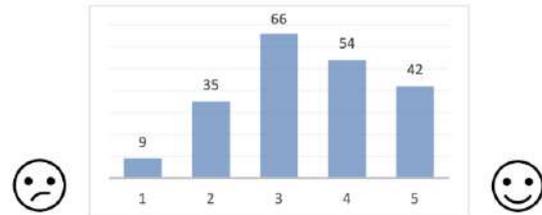
11. "I would be open to paying more for less polluting and more environmentally friendly modes of transportation". **Please rate the following statement.**
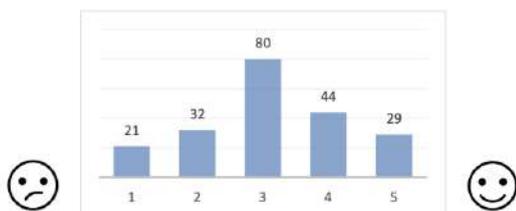
12. "I would be open to choose one product/service over others if I was given information about the sustainable management criteria of the products/services I choose".
Please rate the following statement.
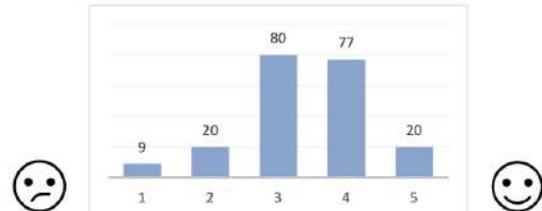
Evidence shows that even if CO2 and green information would not totally change the behavior, **it could influence the decision and increase the awareness of the traveler**.

Then, some evidence could be found also from the focus group focused on the "green challenges". In fact, the focus groups revealed how if we ask about the impact of interest on sustainability when choosing a means of transportation, the issues identified point to a lack of awareness or knowledge regarding three main topics:

1. quantity of emissions
2. difference in the sustainability of various means of transportation
3. concept of environmental offsets

These critical issues add up and generate an overall lack of awareness of the impact of one's choices.

Also from the focus groups, it emerged how, even with the interest in sustainability, an important and critical point concerns the lack of intermodality platforms that can serve as hubs connecting the various types of transportation carriers needed for more sustainable travel than those using private vehicles.

3.2.3. Step 3 - Ticket purchase

Then, clicking on the "ferry" option, it's possible to view also the timetable for that specific day; then clicking on the "Tickets" button, the user is then redirected to the ferry company's website to view the price and then purchase the ticket (Image 4).

Image 4 - Ferry's ticket information
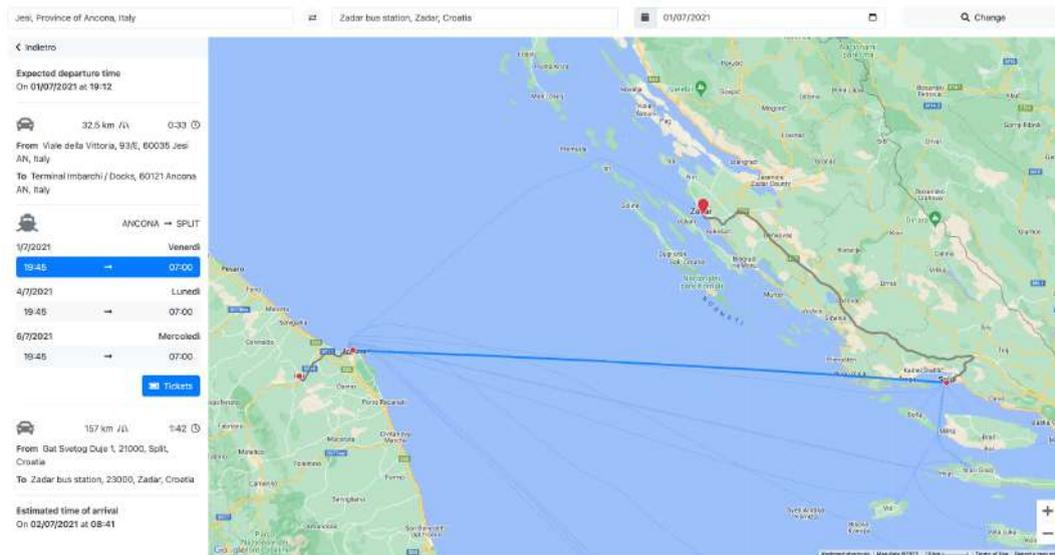
This is a very important feature: less than 8% of the respondents would not click to know more about the ticket, while all the others would probably continue to discover the price (that is not visible inside E-CHAIN) and in case to purchase the ticket.

Graph 7 - Travelers' interest in ferry services
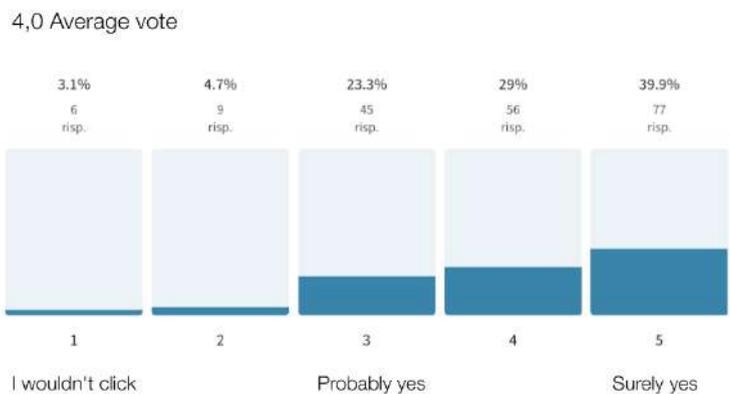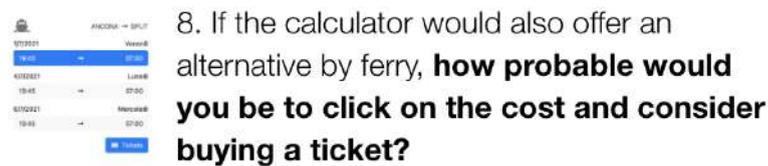
3.2. Phase 2: During the Trip

3.2.1. Step 4: register to receive information during the trip

The next features can be experienced during the trip, such as when the tourists are in the location. On the E-CHAIN platform the users can register to the "Always stay green" service (Image 5), leaving their contact details to receive messages during their trips, with information about the destination, what's possibile to do in the area, activities and experiences, etc.

The more detailed the information they add, the more accurate the information sent to them.

Image 5 - Registration button to receive the messages and signup form for tourists
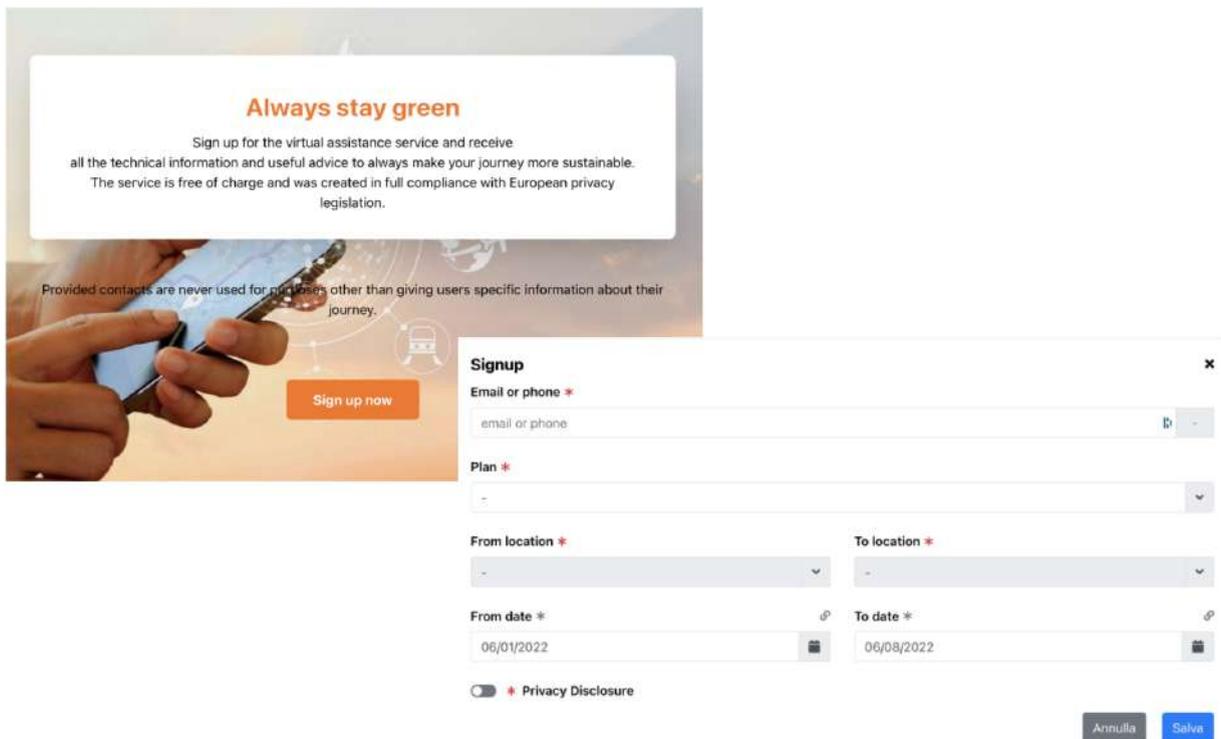
In the simulation the tourists showed that less than 19,7% would not like to register, while most people would think about it and only one out of 5 would surely register. In the Assessment Survey, the results show 51% who would receive information.

Graph 8 - Travelers' interest to leave personal data
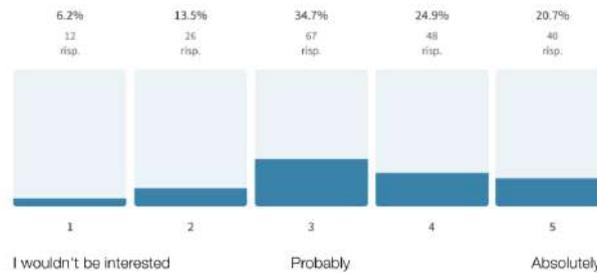
According to the types of information they would share, people would be more confident in sharing gender, age and their type of traveler, more than other data such as their social profiles and their location real time (Graph 9).

Graph 9 - Travelers' interest in sharing their information
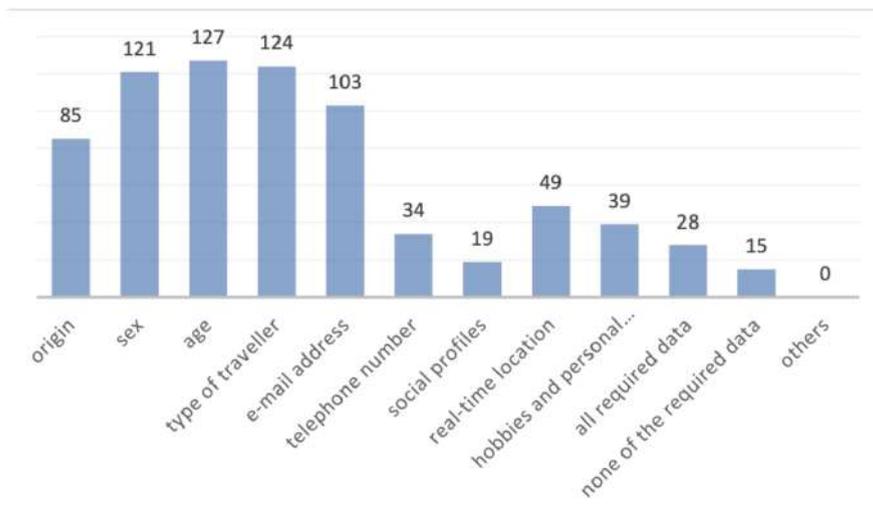
The preferred means of communication would be receiving emails for 2 users out of 3, while receiving SMS messages is considered more private.

Graph 10 - Channel preferences to receive notifications

Graph 10 - Channel preferences to receive notifications

12. In order to receive information during the planning and development phases of your trip, **through which channel would you prefer to receive useful notifications?**

Through e-mail, visible from mobile phones and PC	127 risp.	65.8%
Through messages to my mobile phone number	55 risp.	28.5%
I wouldn't like to receive anything	11 risp.	5.7%
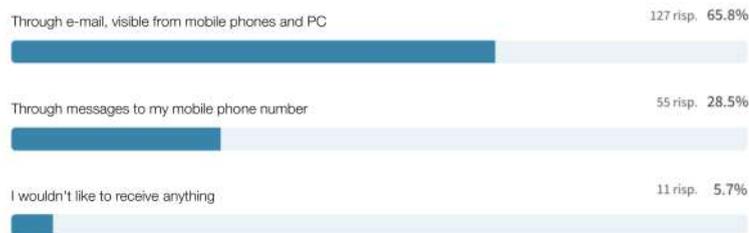
According to the types of information that are considered important, most people would receive data about their trips' dates and the ferry's timetable, then information about local experiences and the rules to enter the country (i.e. Covid rules) (Graph 11).

Graph 11 - Relevance of information for travelers

13. The E-CHAIN platform will provide different types of useful information to improve the travel experience.

How important is each type of information?

	Not much	On average	Very much
Dates and duration of the trip	5.7%	25.4%	68.9%
Weather	9.8%	43.5%	46.6%
Rules and regulations for safe travel (country access rules, Covid regulations)	6.7%	35.2%	58%
Traffic and road conditions	10.9%	47.7%	41.5%
Local events on arrival days	14.5%	35.2%	50.3%
Things to do when arriving early	38.3%	42%	19.7%
Special offers for food and more	19.7%	52.3%	28%
Green activities nearby (nature trails, parks and green areas)	10.4%	41.5%	48.2%
Local experiences (museums, religious sites and attractions)	3.6%	36.8%	59.6%

3.2.2. Step 5: improving the experience by ferry

Another really important goal of the E-CHAIN project is to improve intermodal tourism, especially through ferries.

Traveling by ferry, in fact, has a positive impact on the environment, since hundreds of people travel together on the ferry instead of making a longer route just with their own car or caravan, saving CO2 emissions, saving oil and reducing the traffic on highways.

Anyway, this mean of transport is the cause of other problems: the tourists passing through a destination just to embark on a ferry increase the traffic and emissions in that location, without leaving any economic positive impact on the area. One of the main problems is that travelers usually arrive at the port several hours in advance, creating long queues and causing congestion inside the port. Their travel experience is then poor because of the long wait inside the terminal.

These assumptions have been verified first through the Assessment Survey, showing that 53% of the people who traveled from Italy to Croatia had an experience of 3 out of 5, so average if not unsatisfactory.

Graph 12 - Ferry experience evaluation

Referring to the last trip you took by ferry, how positive was the experience?
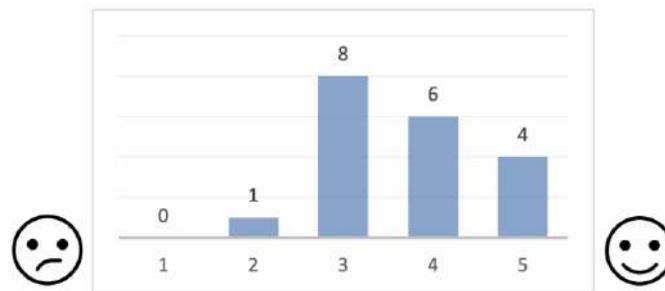
Then, in the Simulation Survey more than 8 out of 10 respondents have traveled by ferry at least once and expressed that the worst problems are **the traffic arriving at the port and the long wait before embarking (Graph 13).**

Another important factor is the real time information about the ferry's arrival and departure: without any certainty, the travelers prefer to arrive early. In fact, over 72% would arrive at least 2 hours before the departure time, with almost 8.8% more than 4 hours before (Graph 14)!

Graph 13 - Travelers' consideration of the most frequent problems

16. How serious do you consider the following boarding problems to be?

	Not much	On average	Very	Very much
Difficulties to find the departure terminal	16.6%	33.2%	35.2%	15%
Arrival traffic at the port	3.1%	29%	47.7%	20.2%
Long waiting times	3.1%	21.2%	45.1%	30.6%
Difficulty to find the required documents	40.9%	30.1%	22.3%	6.7%
Difficulty to find parking in boarding area	9.3%	29.5%	42%	19.2%
No information on the ferry's real departure time	9.3%	28%	39.9%	22.8%

Graph 14 - Travelers' arrival times for ferry departure

15. Thinking about your usual behaviour, **how early do you go to the boarding terminal (if you have never travelled, how early do you think you would go)?**

At most 2 hours before	80 risp.	41.5%
From 2 to 4 hours before	59 risp.	30.6%
At most 1 hour before	30 risp.	15.5%
At least 4 hours before	17 risp.	8.8%
Arriving at the location the day before	4 risp.	2.1%
At the last moment!	3 risp.	1.6%
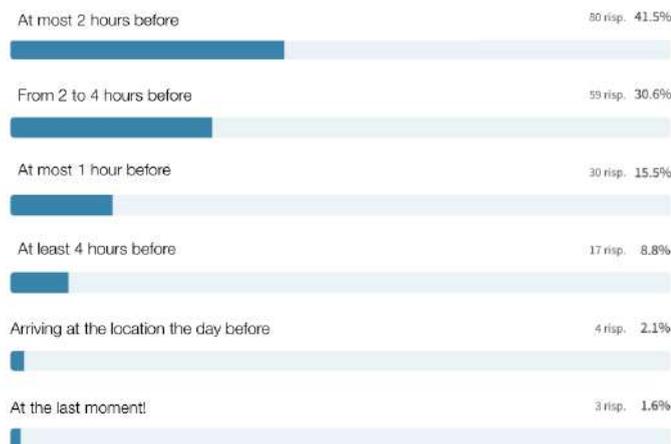
Anyway, the travelers would like to change that behavior and spend that time differently, mostly:

- by eating in a restaurant nearby,
- by visiting a place of interest or

● by participating in local activities such as tastings, local experiences, etc.

The main reason why they are not already spending their time differently when arriving in advance is the lack of knowledge about what's possible to do in the area, instead of an economic reason (Graph 15). In fact the availability of special offers and discounts on restaurants, museums and activities could be an average motivation, while having more information about the nearby area and about the suggested activities according to the available time would be a definitive motivation for more than half of the travelers.

Then, the main trigger for them to change the behavior would be the certainty not to miss the ferry, that can be obtained by real time information on the exact leaving time and the embark starting moment (Graph 17). Another important factor would be having priority of service in restaurants, not to risk waiting for the launch and missing the ferry (Graph 16).

Graph 15 - Preferred activities waiting for departure

17. Now suppose you arrived at the boarding gate 2-3 hours early.

What would you like to do instead of spending this time waiting in the terminal line?

Eating in a local restaurant	116 risp.	60.1%
Visiting a place of interest	100 risp.	51.8%
Participating in local activities (tastings, other experiences, etc.)	69 risp.	35.8%
Shopping	40 risp.	20.7%
Nothing, I prefer to wait not to lose the ferry	33 risp.	17.1%
Visiting museum	33 risp.	17.1%
Other	2 risp.	1%

Finding a dedicated area for pets to play with them

Activities with children

Graph 16 - Travelers' interest in the activities while waiting for departure

18. So which of these options would motivate you not to arrive several hours early at the boarding terminal, but to spend that time on other activities?

Score each one from 'not at all' to 'definitely yes' according to how much you would be interested.

	Not at all	On average	Definitely yes
Special offer for a meal in a restaurant with a preferential price	23.8%	47.7%	28.5%
Special offer for a meal in a restaurant with priority service	28%	41.5%	30.6%
Special offer for visiting a museum/other attraction at a preferential price	18.7%	53.4%	28%
Offer for activities in the area knowing their duration	13%	44.6%	42.5%
Information about what you can do locally and the security of having updated information about the real boarding time	6.7%	25.9%	67.4%
Information on which activities to do according to the time available (1h, 2h, 3h etc.)	9.3%	30.6%	60.1%

Graph 17 - What influences travelers to spend their waiting time in other activities

19. Which of these options would most motivate you to spend your waiting time differently?

Option	Responses	Percentage
Having real time information about the ferry	130 risp.	67.4%
Priority and certainty of service times	129 risp.	66.8%
Travelers' activities	89 risp.	46.1%
Discounts and offers	63 risp.	32.6%
None, I prefer going straight to the terminal	15 risp.	7.8%
Other	0 risp.	0%
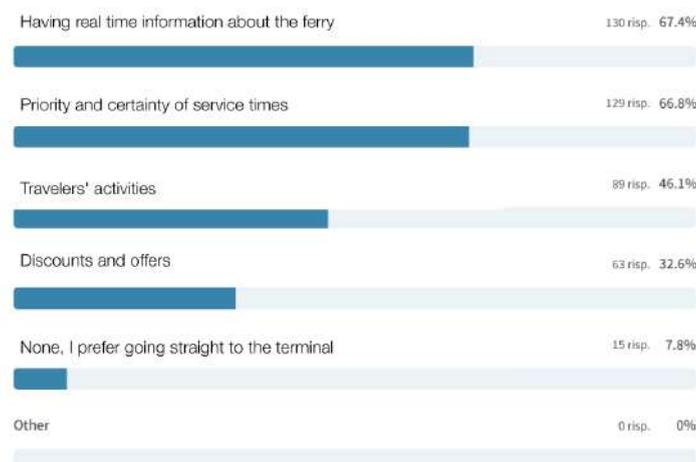
To make those requests possible, it is necessary to verify that the local businesses would really like to offer priority and discounts. Asking them for their availability, most stakeholders (50% of respondents) answered that they would be open to offer discounts and offers

Graph 18 - Stakeholders' interest in offering special offers to travelers

5. Would you be interested to offer special offers for E-CHAIN travellers, which would be visible on the platform and on totems placed in the project locations?

Yes, both offers and priority in service (for boarding times that must be observed)	10 risp.	50%
Yes, but only offers (I could not guarantee respect of timetables)	6 risp.	30%
No, I would not be interested	3 risp.	15%
Yes, but only service priorities and not offers	1 risp.	5%

Another way to improve the economic impact on the location of the tourists passing by is to have the tourists arrive at least one night before the departure. This way they would stay in the local hotels, eat in the local restaurants and visit the points of interest of the city.

At the moment, only 2% of the travelers arrive one day before (Graph 14), but most of the others could be convinced to arrive one day in advance **by receiving offers for accommodation and meals (68.9%),** or simply **by receiving more information on cultural activities to do nearby (48.2%).**

This evidence is very important to demonstrate that targeted actions to promote the territory and special offers could lead to positive changes in the behavior of tourists.

Graph 19 - What motivates travelers to arrive a day early at the boarding location

20. **What would most motivate you to arrive at the boarding location the day before?**

Choose the options that would drive you to do so!

Receiving offers for accommodation and preferential meals	133 risp.	68.9%
Receiving information on cultural activities to do nearby	93 risp.	48.2%
Learning about events concerts, etc. taking place on that day	91 risp.	47.2%
Receiving information on gastronomic activities to do nearby	59 risp.	30.6%
Understanding that my behaviour is more sustainable	27 risp.	14%
Other	8 risp.	4.1%

The focus groups also revealed **the importance of a personalized offer,** both concerning the perception of the information received and the compromises accepted by the traveler in order to obtain a personalized service.

In particular, the additional value that can be offered near destinations is directly dependent on the availability of time of the passengers, who arrive in the location to embark on a ferry. In this case, the ideas from the focus group include: guided tours, smart-working stations, media rooms, information about the area to help the travelers understand where they are.

To achieve this objective it appears strategically important that the experiences in these locations are promoted through a simple and usable platform, that offer tourists the information regarding the possibilities to to spend their time.

From a technical point of view, this puts certain burdens on the platform and the system that supports it. These concern the efforts of profiling the users, to clearly understand their needs and generate value offers consistent with the target, and the effort represented by both the presence of a support service (that can aid the purely technological side and assist the user in their experiences) and a constant and continuous updating of the information offered.

3.2.3. Step 6: usage of the totems

Another type of channel available during the trip is the availability of totems. In fact, in the areas of the project there will be two physical interactive totems, displaying information about the nearby area and what to do according to the availability of time. To better navigate the information, QR codes would be added to have the tourists look at the information on their smartphone. The interface is presented in Image 6 and is going to offer several different types of information to help the tourists improve their travel experience.

According to the importance of totems, the travelers simulating their usage express that it would be very important to receive information about the transportation means both for a long-run traveling (ferry, train, buses, etc.) and for local transportation timetables and the parking locations, then for bike and scooter rentals. Information about the nearby activities and events are considered averagely important, but still relevant; the electric cars charging stations and the emergency numbers are considered not relevant.

Image 6 - Screenshot of the totems features
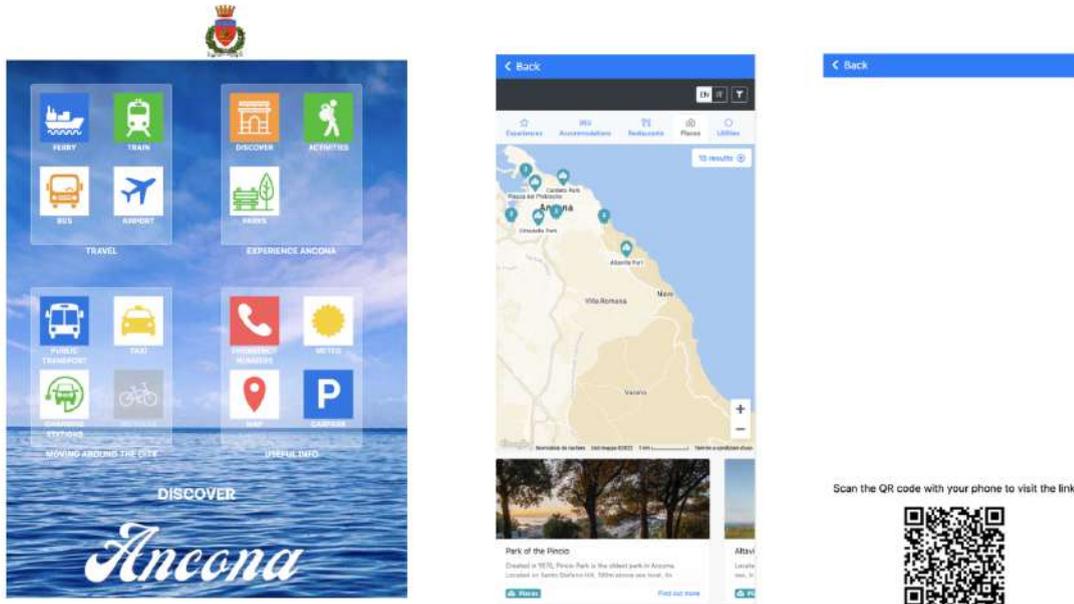
Interacting with the totems, the travelers would gladly use QR codes to visualize all the information on their smartphones, without the need to create long queues at the totems. Then, if they find an interesting activity, they would like to book or even purchase it starting from the platform, to simplify the process.

Graph 20 - Travelers' preferences about information to be found in the totems

21. In the project locations there will be some digital totems to find information in real time. Among the information available at the totems, **which do you think will be the most useful for you when you arrive at your destination or at the intermediate stop?**

	Not much	On average	Very much
Travel planning with ferry, train, bus and flight	9.8%	26.9%	63.2%
Rules and regulations for travelling	17.6%	43.5%	38.9%
Traffic and road communications	14.5%	46.1%	39.4%
Exploration and suggestions for sustainable activities	10.4%	48.2%	41.5%
Local events and activities	10.4%	42%	47.7%
Local weather	22.8%	44.6%	32.6%
Emergency numbers	25.9%	39.9%	34.2%
Map of the area	16.6%	37.8%	45.6%
Parking in the area	10.4%	39.9%	49.7%
Bike and scooter rental points	20.7%	44%	35.2%
Electric charging stations	46.1%	38.9%	15%
Bus and local transport timetables	9.3%	37.3%	53.4%

Graph 21 - Travelers' interest in directly purchasing activities

22. If you can, **do you think it would be useful to be able to go directly to the page where you can buy them?**

4,0 Average vote

| 3.6% | 3.1% | 18.7% | 37.3% | 37.3% |
| 7 risp. | 6 risp. | 36 risp. | 72 risp. | 72 risp. |

| 1 | 2 | 3 | 4 | 5 |
| Not much | | Quite | | Absolutely |
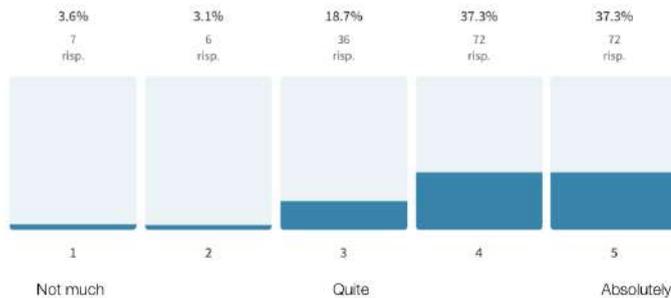
Graph 22 - Traveler's intentions to use QR codes available on totems

23. In order to avoid waiting in lines at the totems, there will be QR codes available on the totems, which you will have to scan in order to use the same functions from your smartphone. **How probable would you be to use this mode?**

4,3 Average vote

| 3.1% | 5.2% | 9.3% | 23.8% | 58.5% |
| 6 risp. | 10 risp. | 18 risp. | 46 risp. | 113 risp. |

| 1 | 2 | 3 | 4 | 5 |
| Not much | | Quite | | Absolutely |
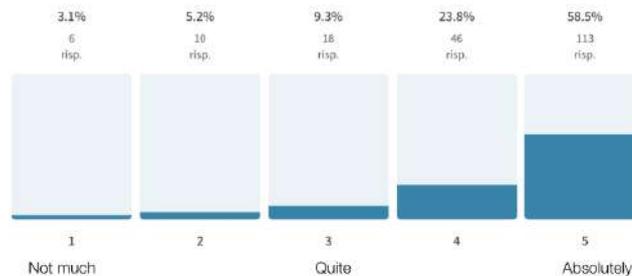
3.3. Phase 3: After the Trip

3.3.1. Step 7: Sharing their experience on social media

The most important goals after the trip are to increase their awareness about a sustainable way of traveling, then to spread the word about E-CHAIN. Therefore, the tourists will be invited to share on social media the photographs of their trip using the project hashtag #echainproject, showing their sustainable behaviors and the places they had visited. The idea is to involve the local transportation companies and the local businesses into offering discounts and prizes for the best photographs, to increase the number of pictures shared.

Precisely with respect to this topic, a point that emerged from the focus group and was widely shared, regarding challenges on the experience side, is the creation of truly valuable experiences, which through elements of delight, surprise and memorability act as drivers of sharing and as incentivizer of repetition of these experiences.

When asking travelers for their attitude towards this kind of sharing, most of them are ready to share images about their trip spontaneously, without any prize or contest. Then, others would be more motivated if they could receive vouchers and coupons for museums and local sites, followed by restaurants and local shops. The gadgets or a final ranking to state the "best picture" would be less important to motivate the sharing.

Graph 23 - Travelers' intentions to share Instagram content related to their trip

According to the type of posts they would like to share, the pictures would mostly be about landscapes and points of interest, about experiences and events and about food eaten in local restaurants. On the other hand, sharing their "green behavior" would be less popular - or at least it would be necessary to better explain what to publish according to this topic. It's evident that for people the concept of "green virtuous behavior" is not so clear, so awareness should be increased.

Graph 24 - Travelers' preferences regarding types of content to share

24. Travelers can participate by sharing content from their holiday on Instagram with the hashtag #echainproject.

What content from your holiday would you be interested in sharing with your followers using this hashtag?

Landscapes and places visited	166 risp.	86%
Events and experiences	110 risp.	57%
Local gastronomic experiences	95 risp.	49.2%
Green virtuous behaviour	43 risp.	22.3%
Family attractions and content	35 risp.	18.1%
Other	13 risp.	6.7%

3.3.2. Step 8: Receiving more information after the trip

After the Trip, it would be possible to send more messages to the tourists who signed up for the interactive messages. This option could be either exploited by the local businesses through the CRM system, to keep in contact with their clients, or used by the E-CHAIN Team, to offer more services and increase the visibility of the locations.

Graph 25 - Travelers' preferences on information they would like to receive in relation to their trip

26. Here we come to the last question!

Once you have finished your travel experience, what information related to your travel itinerary would you like to receive?

If you are not interested, do not write anything and click on the ''Complete survey'' button to submit your answers.

According to the tourists, some types of information could really be of interest; for instance:

- Information about the sustainability of their trip, such as the total amount of CO2 emitted during their trip, against the average emission by car, quantifying the savings (7 tourists)
- Information about the places visited every day, to have a sort of "summary" (in case of real time tracking) (6 tourists)
- Future updates about events, trade shows, news, etc. in the visited locations (3 tourists)

- Offers for ferry's tickets for the next years (1 tourist)
- News about the E-CHAIN project (1 tourist)
- Reviews about the trip to help other tourists (1 tourist).

4. E-CHAIN PLATFORM FOR STAKEHOLDERS

For the transport and local business, E-CHAIN offers a platform in which they can register to add their information, activities and experiences. To better describe how it works, it is possible to divide the features into the three phases and then in further steps.

4.1. Before the Trip

4.1.1. Step 1: Registration for Transport companies

This phase is mainly dedicated to the transport companies that can create an account logging in at the url: https://e-chain.eu/m/transit-finder/web/b2b to add their GTFS data, having their schedule integrated into the Trip Calculator. This way the available routes would be displayed to all the tourists planning to travel in the location on the dates when a route is available, and the users could be redirected to their website to finalize the purchases. For the other types of businesses, in this phase it's not possible to be displayed in the Trip calculator, but most of the features are in the "during the trip" phase.

Image 7 - Screenshot of the login for the platform back end for transport companies

Image 8 - Screenshot of the platform signup form for transport companies

To understand the importance of this part of the E-CHAIN platform, the topic has been discussed together with some transport companies in the focus group held during the Public Event in Trieste. From the discussion it emerged that one problem is actually **the lack of intermodal platforms** that can serve as hubs connecting the various types of transport companies. Therefore the route calculator of E-CHAIN could have a role in showing the intermodal route to the client, involving at the same time more transport companies that would join the project together.

In fact an idea would be to create intermodal cards, enabling the tourists to travel on different means of transport with a single ticket; this could be a future development of the E-CHAIN platform, which starts with the involvement of the transport companies into the project.

4.2. During the Trip

4.2.1. Step 2: Registration for local companies

Then, all the stakeholders can login and create an account as "local businesses" to add their information into the E-CHAIN web application, to be visible in the totem's information promoting their activities and experiences.

Image 9 - Platform participation process for local businesses
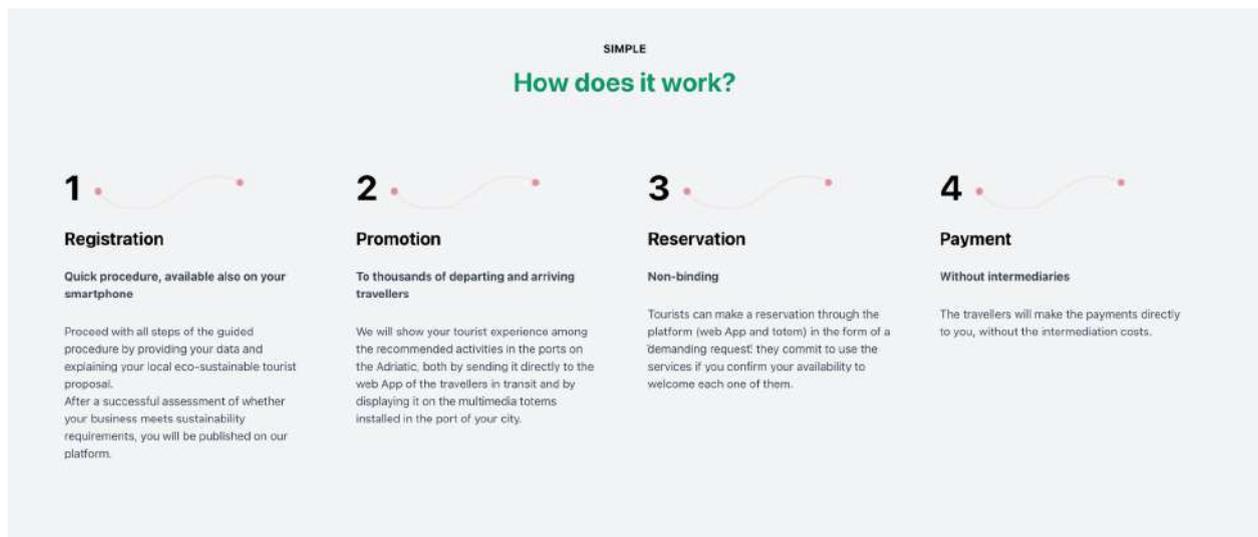
To register, they need to fill in a form with their information at the url: https://e-chain.eu/m/transit-finder/web/b2b, which will be approved by an E-CHAIN administrator.

Since this application would be mostly dedicated to local businesses that show to be "green" and sustainable, **to verify the attitude of companies is very important.** In the answer to the Simulation Survey for stakeholders, nearly all companies stated to adopt actions such as recycling (65%), suppliers from the surroundings such as the so called "km zero" (60%) and savings of water and energy where possible (45%). Less used but still relevant is the usage of renewable energy (30%), while no companies are purchasing credits to compensate for their emissions.

Graph 26 - Attitudes towards green actions
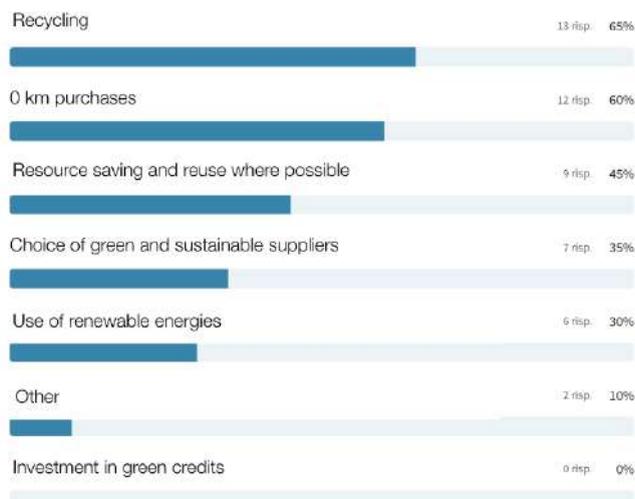
Then, inside their account they have two main features: the CRM, to send messages to their clients, and the Experiences area, to add their activities to promote.

Most companies would first add their activities to promote inside the totems (76,5%), then fill in their data to complete their account (66,7%). The offering of discounts, the CRM

feature and the data analysis are less relevant, while the rewards to promote sustainable activities are considered not important at all (only 23,5% consider it very relevant). This evidence shows that local businesses need help in promoting their offerings and reaching more customers, while other initiatives towards the environment or to create interaction and social sharing are less important to them.

Graph 27 - Local businesses preferred action to be taken on the platform back end

11. Step 2) Using the platform

Well, you have now registered in the platform and you can enter into your reserved area!

Entering you have several options and functions:
- CRM
- Messages
- Editorial plans
- Personal profile.

What would you want to do with E-CHAIN?

For each answer explain how it is relevant for you.

	Not much	On average	Very much
Completing your business profile	22.2%	11.1%	66.7%
Enter your paid activities to promote them	17.6%	5.9%	76.5%
Send messages to your customers via CRM	17.6%	47.1%	35.3%
Offer discounts for E-CHAIN members	0%	50%	50%
Understand the flow of tourists thanks to the data collected by the platform	0%	41.2%	58.8%
Offer rewards for those who choose sustainable activities	41.2%	35.3%	23.5%

4.2.2. Step 3: Use the CRM to send messages

According to the CRM feature, the stakeholders can perform several actions:

- add the contact data of their leads/customers (if they have the Privacy consent gained through the acquisition process) in the CRM area;
- send one single message to them, to promote something or send some instant information;
- create an editorial plan, sending automated messages according to some rules.

This feature would be at least evaluated by most stakeholders (90%), who probably already have a customer relationship software and so are not sure to actually need it. Therefore, to be really useful this feature should be better explained, offering advantages to the users.

Image 11 - Screenshot of the platform CRM feature for stakeholders
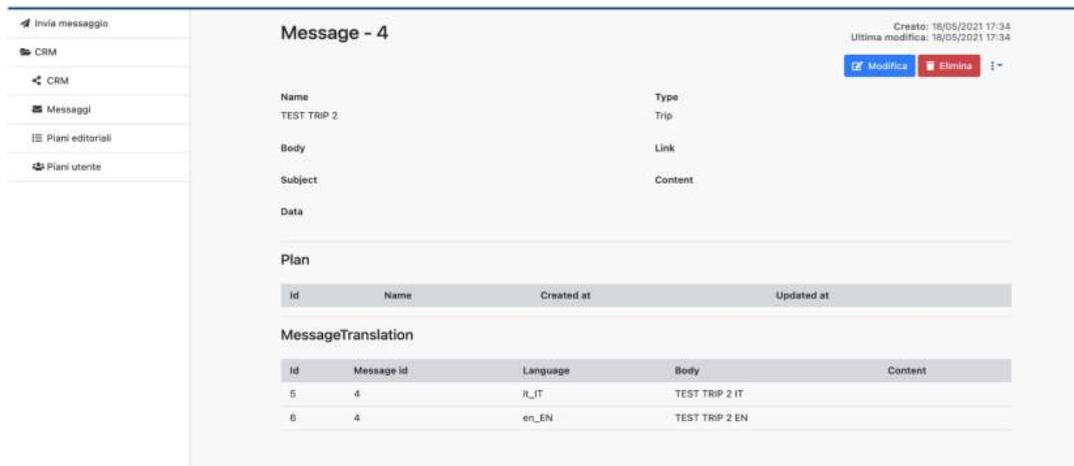
Graph 28 - Stakeholders' intentions in using the platform personalized messaging features
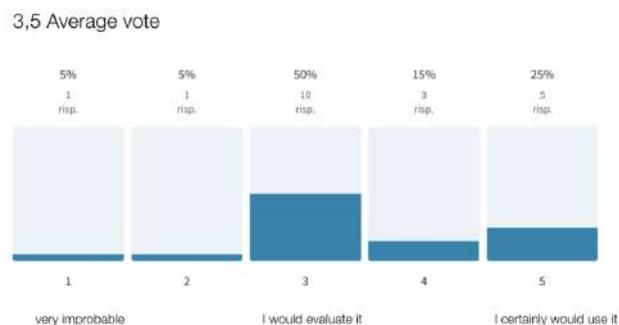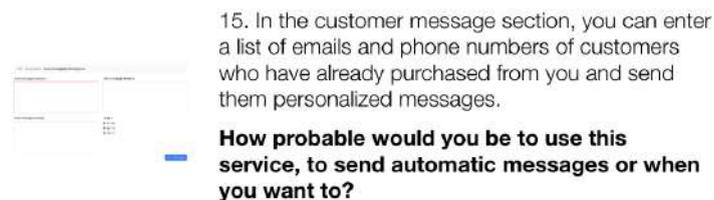
4.2.3. Step 4: Add and update experiences

Then, in the Experience area, they can add more experiences filling in all the information about it. In the Bookings area they can see all the bookings they received, and visualize their locations.

Image 12 - Screenshot of the platform back end feature for the listing of experiences
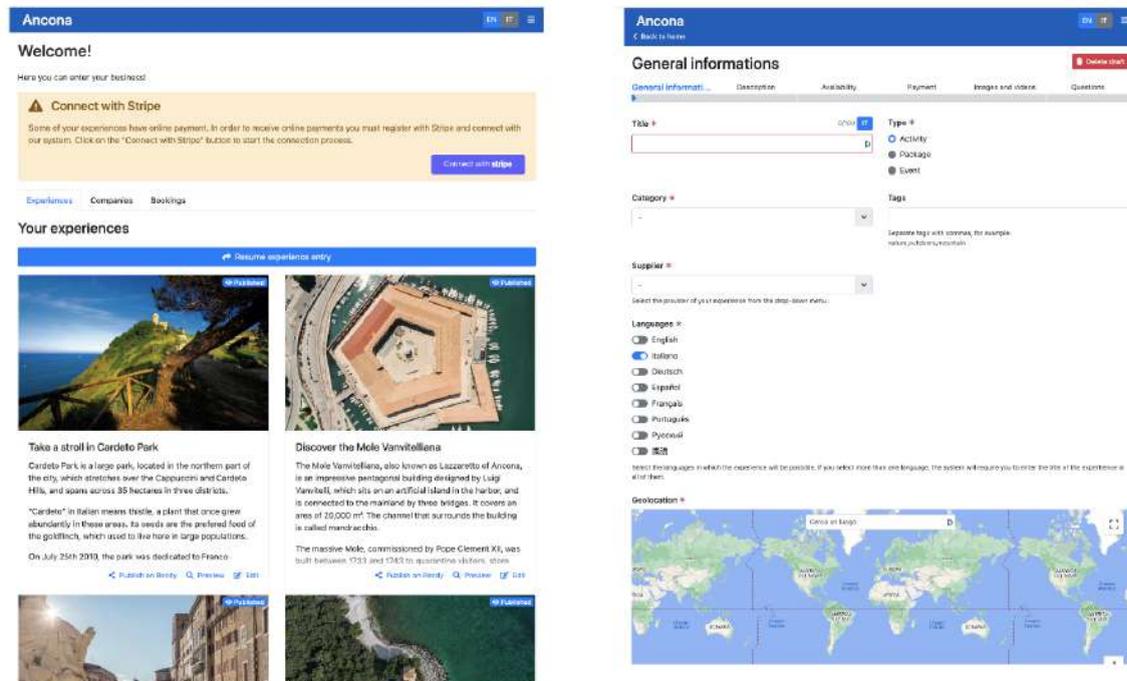
This feature is more than averagely important for the stakeholders, who would probably use it since most of them (80%) do not even have an online website to sell their activities. Therefore, **E-CHAIN could become their online platform where they can propose their services and reach the potential customers** through the totems and the web application. The task of updating the activities/experiences would be completed by the entrepreneurs and their collaborators, without the need to integrate with other platforms; none of the respondents answered that the task is too time consuming so that they would not perform it, so it's a positive confirmation of the feasibility of it.

Graph 29 - Stakeholders' intentions in using the platform experience offering feature

12. In the 'Experiences' section you can enter activities to be enjoyed for free or for payment in your business (events, experiences, tastings, etc.). These will be visible both through the physical Totems and for those browsing the E-CHAIN web app.

How probable would you be using this service, entering your activities and completing all the fields?

3,6 Average vote

5%	5%	20%	50%	20%
1 risp.	1 risp.	4 risp.	10 risp.	4 risp.
1	2	3	4	5
very improbable		I would evaluate it		I certainly would use it
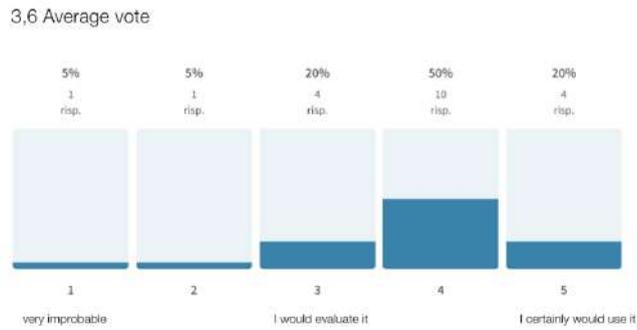
Graph 30 - Stakeholders' preferred methods for updating the experiences

13. To avoid mismatches, your customer experiences (events, initiatives, activities) must always be updated both in dates and availability.

How could you keep them updated?

Someone from the team or I would log into the platform to update them	13 risp.	65%
The experiences that I offer do not change over time and there is no limit number	3 risp.	15%
I could consider integrating the management system that I use	3 risp.	15%
I am not interested to propose experiences/activities	1 risp.	5%
Other	0 risp.	0%
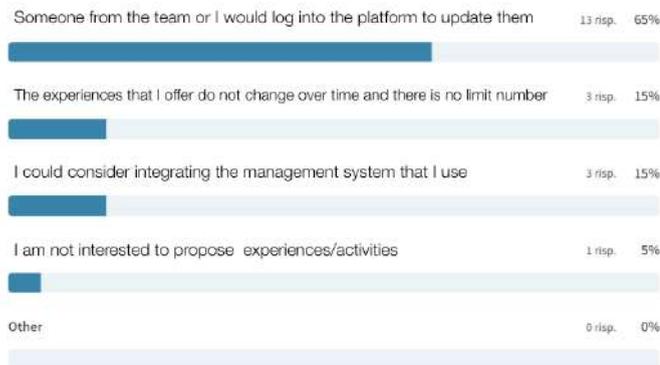
Graph 31 - Stakeholders' current use of online booking services

14. Do you already have your own online booking service to which you want to direct your potential customers and which you could include in your E-CHAIN activities?

If yes, you could insert the link to complete the purchase on your system.

Yes	4 risp.	20%
No	16 risp.	80%
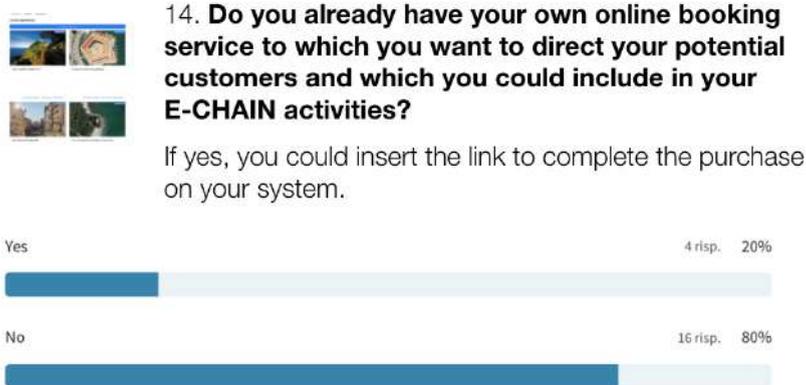
4.2.4. Step 5: Increase the social sharing

To stimulate the sharing of content on social media, they can then launch some contests to engage their clients and offer them prizes and discounts.

This opportunity would be exploited mostly by posting content with the hashtag of the project, while organizing contests or offering awards/gadgets is something most businesses would not do. An interesting middle solution could be offering discounts/coupons to users sharing pictures about #echainproject: this way the tourists would be even more incentivized to visit the location or purchase products and activities.

Graph 32 - Stakeholders' businesses participation in sharing incentive contest

PHASE 3 - Social media activities

16. Travellers can take part in contests by sharing content from their holiday on Instagram with the hashtag #echainproject.

How interested would you be in the following ways to participate in your business?

	Not much	On average	Very much
Offering awards/gadgets to winners, to be collected at my structure or sent to me	58.8%	23.5%	17.6%
Offer discount vouchers to winners to spend on my products/services	17.6%	52.9%	29.4%
Posting photos with the project hashtag	17.6%	23.5%	58.8%
Collaborate with E-CHAIN accounts for joint activities	11.8%	41.2%	47.1%
Promote the use of the hashtag to customers	17.6%	35.3%	47.1%

4.3. After the Trip

4.3.1. Step 6: Analyze the data

Another area of the platform is dedicated to the analysis of data collected by the users interaction with the CO2 calculator, the messages received from the CRM and the interaction with the totems.

This area is meant for businesses and Institutions as an information asset to make informed decisions about their activities and offerings. In fact today data is the most important asset in order to make informed decisions and correctly promote the actions to meet the tourists needs.

Image 13 - Screenshot of the platform backend for the analysis of data regarding interactions with the CO2 calculator
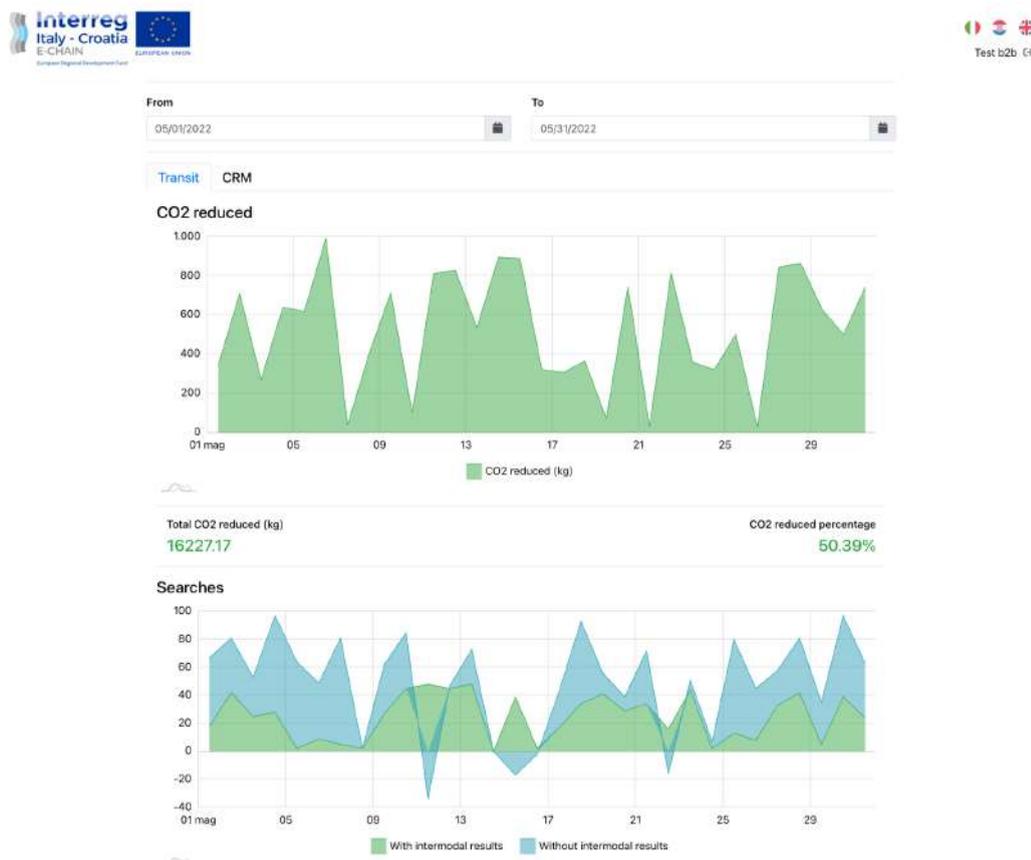
As emerged from the Simulation Survey, the stakeholders would be mostly interested in:

1. **data about their own businesses**, to understand how many tourists are looking at their contents and activities. This shows a strong need to know more about their visibility, to improve their own results.
2. **aggregated data on their destination**, to visualize how many tourists are planning to visit, in what period, starting from when, what do they look for, etc.

3. **data on the platform usage**, to understand where the tourists want to go, from where, in which period, etc.

The CO_2 and sustainability data appear to be less important, since only 25% of the respondents indicated it as useful. This means that the information to increase the business results are still far more important than data to show the sustainability and green actions made by the business.

Graph 33 - Stakeholders' interest in the various types of data collected

PHASE 4 - Data Analysis

17. An important part of the platform is dedicated to data.

Which data would you most often look at and would be most useful to you?

Interest data about my business	15 risp.	75%
Aggregate data on incoming tourists to my business location	11 risp.	55%
User behaviour data on the platform	11 risp.	55%
CO2 savings data due to the use of E-CHAIN	5 risp.	25%
Other	0 risp.	0%

This need emerged also from the Focus Group about Connectivity: the stakeholders lamented the lack of comprehensive reports with data about tourism in their locations, since those data are usually fragmented. In fact, it's necessary to reach a critical mass of data to find patterns and have a complete overview of the situation, while each business/institution has a partial view. In fact the Public Administrations, who should be the primary provider of data for each location, usually do not completely share their data.

These difficulties can also be found with regard to the various transport companies due to the lack of a data sharing requirement. Every single entity, PA and private companies alike, can in fact be seen as a data silo by its unwillingness and ability to actually share it with other entities.

A solution that emerged from the focus group was that companies and institutions would be more willing to share their data in exchange for more data from other stakeholders, knowing that they would contribute to create an overall database useful to the whole location and accessible super partes.

Another important related point that emerged from the focus group concerns ways to achieve added value resulting from the ability to collect more data. This poses goals of

achieving additional demand functional to better profiling of users, a reduction in the mismatch between experiences and users, and the facilitation of sharing the data collected within the various parties involved.

It was also pointed out that there is a different method of data collection between Italy and Croatia. This was emphasized as a challenging element to be addressed jointly.
Therefore, precisely in response to these findings, emerges from the focus group on Connectivity the need to use E-chain as a platform for sharing and linking between the various parties involved.

4.3.2. Data collection simulation

To simulate the data that could be collected through the E-CHAIN platform, from the Simulation Survey it's possible to analyze the first insights on the tourists behavior. The full analysis is available on a Data Studio file, clicking here.

Analyzing their starting and arrival points, for instance, it's evident that the most popular starting points are from Trieste and Ancona, with some other tourists are from Milan, Padua, Pescara. The arrival point most tourists want to reach is Split, followed by Dubrovnik, Zadar and Zagreb. The route with more interest is the "Ancona - Split" one, while from Trieste the tourists would like to go both to Split and Dubrovnik. This information, if further analyzed, could lead to decisions about new ferry routes, special offers and advertising activities in the starting areas, promoting the arrival destinations.

Table 1 - Starting and arrival points chosen by travelers

Starting Points

	Starting point	Tourists ▾
1.	Trieste	56
2.	Ancona	38
3.	Milano, Italy	11
4.	Pescara	9
5.	Udine	5
6.	Padova	5
7.	Monfalcone	4
8.	Macerata	4
9.	Roma	4
10.	Venezia	4
11.	Bologna	3

1 - 50 / 50

Destination

	Arrival point	Tourists ▾
1.	Split	57
2.	Dubrovnik	27
3.	Zadar	17
4.	Zagreb	9
5.	Rijeka	8
6.	Pula	8
7.	Porec	7
8.	Pag	6
9.	Croatia	5
10.	Hvar	4
11.	Lussino	4

1 - 41 / 41

Starting/Arriving point related to age

|	Età	Starting point	Arrival point	Tourists ▾
1.	50-59	Ancona	Split	7
2.	20-29	Ancona	Split	7
3.	40-49	Ancona	Split	5
4..	30-39	Trieste	Split	5
5.	50-59	Milano, Italy	Split	3
6.	20-29	Pescara	Zadar	3
7.	30-39	Trieste	Dubrovnik	3
8.	30-39	Bologna	Split	2
9.	40-49	Ancona	Zadar	2
1..	20-29	Macerata	Split	2
1..	30-39	Pescara	Split	2

1 - 100 / 121

Then, another interesting aggregated statistics is about the age of the tourists and how it is related to the destinations. From the first data, it is possible to discover that there are differences in the routes: people in the 30-39's would start from Trieste and go to Split, while people in the 60-69's would start from Ancona and go to Split and Zadar.

Graph 34 - Starting and arrival points by travelers' age
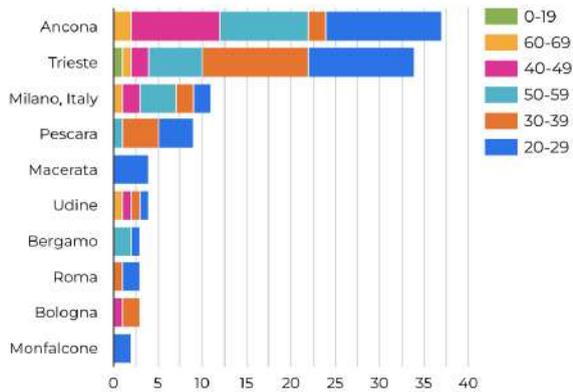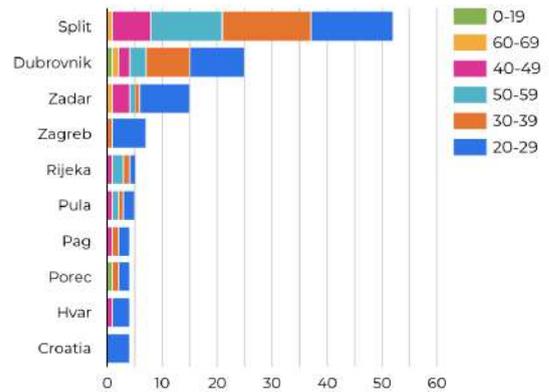
Looking then at the period when the tourists would like to travel, we discover that August is not the only preferred month: most tourists would like to travel in July and September.

Graph 35 - Travelers' preferences for traveling
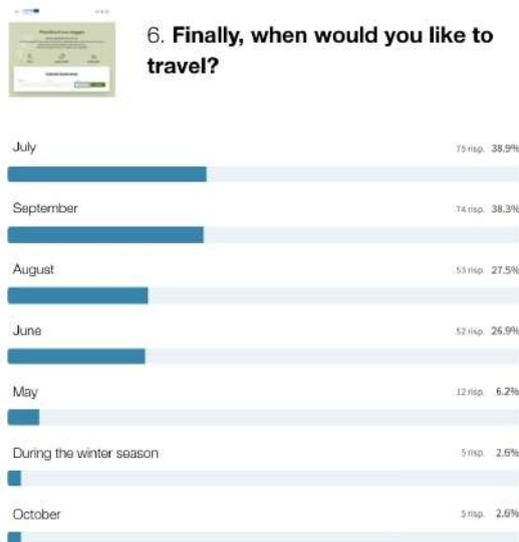
Analyzing further, it would be possible to understand if the period when tourists want to travel is related to other metrics, such as their age, their destination and their travel modality.

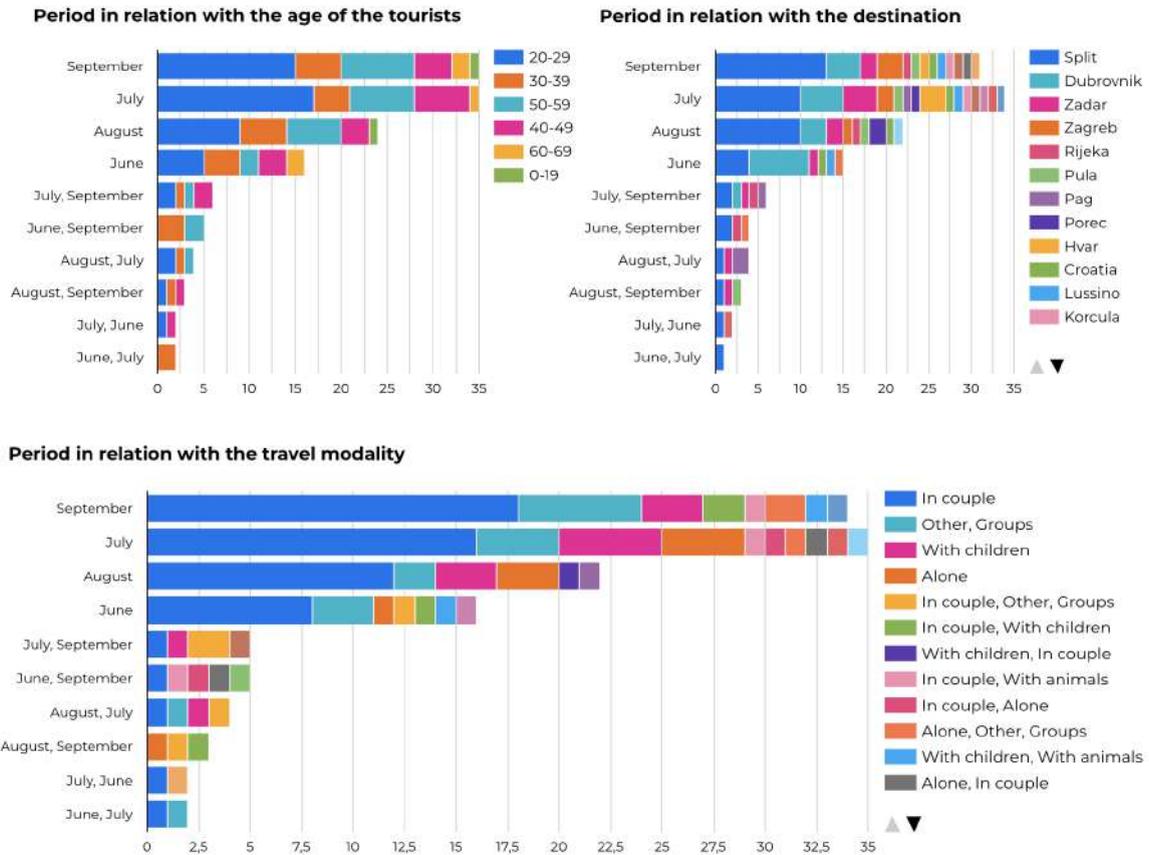Graph 36 - Period according to age, destination and travel modality

This simulation has been conducted through surveys and even though the panel is small, some insights could even be found. Through the E-CHAIN platform the number of users interacting with the calculator and then generating data would increase exponentially, creating a spontaneous database of information about tourists preferences. That information will be incredibly precious to the different stakeholders, who now experience difficulties in retrieving the data to make informed decisions.

5. CONCLUSIONS

The simulation activity described in this document made it possible to test every feature of the E-CHAIN platform, collecting valuable information and ideas. In fact, showing the user experience of the B2C and B2B platforms to the different stakeholders, their reactions and their feedback allow us to understand the level of importance of each feature and how to make them more valuable. Then, their decision triggers have been identified, to understand which benefits and perceived value would move them to really actively use the platform.

Summarizing the results for tourists, through the simulation it was possible to understand the following points:

- **It's important for the platform to be well indexed on Google** to be found by them, while to become one of the favorite applications it is necessary to give a very strong reason to use it;
- **The CO2 calculation and the sustainable tips are important to increase awareness**, but are not the trigger point to have tourists change their mind; anyway, tourists would like to receive after the trip a calculation of their CO2 emissions compared to the average trip by car, to understand the impact they had and the improvements they made.
- **The calculation about the price and total time of the intermodal trip is the most important information for the tourists**, who would decide how to travel according to these figures;
- **The reason why tourists arrive in advance at the port terminal is mostly due to the lack of real time information** about the departure time and the exact place where the terminal is. Therefore, offering the certainty of the real time data it would be possible to convince the tourists to spend their time in the location;
- **The knowledge of what's possible to do in the nearby location of the port is even stronger than special offers and discounts** as a reason not to wait for hours queueing at the terminal. Through a communication activity before the arrival and in the terminal area, it would be possible to improve the tourists experience while reducing the ports' congestion,
- **The totems would be very useful to help the tourists find the right means of transportation**, both for long-end trips and public transportation. Then, tourists would like to have a quick way to proceed with the booking/purchase. Other information such as the emergency numbers, that are easy to find online, would not be so useful.

Then, for stakeholders the simulation helped to understand the following points:

- **Local businesses need to find new ways to promote their business**, therefore they would like to add their activities and experiences to increase their visibility through the totems and the web application.
- **Most companies do not have any other online system to book/purchase tickets and experiences**, so it would not be necessary to integrate the platform. This also means that through a marketing campaign it would be possible to propose the E-CHAIN platform as their online booking platform, increasing the adoption.
- **The CRM feature is less appealing than the possibility to add and promote experiences and activities**. This shows a low awareness of the great marketing potential of contacting old and potential customers via email and SMSs; plus, since most tourists are interested in receiving real time information, not to exploit the CRM feature would mean losing an important opportunity. Therefore, it could be appropriate to share the tourists' answers with the local businesses, then to organize more training sessions in the future, amining to educate the local businesses on CRM marketing.
- **The interest for sustainability as a factor to trigger business choices needs to be increased**: most companies are starting to adopt green behaviors, but they are still at the beginning and would need to increase their awareness on the importance of being a sustainable business as an important factor for their business growth. In fact during the focus group the necessity to be more sustainable has been deeply discussed by the participants, but in the survey most respondents have not shown any interest in analyzing data about sustainability, nor in sharing online "sustainable" behaviors.

These key findings are then going to be **elaborated to proceed with the Business Plan validation.** In fact the stakeholders' and tourists' answers would help understand if the starting hypothesis and assumptions can be confirmed, or if it would be necessary to propose corrective suggestions to the E-CHAIN project.