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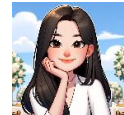
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Chapter 1

Introduction

1.1 Goals

The goal of this report is to assess the desirability of potential users of Fondo ambiente italiano (FAI) for potential needs that they have. FAI is a non-profit organization that protects and promotes Italy's natural and cultural heritage. FAI, being a foundation to preserve cultural heritage, has a big responsibility to not only preserve but also show and promote what the country has to offer; it's expected that this foundation works to give a better understanding of Italian culture, and so the possible needs and users initially circle what FAI does and what are their obligations, to understand then how they do it, and if they are doing it wrong or there is something they are not doing yet. We try to implement the tools learned during the course to find a good set of users and needs that can impact society and shape how users interact with FAI. As our final goal, we want to find well-defined users at the right level of abstraction and identify their possible ages, lifestyles, and hobbies. We also find a set of needs for these users to test and a measurement that allows us to select the best needs hypothesis. We will initially focus on identifying potential users, their needs, and the possible hypothesis we test feasibly. To then converge on the final selected users, the final needs, and the measurement for the selected needs.

In the feasibility part, the team focused on how to identify solution ideas, how feasible they are and what are the characteristics of feasible solutions. The team focused on 3 main solutions:

- an interactive map: the map showcase FAI locations, providing a dynamic and user-friendly interface.
- A customizable email: aims to serve as a direct communication channel, keeping the users informed.
- A chatbot: the chatbot uses generative artificial intelligence to help users.

Each solution has its pros and cons which will be analyzed in the section [2.4](#),

1.2 Description of document structure

In the subsequent phases of the report, we will discuss these central ideas:

- **Methods**
 - **Users and Needs:** Describe the FAI potential Users and the needs identified in the study, and show clearly which methods were used for finding them.
 - **Needs Hypothesis:** State the needs hypothesis, which predicts the needs of FAI potential Users based on prior research or theory(Methods).
 - **Need statements and assessment:** Describe the need statements developed to assess the needs of FAI potential Users and how the needs were assessed(Which methods were used).
 - **Solution identification methods:** Describe the methods used to generate possible solutions for the need identified.
 - **Solution assessment method:** Describe the method developed to assess the solutions identified.
- **Results**
 - **Results:** Present the results of the desirability assessment, including the most desirable needs and the factors that influence desirability(The measurement).
 - **Users and Needs:** Summarize the FAI potential Users and the needs that were identified in the study.
 - **Needs hypothesis:** Discuss whether the assessment results support the needs hypothesis.
 - **Need statements and assessment:** Discuss the results of the need statements and assessment, including the most desirable needs and the factors influencing desirability.
 - **Solution identification results:** Describe the different solutions identified.
 - **Solution assessment results:** Describe the results of the assessment to identify the final solution.
- **Conclusion**
 - Discuss the final decision regarding the solution that better serves the user to satisfy the identified need.

Chapter 2

Methods

2.1 Users and Needs

In the following sections, we explain the process to define the users and needs using different methods. These methods are chosen after a detailed analysis of the benefits of each one.

2.1.1 Selection of methods

In this section, we outline the methodology employed to identify Users, needs, needs hypotheses, and assessments. Before delving into the specific methods, we emphasize the general approach adopted to provide a comprehensive scope for each section. The initial method implementation involved a **brainstorming technique**, followed by **brainwriting** as described by Hender et al. (2001), who highlight the advantages of brainstorming and brainwriting as group creativity techniques. Another method, the **Assumptions reversal technique**, was also used, as briefly discussed and applied in a latent manner by our team. These three methods allowed for a broad scope in defining the team’s overall objectives, considering there were fewer stimuli to interact with at the project’s inception. These methods (Brainstorming/Brainwriting) are initially thought to function without stimuli; implementation of the Assumptions reversal technique requires more stimuli, which was already acquired through the first technique used. Thus, finding a divergent phase facilitates considering a broader range of ideas for the problem. This section elaborates on the methodology and findings related to identifying potential users and their Fondo Ambiente Italiano (FAI) needs. Various analytical methods were employed to comprehensively understand the diverse user base and align FAI’s offerings with user expectations and interests. We wrote a draft of methods using a basic **Round-Robin Brainstorming** [\[source\]](#). Basically each person takes turns, one after the other, to come up with an idea and if you have no idea, you pass and move on to the next person, until everyone passes. Then we provided the methods collected to **ChatGPT**, asking for an expansion. The prompt was the following: ‘Can you expand this list of methods to identify users and needs of the Fondo Ambiente Italiano? [...]’.. We used [Table 2.1](#) to better visualize the output of the prompt.

Table 2.1: Description of possible methods

METHOD	Description
Website Analysis	Create user personas based on the information gathered from the website. Develop profiles representing the different types of users and stakeholders connected to FAI.
Social Network Analysis	Analyze FAI's social media followers and engagement metrics, such as likes, comments, and shares. Identify patterns in posts that receive the most interaction to uncover user interests and needs. Investigate Platform-Specific Insights.
Benchmarking	Comparative Analysis: organizations in other countries known for successfully managing cultural and heritage sites, Identify best practices. Audience Gap Analysis: evaluate whether there are potential user groups that FAI hasn't tapped into yet.
Observation of User Participation at Events	On-Site Surveys: Real-time understanding of user needs by interacting with users attending FAI events.
Interviews with Stakeholders	Conduct interviews with various stakeholders, including FAI workers, board members (if willing), and volunteers. Explore their insights into the kinds of visitors or customers they are targeting and what they perceive as the primary needs of these visitors.
Focus Groups	Obtain a more profound understanding of needs in practice, by selecting groups that are already users of FAI.

A structured approach was used to select the most effective user and need analysis methods. These methods were evaluated based on the sum of feasibility, efficiency, and effectiveness for both users and needs. We ranked the methods using a **majority-vote system within the team**. The **evaluation matrix** is shown in Table 2.2 and Table 2.3:

Table 2.2: Evaluation matrix for the possible methods (regarding users)

TABLE FOR USERS	Feasibility	Efficiency	Effectiveness for Users	SCORE	Type
Website Analysis	7	7	4	18	Top-Down
Social Network	4	4	6	14	Bottom-Up
Benchmarking	6	6	5	17	Top-Down
Observation of Users	3	3	7	13	Bottom-Up
Interviews with Stakeholders	1	2	3	6	Top-Down
Hypothesis Development	5	5	1	11	Top-Down
Focus Groups	2	1	2	5	Bottom-Up

It was clear that, for both users and needs, the best methods were the same. Even the **combination of top-down and bottom-up approaches** is respected, where top-down means a method focused from the organization to the users, and bottom-up is a method from the users to the organization, the type means the direction where the method is going in order to find the potential users.

As a consequence we prioritized:

Table 2.3: Evaluation matrix for the possible methods (regarding needs)

TABLE FOR NEEDS	Feasibility	Efficiency	Effectiveness for Needs	SCORE	Type
Website Analysis	7	7	1	15	Top-Down
Social Network	4	4	5	13	Bottom-Up
Benchmarking	6	6	4	16	Top-Down
Observation of Users	3	3	6	12	Bottom-Up
Interviews with Stakeholders	1	2	3	6	Top-Down
Hypothesis Development	5	5	2	12	Top-Down
Focus Groups	2	1	7	10	Bottom-Up

1. Website Analysis
2. Social Network Analysis
3. Benchmarking

After that, we investigated the implementation of the selected methods. Again, the method to determine the detailed list of tasks for each method was a **combination of Round-Robin Brainstorming and ChatGPT expansion**.

Last step was **combining the results of different methods** to define a final list of users and needs.

2.1.2 Website analysis

Tasks:

1. Scrutinize the main content, pages, and structure of the FAI website.
2. Review the "About Us" section to gain insights into the mission, vision, and objectives.
3. Investigate partnership and collaboration pages to determine who they associate with.
4. Review any testimonials or feedback sections from users.
5. Identify any calls to action that indicate specific user engagement points.

This method is intended to gather helpful information from a top-down perspective. It is useful **to understand users and needs from the FAI point of view**. The English version is quite poor. There are only webpages on what FAI is and a button to "donate". The Italian version, on the other hand, is quite rich in content and calls to action. One of the most important and frequent buttons is "Iscriviti", which leads to a page where it is possible to get a membership. This page (shown in Annex 5.2) is very useful to **identify macro-users**, because we can use it to get an idea of already existing users and measure the economical impact of each category. It is also important to mention that, from the FAI

Financial Statement, it is clear that the membership is the most relevant source of income (%), after donations (Fondo Ambiente Italiano, 2023, p. 58).

The (modified) list based on the membership types on FAI’s **Website Analysis** is the following:

1. Individual
2. Couple
3. Family
4. Young people
5. Donor
6. Class with teacher

We used this list of macro-users as an initial framework to add new existing users. However, we did not limit to this list, conscious that potential users might not be included.

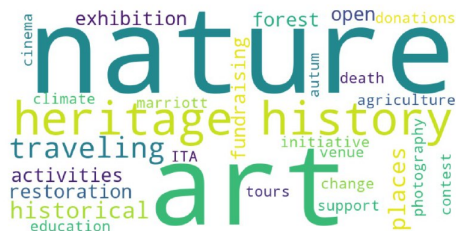
2.1.3 Social network analysis

Tasks:

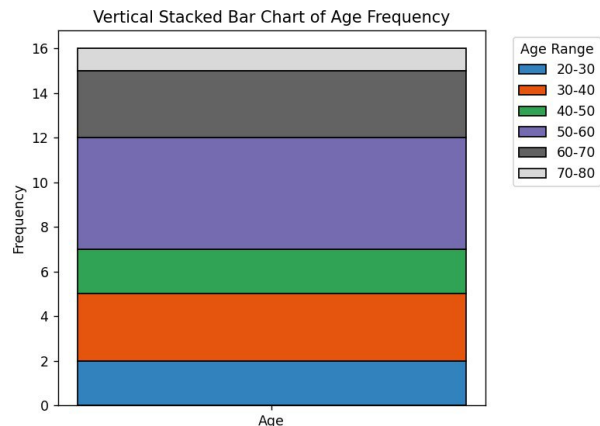
1. Track engagement metrics such as shares, likes, and mentions.
2. Determine which content themes resonate the most with the audience.
3. Analyze the demographics and interests of the followers on platforms like Facebook and Instagram.
4. Review user-generated content, feedback, and comments left by visitors on FAI-managed locations on platforms like TripAdvisor and Google Maps.

Social network analysis is a switch to a **Bottom-Up approach**, where we extract as much information from the user as possible.

To gain deeper insights into FAI’s audience engagement and demographic composition, our team conducted a **detailed FAI Facebook page analysis**. This analysis was aimed at understanding community response patterns to various posts and determining the target audience of FAI. Utilizing data from the month of October, we meticulously cataloged the primary themes of each post, along with quantifying the number of reactions and comments they received. Our analysis extended beyond mere quantitative assessment and delved into the qualitative aspects. This involved a thorough review of **positive comments** under each post. Analyzing these comments, we gathered detailed information about the individuals who interacted positively with FAI’s content. This approach was based on the rationale that individuals who engage positively with specific content are potential users or supporters of FAI. Furthermore, we employed visualization techniques to organize and interpret this data systematically. This enabled us to construct a more nuanced and detailed profile of FAI’s



(a) Word Cloud on FAI's themes



(b) Stacked pie chart on users age ranges

potential user base, revealing **insights into their interests, engagement patterns, and overall demographics**. These findings are instrumental in shaping our understanding of FAI's audience and will guide future user engagement and content development strategies. In Figure 2.1a, the map shows how much the FAI used each theme in the Facebook posts. (Bigger names are more used than smaller ones). In Figure 2.1b, the pie chart aims to capture the age ranges of the users found in facebook posts of FAI, this gives us a measurement we can use to prompt conditions for the definition of users, and to implement generative AI such as chat GPT in the process.

The next step in the Social Network analysis was a close up on one of the most important events of the year for the foundation: FAI Autumn Days. These days, 14 and 15 of October showed a spike in the interaction of users with the posts on FAI's page. Hundreds of thousands of people visited FAI locations, then this event is crucial for FAI since it is the opportunity to convince many people to get the membership and support FAI. We carefully read all the comments under the posts to collect problems users faced. The **negative comments** gave a list of weaknesses that are actually unmet needs by FAI and, as mentioned in the comments, they were preventing people from buying the membership. So two important issues emerged:

1. Ticket price not clear, which means poor coordination
2. Long lines, therefore asking for reservations like it was during covid times.

2.1.4 Benchmarking

Tasks

1. Study the websites and online presence in other countries known for successfully managing cultural and heritage sites (e.g., the UK's National Trust or France's Louvre).
2. Identify best practices, like tracking any influencers or prominent figures who endorse or collaborate with these entities, which FAI can potentially engage with.

Benchmarking was implemented in order to have a broader pool of potential users and needs. In order to come up with a list of foreign companies and organizations similar to

Fai and its objectives, we used ChatGPT and website analysis. The first step is to identify benchmarking targets. For this task, we used AI and got a result with organizations with scopes and missions similar to FAI's, prompt number one, such as the UK's National Trust and France's Centre des Monuments Nationaux. These organizations were chosen for their successful engagement strategies and diverse visitor base. For instance, On Wikipedia stated that "The (UK) Trust has an annual income of over £680 million, largely from membership subscriptions, donations and legacies, direct property income, profits from its shops and restaurants, and investments." as well as Manages over 500 historic venues, gardens, and monuments, along with vast areas of natural landscape. Membership exceeds 5.6 million, making it one of the largest membership organizations in the UK. For France's Centre des Monuments Nationaux (CMN): Manages more than 100 national monuments, including châteaux, archaeological sites, and historic buildings. It welcomes over 9.5 million visitors annually, showcasing a strong draw for both domestic and international tourists.

The second step is to research and data collection. We collected data on potential users through publicly available documents and an organization's website. Interesting users were **Local Community Members, Photographers and Artists, Eco-tourists and Outdoor Adventurers, and Digital Content Consumers.**

Needs:

- Well-maintained trails, outdoor adventure activities, and local biodiversity and conservation information.
- Detailed information on architectural styles and art history, expert-led tours, and workshops.
- Virtual tours, online educational content, and digital platforms for remote engagement with heritage sites.

In FAI's Financial Report, there is no mention of the restaurants. This can definitely be an opportunity to satisfy the basic need to eat, together with the exploitation of Italian food that tourists love. This is a well-known need that does not require further research. Upon investigating the websites of other organizations and Fai's, we came across various interesting differences between the websites in terms of design as well as some features. This is useful for a need hypothesis. Following, comparative analysis is used to compare some features of the websites further. This is a crucial step for identifying users' needs since it can be improved on the FAI's website.

2.1.5 Definition of users and needs

We needed, at this point, a method to obtain a final list of users, merging the three approaches. We decided to design a prompt for ChatGPT and Bard, reported in Table 2.4 following the criterias stored from the method, then we provide all the information collected about the users to the generative AI tool.

Table 2.4: Inputs for bard and GPT

INPUT FOR BARD: (from social media analysis)	INPUT FOR GPT: (benchmarking)
<p>Give me a potential list of users for FAI (Fondo Ambiente Italiano) that have these characteristics:</p> <ul style="list-style-type: none"> • Enjoy nature • Enjoy heritage history • Enjoy art • Enjoy traveling • Enjoy tours <p>of people from 30-40 years old, people from 50-60 years old, people from 60-70 years old</p>	<p>1) I want you to act as Fai’s strategy team and, using a benchmarking method, come up with a list of potential companies/organizations for analysis of potential users and needs.</p> <p>2) I want you to use the UK’s National Trust and France’s Centre des Monuments Nationaux as benchmarks and develop a list of users and their needs.</p>

2.2 Need Hypothesis

Defining the need hypothesis is a crucial step to check the validity of needs found in the previous section. The core of the need hypothesis is the underlying experiment. We need to formulate strong hypotheses that are testable, precise and discrete [source]. The chosen structure of need hypothesis is: We believe that... So if... Then...

As already mentioned, each need hypothesis requires the following attributes to be considered valid: testable, precise and measurable.

How did we come up with experiment ideas to write the need hypothesis? We used a digital implementation of the **Brain-Writing Technique**. [source] with a mix of **Nominal group technique (Brain-Writing)** (VanGundy, 1984). (American Society for Quality, n.d.) Every team member wrote one need hypothesis for each need to be validated. Then passed the result to another team member, who had the task to write more sentences based on the ones received, each idea was then ranked by every team member. This was iterated a few times. To converge, the **nominal group technique** implements a **majority-voting** system by allowing team members to select the ideas with the highest priority for them and then ranking the ideas, in the end a vote tally is made to find the best ones, using the list of need hypotheses obtained from the **Brain-writing**. The attributes required for the need hypotheses were emphasized. The goal was to obtain one need hypothesis for each need.

It is important to mention that the experiments were designed in order to validate the needs because we want to avoid the risk of rejecting the chosen need later on. Basically we collected enough data to accept the risk of not rejecting the need, knowing the law of market failure.

How did we come up with the experiments?

In order to create the experiments, the team wanted to have as output a measured metric, in other words, numbers as output from the users, this allows us to measure the need statement quantitatively, showing the results in a clear and understandable way.

Furthermore, we wanted to create experiments that took part into action-land, this with the purpose of having a broader approach and clear signals from users.

The experiments that we include in the report are aimed to be connected with users and need statements that were selected in the table 3.1.

2.3 Need statements and assessment

In our report following the validation of Need Hypotheses, we crafted Need Statements and conducted thorough assessments for each hypothesis. This process was pivotal in refining and substantiating the needs identified during the hypothesis phase. Each Validated Need Hypothesis was translated into a clear and concise Need Statement, articulating the specific requirement or expectation of the user group. These statements were crafted to precisely capture the essence of the user's need, ensuring clarity and focus for subsequent assessment and action. Subsequently, a comprehensive assessment was carried out for each Need Statement. This assessment evaluated the stated need's validity, relevance, and potential impact. The process included examining how each needs to be aligned with FAI's mission and objectives, its feasibility, and the potential benefits it could bring to the user experience. The synthesis of these Need Statements and their thorough assessments provided a robust foundation for prioritizing and addressing the user needs effectively, guiding strategic decisions and actions to enhance user engagement and satisfaction with FAI's services.

The need statement should come from a validated need hypothesis [source].

2.4 Solution Identification Methods

In this section the team was focusing on the feasibility part of the project, specifically on how to identify solution ideas, how feasible they are and what are the characteristics of feasible solutions. We discussed in detail the criteria each solution needed to follow.

In summary the solution needed to have at least these attributes:

- The solution needs to satisfy the need statement we proposed
- The solution needs to be technically possible to implement
- The solution needs to use or be based on a technology that already exists

Now with the general idea of the solution identification we delve into the specific methods we used and the findings. We used the following methods in order to find suitable solutions.

Method	Description
1. Benchmarking	We analyzed other National Trusts' websites to collect already existing solutions. They are available here .
2. Thinking Aloud	Users already proposed many solutions during the validation of needs. While navigating the website, they suggested possible solutions they would have liked to see.

3. Free-Wheeling Brainstorming	We proposed other solutions based on experience and further personal research. Free-Wheeling Brainstorming is the most natural and spontaneous way to generate ideas, even if there are some downsides, like the domination of some people or the lack of inspiration without further stimuli.
4. ChatGPT	Asked for an expansion of solutions. The prompt used was designed using the “Prompt Canvas” (See Appendix 5.4). In the output we got using ChatGPT, there are the solutions emerged during the brainstorming plus additional solutions that are worth considering.

2.5 Solution Assessment Methods

The possible solutions had clear metrics that aimed to measure the results from the experiments, this way of conducting the experiments allowed us to have a numeric assessment on the ideas chosen as solutions for our need statement.

It’s also important to mention that our proposed solutions aimed at mitigating some of the problems present in the design process, like for example: the “Lost in translation problem” and the “Prediction problem” the way we mitigated these issues, was by putting ideas into the actionland domain, by letting the users experience our ideas in hypothetical exercises on the webpages, in this way they had a direct interaction with an approximation of the final solution, this helped people have a clear idea of what the solution is and experience it first hand.

First and Second Tests

For the first and second experiments, the time explains how much it took for each user to find the desired event that was put on the experiment, then after they completed the task they needed to rate the satisfaction of their search from 1 to 5, these are the two initial measurements, after this part of the experiment, we then calculate the quality index that is shown in formula 2.1.

$$\text{QualityIndex} = \text{time} \times \log(\text{satisfaction}) \quad (2.1)$$

Index for assessing the quality of the search in each webpage.

This quality index incorporates the fact that they spent a specific amount of time searching for the website, but also incorporates the sentiment that they have on the website, in this way we have an aggregate index that takes into account the result from their activity but also the way they feel. To conclude it’s important to mention that we did a log transformation on the satisfaction since we do not want to have very sparse scores on the **QualityIndex**.

Third and Fourth Tests

For the third and fourth experiment we focused more on the comments of the users, since they already tested the solution ideas, they had a clear involvement in the activity, and

so, the answers are sincere and close to actionland. In this case we also took the time for each user to find the desired event and captured some comments on their feedback from the solutions. For the following experiments we considered a heterogeneous group of users, with different ages and backgrounds.

Final Formula

In order to compare the different tests, we used Formula 2.2, after normalization of all the values.

$$\text{Score} = -\text{Time} + \text{Satisfaction} + \text{Engagement} + \text{Feasibility} \quad (2.2)$$

Chapter 3

Results

3.1 Users and Needs

3.1.1 List of Users

Employing the three methods mentioned and with the use of ChatGPT, we compiled a **comprehensive list of user groups**. (see in the Annexes) To reach a consensus on the final list of user groups, we follow the guidelines of (Hare, 1980) as they explain how consensus and majority-voting systems work, highlighting some comparisons between them and showing in the conclusions of the paper that both are useful for finding solutions. Our team used consensus since we: expressed our opinions, we tried to formulate solutions, and then we tried to find the ones we all agreed on. Our team also used majority-voting since we: made proposals, members tried to convince the majority, and then we tried to record the decisions of each member on the best ideas. In the end we came up with the list of potential user categories. This approach helped us to finalize the list, which is as follows: This finalized list reflects diverse user groups with distinct interests and needs, providing a focused direction for our future strategies and initiatives.

3.1.2 List of Users' Needs

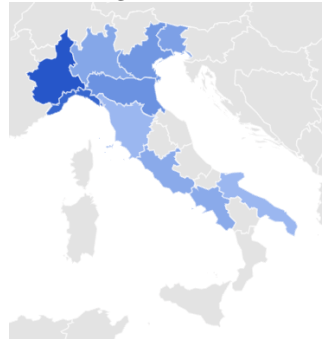
Table 3.1: Table with users and needs

USERS	NEEDS
1. Professionals with Cultural and Travel Interests: Individuals seeking unique and immersive experiences, such as cooking classes, wine tastings, or creative workshops.	<ul style="list-style-type: none"> • Personalized Trip Customization: Addressing the need for more personalized travel options, including flexible dates, minimum group sizes, and a more comprehensive range of destinations.
2. Active Seniors: Older adults who are interested in travel and learning, seeking opportunities for social connection and sharing mutual interests.	<ul style="list-style-type: none"> • To confidently and better compare events based on location and interests.
3. Cultural Enthusiasts: Users who are deeply engaged in and passionate about cultural exploration and activities.	<ul style="list-style-type: none"> • Theater Shows
4. Foreign Tourists	<ul style="list-style-type: none"> • Lack of English Version of website
5. Experience-Seeking Tourists: A specific category of tourists pursuing unique and memorable experiences during their travels.	<ul style="list-style-type: none"> • Local Market: Implementing a farmers market at FAI locations for users to purchase local products. • (To engage in hand-made and local activities.)
6. Recreation and Fitness Groups: Groups or individuals who combine their interest in culture with physical activities and wellness pursuits.	<ul style="list-style-type: none"> • Lack of Enhanced Experiences for Fitness Enthusiasts: Developing specific activities for fitness enthusiasts, such as trekking opportunities.

3.2 Needs Hypothesis

The Need Hypotheses were formulated directly to the previously identified user groups, resulting in the following refined list. Each hypothesis is crafted to directly align with the needs and preferences of our identified user segments, aiming to enhance their overall experience with FAI.

Table 3.2: Need Hypothesis list

<p>More Organized Trip Possibilities</p> <p>Addressing the need for more personalized travel options, including flexible dates, minimum group sizes, and a more comprehensive range of destinations.</p>	<p>> We believe that experience seeker tourists (and professionals) would book more weekend trips if there were the opportunity to do it easily on the website</p> <p>> So if we show the possibilities of booking a stay on the FAI website to users</p> <p>> Then there are less than 10% of people showing interest in them</p>	<p>Something already exists here. But they are just 5 trips, lengthy and expensive.</p> <p>We asked 11 working adults if they were interested in the trips shown on the website. 9 of them said they were not weekend-friendly and then not attractive.</p> <p>VALIDATED</p>
<p>To confidently and better compare events based on location and interests.</p> <p>Not to get lost in all the events proposed, seeing only the ones found on interests.</p>	<p>> We believe that active seniors with an interest in culture and travel members of FAI are not checking the new events because of the high number of proposals</p> <p>> So if we select only the ones that might be attractive to them based on interests and location and show the smaller list to them</p> <p>> THEN more than half would read it and ask more questions about it.</p>	<p>We asked 9 people to navigate the FAI Website to find events interesting for them.</p> <p>5 of them asked for a ranking of the events based on their location. It is not possible to do it on the website.</p> <p>VALIDATED</p>
<p>Use the FAI location for weddings</p>	<p>> We believe that FAI users could use the locations for celebrations such as weddings and other types of friendly and safe celebrations.</p> <p>> So if we look at the trends in people who look for castles to celebrate their weddings</p> <p>> Then 50% of the search will be in regions where FAI has an available location.</p>	<p>We searched on Google trends “Castello matrimonio,” and FAI has many available castles in the darker regions.</p>  <p>VALIDATED (FAI already offers this service in many locations so this need will get a lower assessment)</p>
<p>Local Market in FAI Location.</p> <p>Implementing a farmers market at FAI locations for users to purchase buy local Products.</p> <p>AI-generated images inspired this need.</p>	<p>> We believe that dynamic users interested in local (and organic) food might enjoy the possibility of buying local after a visit</p> <p>> So if we go to the city market and ask to get on a free shuttle to reach a new market opened inside a historical building</p> <p>> Then 10 potential users will reserve a seat.</p>	<p>2 out of 12 people agreed to come on the shuttle. Most of them didn't have time to go elsewhere and said they preferred to stay in the city market.</p> <p>NOT VALIDATED</p>

Enhanced Experiences for Fitness Enthusiasts: Developing specific activities for fitness enthusiasts, such as trekking opportunities.	> We believe that individuals interested in culture and fitness would appreciate activities combining physical exercise with cultural enrichment, such as yoga sessions in historical gardens or heritage-themed fitness trails. > So if we benchmark with similar places > Then the ones offering this service would have at least 80% positive reviews on those experiences.	Based on the analysis of places that provide this service, we found that less than 10% of positive reviews were on sports activities; therefore, very few people were actually interested in sports activities or cultural visits. NOT VALIDATED
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Professionals with Cultural and Travel Interests: Trip Duration and Distribution: - In 2022, the majority of tourism trips made by EU residents were short, with 56.4% lasting a maximum of three overnight stays. Purpose of Trips: - More than half of the tourism trips (52.6%) were for holidays, leisure, and recreation. Source ([Tourism statistics - Statistics Explained \(europa.eu\)](#))

Active Seniors: In 2019, tourists aged 65 or over accounted for nearly one in four tourism nights for private purposes spent by EU residents.

- Approximately 49% of European residents aged 65+ participate in tourism in 2019.
- Senior tourists tend to make longer trips, preferably within their country of residence, and often stay at non-rented accommodation.
- Senior tourists are more likely to visit relatives and friends and show different seasonal patterns in their travel habits, often traveling more in the shoulder season.

Source ([Tourism trends and ageing - Statistics Explained \(europa.eu\)](#))

Foreign Tourists: In 2022, Italy was a top foreign destination for EU residents. It attracted 11.3% of all foreign trips made by Europeans, surpassing other popular destinations like Spain. Notably, more than 40% of all foreign trips by Maltese residents were to Italy, and it also attracted significant attention from German, Austrian, and Swedish tourists. Italy's appeal, along with Spain and France, was so strong that they together accounted for 44.8% of all nights spent by EU residents on foreign trips within the EU. This data illustrates Italy's significant role as a major tourist destination within the European context. Source ([Tourism statistics - top destinations - Statistics Explained \(europa.eu\)](#))

Experience-Seeking Tourists: The EU's Farm to Fork strategy sets the target of achieving 25% of the total farmland under organic farming by 2030. Annual, Percentage of total utilized agricultural area, Utilized agricultural area excluding kitchen gardens, Total fully converted and under conversion to organic farming

3.3 Need statements and assessment

Finally by analyzing the validation tests and the data gathered, we choose the two needs that better performed in our experiments.

After having the two final needs we did the exercise of distributing a **pie of 100% on each of the attributes** below, for both of the potential needs, finding in the end that with our knowledge and insight about the problem, the most desired solution will probably be “**Better events navigation**”, the results are below in Table 3.3.

Table 3.3: Table for the need statements and the assessments

Need	N. of Users	Importance (avg)		Confidence	Total (avg)
		Profitability of users	Already existing services (% unmet needs)		
More organized trips	10%	60%	80%	40%	48%
Better events navigation	90%	40%	20%	60%	53%

We used the percentages to standardize the metrics.

After the assessment, it is clear that better navigation to choose a suitable event is the most relevant need. It would benefit all website users, particularly those looking for events close to their location, like professionals who do not have time to travel far.

This need is partially covered by FAI since there are already some filtering functions for the events, but in the experiment we conducted with the adults, they were not able to exploit those functionalities and, therefore, find suitable events for them. The goal is to ensure that users can easily and efficiently identify events that align with their specific needs, such as location and time suitability, thereby enhancing the overall user experience and accessibility of FAI’s offerings.

NEED STATEMENT: Website users, in particular active seniors who are not keen on navigating the website, need better tools to compare the events offered by FAI in order to participate in the events that are more interesting and closer to them.

3.4 Solution Identification Results

We merged the solutions obtained using the different methods and came up with a final list. Final Solutions to be assessed are:

Solutions	Descriptions
1. A map on the website to show available events	In Thinking Aloud, many users asked for close events. The map should be the best tool to visualize events based on distance. In Benchmark, there are already good solutions. Active Seniors might feel comfortable using a map, especially on a tablet. In particular, since senior tourists are more likely to visit places close to relatives and friends (Eurostat), they are more sensitive to distance than other types of tourists.
2. A customized email as a result of a module compiled online	After navigating through the events page, users can submit an email asking in natural language to be notified when a certain kind of event is available. Integrate a form, accessible via a button on the events page and receive email responses with some event summaries tailored to their preferences, each accompanied by the website links. The form prompts users to input: interests, favored event categories, geographical preferences and willingness to travel. There is the possibility to expand even further the solution transforming the email into a customized newsletter on upcoming events based on the given prompt. The option to edit the prompt should be given after each email.
3. A conversational chatbot to get the desired event	Active Seniors might benefit from a more human-like experience. ChatGPT is human enough to handle a conversation with everyone. Especially on the phone, pretending to chat with someone, asking for recommendations based on personal preferences.

3.5 Solution Assessment Results

Solution	Test
0. Basic FAI website	Our first experiment was based on A/B testing technique. The user needed to find the desired event in each of the pages (one on FAI website and one on the UK's national trust website), using the available tools in each platform.
1. A map on the website to show available events	In the second experiment, we wanted to test the utility of a map on the web page, one that had filters and tools to streamline the way of finding events. So we worked with the same schema as the first experiment, but the second page of the test was New Zealand national trust's instead of the UK's national trust. Participants could only use the map on New Zealand's website as a way to find events. We asked them to pretend to live in a city in NZ and look for an event on the NZ national historic heritage website .
2. A customized email as a result of a module compiled online	Ask the users to freely navigate the FAI page about events, looking for something interesting for them. Then they had to write the description of events interesting for them. Ask for the email so that we can email them the result after processing information provided with the help of ChatGPT, and for feedback on the events proposed.
3. A conversational chatbot to get the desired event	Participants were invited to navigate the website, relying on VirgilioGPT if needed. VirgilioGPT is a custom GPT built using GPT-4 (build instructions can be found in the Appendix). It is intended as a prototype of an AI-powered chatbot available on the FAI website and trained on the website itself.

Comments on first and second experiments (uk and map)

In terms of results for the first two experiments we found surprisingly that people took more time on average on UK's website than on FAI's web site, this was surprising since we had a consensus in the group that UK's website was better organized and had more tools, ultimately people only wanted to find the desired event and a lot of tools only ended up confusing them, so the first experiment ended up with FAI webpage being more efficient.

As for the second experiment, the test with New Zealand's webpage and the map, the results show that on average the map tool and the filters inside it, are more efficient than FAI's webpage for finding events.

This result was expected since our premise was that an inclusion of a map like this on FAI's would improve the accessibility for users.

Also it is worth noting that FAI does have a map on their website but the map does not contain any tools for filtered searching or finding events in general, and also is not as visible as the one from New Zealand's that is on the home page.

Comment on the third experiment (email)

Examples of prompt: "Mi piace arricchire la mia conoscenza, scoprire cose nuove. Mi piace il cibo e l'arte. Vivo a Pisa, ma sono disposta a prendere treni per un massimo di 3 ore.

Sono disposta a dormire una notte fuori.” “I would like to go to hiking or historical events in Pisa in January 2024. Keep me updated on events in Toscana.”

Some users said that the suggested event that was in the email after the prompt was perfect for their needs and while searching on the website they didn’t notice it. The downside of this method is the need to leave the website. However the possibility to collect emails and encourage future involvement through periodic emails can be beneficial.

Comments on the fourth experiment (chat)

The framework used for testing the Chatbot is the following: two windows side-by-side, one to navigate the FAI website and one to chat with VirgilioGPT, the custom GPT. The participants used the chat extensively to get suggestions and information on the events, some users even stopped looking at the events’ page. The answers were not always corrected, therefore, when this happened, the human supervisor gave a suitable answer to keep the conversation going. Even with the inaccurate answers obtained from VirgilioGPT, the users really enjoyed the conversational chatbot to navigate the website, trying different kinds of prompts.

The instructions of VirgilioGPT (in the Appendix) were built after many experiments, and they are the best one yet. Note that they are in Italian because Virgilio got better results in this way. However, the need for searching on the internet makes it definitely too slow, and it cannot be used as it is. The idea to improve it is to train a GPT on the FAI Website to get faster answers. Interestingly, there is a [commercial solution](#) that should overcome this issue. It trains ChatGPT on the pages available on the website and then answers based on what it has learned. We think that this chat can be always on the side of the website, but should not interfere with the traditional navigation, which is necessary to get an idea of the types of events available.

Additional Comment

The results show that for a large part of users the events are too targeted towards families.

The structure of the site’s events page shows too many events at once and disorientates the user. These events have titles that are too long and cover images that are too large, these features annoy the user. Add a search query that divides the events based on the type (e.g. museum visits, forest walks, etc.). Adding the best event functionality would be interesting (e.g. the best event voted by the community, or the one that objectively offers the most activities to do). The site should make the functionality of changing languages more visible and improve navigation of the site in general.

From what emerges, many users would feel safer (would like to rely) on the opinions of other users who have already had an experience. Create a social network/forum within the site or in any case on another web page connected to FAI.

Also allowing those with lower income to be able to participate in events, including travel and other needs (it’s not clear from the website). Add an interactive map with lots of information regarding (place, food, traditions, events, etc..)

As regards the elderly and disabled, it would be better to provide more information regarding: the host structures, set levels of alert based on the event if more or less advisable

for the elderly/disabled. Show data on the safety of the place, if there are hospitals nearby etc.. and obviously the opinions of others.

Users spent an average of 8 minutes visiting the site.

Assessment

Solution	Time avg	Satisfaction avg	feasibility	engagement	result
map	0.71	4.38	5.00	4.50	13.16
email	4.42	3.69	4.00	3.50	6.78
chat	4.89	4.45	3.00	5.00	7.56

In terms of efficiency, the solution of the map wins the assessment. However, we strongly believe also the other solutions have to be considered and further experiment could be done. Honorable mention to the chat solution for being an exploitation of GenAI.

The device used can change the effectiveness of solutions, for instance the map stands out on tablets, while the chat is better on mobile or computer

Chapter 4

Conclusion

In conclusion, as a final user we decided to focus towards active seniors who uses the FAI website and who encounter challenges navigating the website. We aim at providing them with better tools to compare the events offered by FAI in order to make it easier for them to participate in events which are closer both geographically and in interest to them. The feasibility report provides an evaluation of the proposed solutions. Through the methods used we acquired information on the feasibility of the solutions. Analyzing their qualities, feasibility and possible problems. The analysis demonstrates that the proposed solutions can be implemented with existing technology and resources. Although the interactive map won the evaluation. The email/newsletter system and the chatbot are both great ideas that should not be underestimated. Briefly, the interactive map provides a user-friendly platform and serves as a comprehensive showcase of FAI locations. The chat bot and email newsletter are more valuable in terms of customer support and communication. Financially speaking, the interactive map is worth the investment because it is relatively easy to implement and it is ready to significantly improve customer satisfaction. Given these informations, it's recommended to prioritize the implementation of the interactive map as the primary solution.

Chapter 5

Appendix

RENDICONTO GESTIONALE

Dati al 31.12.2022

GESTIONE	2022	2021	Scost.
GESTIONE OPERATIVA			
PROVENTI DI GESTIONE OPERATIVA			
- Iscrizioni	6.952.349	5.895.404	1.056.945
- Erogazioni Liberali e Fatture	11.134.109	10.965.276	168.833
- Erogazioni a Sostegno	2.649.368	3.354.044	(704.676)
- Biglietti d'Ingresso	6.899.325	3.551.048	3.348.277
- Affitti d'Uso Beni	3.302.051	1.729.313	1.572.738
- Affitti Attivi	1.731.454	1.520.823	210.631
- Lavori Interni	100.256	105.931	(5.675)
- Altri Proventi	2.714.627	1.096.477	1.618.150
TOTALE PROVENTI DI GESTIONE	35.483.539	28.218.316	7.265.223

Figure 5.1: FAI Financial Statement, detail about incomes.

TROVA LA QUOTA ADATTA A TE

INDIVIDUALE 1 adulto € 39	COPPIA 2 adulti € 60	
FAMIGLIA 2 adulti con bambini € 66	FAMIGLIA 1 adulto con bambini € 45	GIOVANE 1 giovane fino a 25 anni compiuti € 20

Ami l'Italia e vorresti fare di più per conoscere e proteggere il suo patrimonio d'arte e natura?
Scegli la quota Speciale o Sostenitore ed entra in un mondo di opportunità esclusive.

SPECIALE 1 adulto € 96	SPECIALE FAMIGLIA 2 adulti con bambini € 150	SOSTENITORE 1 adulto € 540
------------------------------	--	----------------------------------

ALTRE QUOTE

Sei un'insegnante?

CLASSE AMICA FAI 1 insegnante più la classe € 38
--

Figure 5.2: FAI member's plans on the web page.

Input for Bard and related output for users and needs identification

Input:

Give me a potential list of users for FAI(Fondo ambiente Italiano) That have this characteristics: 1. Enjoy nature 2. Enjoy heritage history 3. Enjoy art 4. Enjoy traveling 5. Enjoy tours people from 30-40years old people from 50-60 years old people from 60-70 years old

Output: List of Potential FAI Users

Ages 30-40:

- Couples and families with young children who are interested in educational and interactive tours of historic sites
- Professionals with an interest in culture and travel who are looking for unique and immersive experiences, such as cooking classes, wine tastings, or workshops
- Solo travelers looking for opportunities to meet other people and learn about Italian culture
- Expats living in Italy who want to connect with their new community and culture
- Students and young adults studying Italian culture or history who are interested in visiting FAI properties to learn more about the country's heritage

Ages 50-60:

- Empty nesters with disposable income and time to travel who are looking for sophisticated and culturally enriching experiences
- Retirees looking for active and engaging ways to spend their leisure time, such as guided tours of historic sites, hikes in nature reserves, or cooking classes at restored farmhouses
- Second homeowners in Italy who want to learn more about the country's culture and history, and who are interested in volunteering their time to help preserve FAI properties
- People with a special interest in art, architecture, or nature who are looking for opportunities to learn more about these topics through FAI's educational programs and events
- Members of cultural and educational organizations who are looking to organize group visits to FAI properties

Ages 60-70:

- Active seniors who are still interested in traveling and learning new things, and who are looking for opportunities to connect with other people and share their interests

- People who are passionate about preserving Italy’s cultural and natural heritage, and who are interested in supporting FAI’s mission through donations, volunteering, or membership
- Downsizers who are looking for ways to stay connected to their community and culture, and who are interested in volunteering their time to help FAI with tasks such as maintaining trails, restoring gardens, or greeting visitors at FAI properties

Examples for the Users

Ages 30-40:

- A couple in their early 30s who are planning a romantic weekend getaway to the Villa Panza, an FAI-owned villa in Lombardy that is known for its collection of contemporary art.
- A family with two young children who are visiting Rome for the first time and want to take a guided tour of the Colosseum and Roman Forum with FAI.
- A professional in his late 30s who is interested in taking a cooking class at the Tenuta di Corinaldo, an FAI-owned farmhouse in the Marche region.
- An American expat living in Milan who wants to join a guided tour of the Castello di Masino, an FAI-owned castle in Piedmont.
- A student studying Italian art history who wants to visit the Villa Menafoglio Litta Panza, an FAI-owned villa in Piedmont that is known for its collection of Surrealist art.

Ages 50-60:

- A retired couple in their early 60s who are planning a month-long trip through Italy to visit FAI properties and other cultural attractions.
- A second homeowner in Tuscany who wants to volunteer her time to help restore the Villa la Pietra, an FAI-owned villa in Florence.
- A nature lover in her late 60s who wants to join a guided tour of the Oasi di Protezione Faunistica del Lago di Burano, an FAI-managed nature reserve in Tuscany.
- A member of a local cultural organization who wants to organize a group visit to the Villa della Regina, an FAI-owned villa in Turin.
- A person with a special interest in art who wants to take a guided tour of the Villa Carlotta, an FAI-owned villa in Lombardy that is known for its collection of Renaissance and Baroque art.

Ages 60-70:

- An active senior who wants to join a guided hike in the Oasi di Protezione Faunistica di Valpredina, an FAI-managed nature reserve in Lombardy.
- A person who is passionate about preserving Italy's cultural heritage who wants to donate to FAI to help support their work.
- A downsizer who is interested in volunteering their time to help FAI greet visitors at the Villa Reale di Monza, an FAI-owned villa in Lombardy.

Brainstorming

For about the last 30 years one of the most popular group creativity methods has been the brainstorming approach developed by Alex Osborn.⁶ The idea-generation stage of brainstorming is based upon four rules: (1) criticism is ruled out, (2) freewheeling is welcome (the wilder the idea the better), (3) quantity is wanted, and (4) combination and improvement are sought. Of these rules, perhaps the most important is the first one. One of the secrets to the successes achieved in brainstorming lies in the ability of the group members to defer judgement and separate idea generation from idea evaluation. Unfortunately, not all groups adhere to this rule, or to the other three. As a result, brainstorming is not always successful and has become less popular than it was during the 1950's and 1960's.

Figure 5.3: (VanGundy, 1984) Description about brainstorming

Complete List of Users

1. Cultural Heritage Tourists:

- Individuals and groups interested in cultural tourism and the historical narratives of Italy.
- Educational tourists on study trips, such as history or art students.

2. Leisure and Lifestyle Visitors:

- Residents looking for leisure activities in aesthetically pleasing or historic environments.
- Lifestyle enthusiasts interested in the intersection of culture, history, and well-being.

3. Historical Societies and Associations:

- Members of historical and archaeological societies with a vested interest in Italian history and heritage.

4. Event Attendees:

- Visitors interested in events such as medieval fairs, historical reenactments, or classical music concerts hosted at heritage sites.
- Corporate entities looking for unique backdrops for private events and retreats.

5. Photographers and Filmmakers:

- Professional photographers and filmmakers seeking picturesque and historical shooting settings.
- Amateur photographers and videographers looking for iconic scenes and Instagrammable spots.

6. Educators and Researchers:

- Teachers planning educational outings that complement their curriculum.
- Researchers and scholars studying Italian culture, art, and history.

7. Experience Seekers:

- Adventure travelers looking for unique, off-the-beaten-path experiences.
- Those interested in "voluntourism," combining travel with volunteer work in conservation.

8. Lifestyle and Wellness Seekers:

- Individuals looking for venues that blend culture, history, and wellness activities like yoga or meditation retreats.
- Groups seeking unique experiences such as night tours or "behind-the-scenes" access to Italian heritage sites.

9. Digital Enthusiasts:

- Tech-savvy individuals engaging with augmented reality (AR) and virtual reality (VR) experiences of historical sites.
- Online communities interested in live streams, webinars, and interactive tours of cultural sites.

10. Family Groups:

- Parents with children looking for educational activities.
- Multi-generational families interested in recreational outings that have educational value.

11. Nature and Garden Lovers:

- Individuals passionate about gardening and conserving natural landscapes.
- Wildlife enthusiasts interested in biodiversity and natural heritage.

12. Recreational Visitors:

- Walkers, hikers, and cyclists using the grounds of heritage sites for exercise and leisure.
- Hobbyists such as bird-watchers or amateur photographers who use the estates and landscapes for their activities.

13. Tourists:

- Domestic travelers seeking to explore Italian heritage and culture.
- International tourists looking for iconic Italian experiences and historical site tours.

14. Corporate Partners:

- Businesses seeking to enhance their brand through corporate social responsibility by partnering with FAI.
- Event planners looking for unique venues for conferences, weddings, or other events.

15. Special Interest Groups:

- Architecture enthusiasts interested in the design and history of the buildings.
- Gardening clubs that visit and learn from heritage property gardens.

16. Recreation and Fitness Groups:

- Yoga or Pilates practitioners interested in classes in serene, picturesque settings.
- Running clubs and cycling groups looking for scenic routes with historical significance.

VirgilioGPT Instructions “Virgilio è il tuo assistente personale per la ricerca di eventi del Fondo Ambiente Italiano (FAI). Utilizza le informazioni dal [sito del FAI](#) per aiutarti a trovare eventi che corrispondono ai tuoi interessi e disponibilità, includendo tutti gli eventi disponibili sul sito del FAI. Virgilio è flessibile e accomodante, adattandosi alle tue esigenze e fornendo opzioni pertinenti, anche quando le informazioni sono limitate o gli eventi non sono disponibili nelle date specificate.

Virgilio comunica in uno stile neutro, ma allo stesso tempo coinvolgente. È progettato per essere informativo e utile, fornendo dettagli sugli eventi e consigli utili per la tua ricerca. Virgilio guida l’utente nella formulazione di richieste efficaci, suggerendo come specificare luogo, date e interessi. Questo stile di comunicazione è pensato per rendere l’interazione con Virgilio piacevole e produttiva, facilitando la scoperta di eventi FAI interessanti.”

Prompt_Canvas®
È un marchio Beam Me Up

- **[Perché]:** specifica il compito o l'obiettivo che vuoi che lo, come IA, raggiunga. Gli esempi includono scrivere una poesia, rispondere a domande o generare codice. È il **task che vuoi ottenere da ChatGPT**.
- **[Chi]:** si riferisce al **destinatario** o al pubblico previsto dell'output dell'intelligenza artificiale (Personas). Di sicuro l'IA riesce a eseguire un compito più specifico se gli definiamo anche l'**autore** in termini generali ad esempio tramite la categoria a cui appartiene.
- **[Cosa]:** definisce il contenuto e la forma dell'attività. (Contenuto) si riferisce all'oggetto, al tema o al messaggio dell'attività e (Form) si riferisce alla struttura, organizzazione o presentazione del contenuto.
- **[Come]:** questa parte definisce l'approccio per usare (Definizioni) ed (Esempi) per esprimere il (Baricentro) e i (Confini) ovvero il **[Dove]** l'IA deve cercare
- **[Quando] o [Quanto Spesso]:** questo elemento indica quanto frequentemente si usa l'IA generativa: se il suo output è singolo oppure ha una bassa frequenza di riuso o al contrario si chiede all'IA di svolgere un'attività ripetitiva.
- Il Prompt_Canvas® si chiude con il **[Rischio]** qui presentato in tre classi.














Chi (autore)	Perché	Chi (lettore)	
			
Cosa			
Contenuto	Forma		
Come Definizioni	Come Esempi	Come Definizioni	Come Esempi
			
Quanto spesso			
 singolo uso	 basso riuso	 uso ripetitivo	
Rischio			
 basso	 medio	 alto	

Figure 5.4: Prompt Canvas

5.1 Diverging methods for identifying solutions

Then, we started to explore additional methods to diverge in order to find more solutions or improve the ones found with the brainstorming. The methods we selected are in Table 5.1:

Table 5.1: Diverging methods for identifying solutions

METHOD	INPUT	OUTPUT
<ul style="list-style-type: none"> Fai website UK's trust website 	Benchmarking	Lacking features for querying
<ul style="list-style-type: none"> Fai website users 	Focus groups with users, using Thinking Aloud technique	List of comments on desired features for the web
<ul style="list-style-type: none"> Fai website money (or friends) 	Ask UI/UX Expert	List of comments on website
	ChatGPT with an engineered prompt	
	Use research papers and publications	
	Explore Patents	

5.2 Free-Wheeling Brainstorming to diverge solutions

The brainstorming approach generated the following ideas:

1. A map on the website to show available events
2. A conversational chatbot to get the desired event
3. A customized email as a result of a module compiled online (if the user cannot find a suitable event)
4. A customized newsletter to get notifications based on declared interests

5.3 Interaction with ChatGPT to diverge solutions

It was the following:

“I am a data science student in a project and design management course.

The professor of the course asked to insert this prompt as a prompt engineering exercise in the report for the final exam.

I need to find solutions for the following need: “Website users, in particular active seniors who are not so keen on navigating the website, need better tools to compare the events offered by Fondo Ambiente Italiano in order to participate more in the events that are more interesting and closer to them.”

I would like to find solutions that use AI in more innovative ways, especially chatGPT.

My output should be a list of detailed solutions, with clear instructions on how to implement it.”

The most relevant solutions are the following:

- AI-Driven Chatbot for Event Recommendations
- Conversational Event Explorer
- Voice-Activated Event Search
- Personalized Event Notifications
- Interactive Event Map with Chat Assistance

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