

Project Report: EcoVoyage - A way for Sustainable Travel Experience

Prepared by:

- *Ankit Raj James (124101877)*
- *Kangan Tripathi (124112010)*
- *Chinmay Padole (124107571)*
- *Rishabh Bhargava (124100677)*
- *Punit Sharma (123115328)*

Instructor:

- *Andrew Pope*

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Executive Summary

This is the project that brings people together to envisage and design EcoVoyage, TravelCorp's novel initiative to redefine travel in a sustainable manner. This program aims to create meaningful travel experiences that are environmentally friendly as well as made personal to the modern traveler's unique preferences. By focusing on reducing the environmental footprint of the industry and building stronger ties to the local communities, EcoVoyage intends to raise the bar in sustainable tourism.

In this project, all of the people on the team worked closely to try to bring these ideas alive. Microsoft Whiteboard has proved an effective source of common work for brainstorming as well as discussions for all phases of collaboration such as idea visualization, strategy refinement, and building the overall plan in line with sustainability, accessibility, and personalization as a combined effort.

In such ways, each member of the team would contribute uniquely to the project, thus ensuring that everything was well designed, including:

- *Rishabh Bhargava* : Coordinated the identification of research and data objectives, Market research performed to identify customer preferences and pain points regarding the sufficiently tailor-made travel packages.
- *Kangan Tripathi*: Coordinated design thinking exercises, Developed the marketing strategy which comprises social media and partnership developments to amplify the EcoVoyage mission.
- *Ankit Raj James*: Stakeholder interviews as a whole, Participated in incorporating feedback mechanisms for continuous improvement.
- *Chinmay Padole*: In charge of creating and implementing business analytics into the general company culture. Developed the customer journey mapping which captures pain points and opportunities to bring improved experiences to travelers.
- *Punit Sharma*: Managed prototype development, App feature development and Mobile Framework, ensuring that affordable and green providing an exceptional user experience.

Through Crazy 8s and storyboarding sparked brainstorming sessions for the team to generate and refine innovative ideas further. These efforts culminated in a mobile application, website enhancements, and design and packaging of eco-friendly travel packages. All solutions were tested under real-world scenarios for feasibility and impact.

The significance of teamwork and creativity in tackling some of the biggest problems that sustainable tourism faces would also be captured through this project. EcoVoyage inspires TravelCorp to be in the position to really advance and prepare the travel world into a more responsible and environmentally

conscious future while fulfilling the evolving needs of its customers. A demonstration of our joint effort on sustainability as well as a case study on how collaboration with creativity can make changes happen.

Introduction

The international tourism sector is one among the most dynamic and influential among all sectors in the world in terms of contributing considerably to economic growth, offering employment opportunities, and promoting cultural exchange. In recent years, however, the debate within which global tourism is viewed has shifted towards its adverse environmental and social impacts. Tourism today has been revealed as responsible for almost 8% of the global greenhouse emissions, caused predominantly by transportation and accommodation with regards to over-tourism in fragile environments. Moreover, cultures and infrastructures also suffer as a result of unsustainable tourism, leading to cultural erosion, resource depletion, and environmental degradation where they exist.

Sustainability remains a niche segment without much growth despite increasing awareness about the need for sustainable traveling. It has been challenged by affording and relatively less accessibility among others. Many travelers may frustratingly sort through complex channels to find sustainable options, whereas there are conflicts between businesses struggling with making profits and being ecological responsible. This gap calls for making solutions to sustainable travel attractive and available.

The rapidly growing market of sustainable tourism add fuel to the transformations in consumers' preferences. Travellers today want to experience something that resonates with their values, and would thus seek to engage with local cultures, minimize their environmental footprint in travel, or support just practices. Reports portray that people are willing to pay more for those sustainable experiences; however, cost remains a challenge for many. In addition, a lack of clarity and transparency in marketing sustainable options deter even the most interested travelers.

Technology has become the key to unlocking all possibilities with digital tools paving up freeways for innovation journeys in the travel space. Personalized online booking platforms and mobile applications, maybe even deeper data insights all quite transform how travelers go about planning their trips. Worst of all- few solutions ever combine the so-called intelligent technology with sustainability.

TravelCorp and EcoVoyage

TravelCorp is a pioneer of the travel industry across the globe, having recognized this void that exists critically and responding about the initiative with its very first EcoVoyage. Not surprisingly, after nearly 40 years of taking guests around the world in as many ways possible, TravelCorp is in a position to judge travelers' emerging needs. EcoVoyage brings the spirit of sustainability and modernization into the travel experience by allowing them to see the world fairly without compromising the quality experience otherwise affordable.

EcoVoyage is based on a foundation of which makes a promise of providing eco-friendly and genuine travel experiences with minimal environmental effect and maximizing the benefit to the local communities. It bases everything on bringing sustainability and personalization with access, and then it's going to set the new benchmark in the whole game. EcoVoyage is made to make responsible travel easy, affordable, and cost-intensive-whether through personalized eco-friendly travel packages, an advanced mobile app, or added options on its website.

The rise of conscious consumerism offers a huge opportunity for EcoVoyage in the market. Studies show that it's mainly younger generations, particularly the Millennials and Gen Z, that are propelling demand for sustainable tourism. These are travelers who seek one-of-a-kind, meaningful experiences that help them connect with nature and culture in a manner they consider ethically sound. However, in spite of the growing demand for it, there is no all-inclusive solution in the market to meet the criteria of affordability, easy accessibility, and personalization in sustainable travel.

With EcoVoyage's well-thought-out platform of technology and sustainability, the gap will be filled. In this way, TravelCorp will be able to get into leadership spaces in this emerging market by putting good solutions to the disadvantages of cost, complexity, and options. The very nature of feedback-driven innovation guarantees that this will always be an initiative relevant not just to all customers but also to a rapidly evolving industry.

To ensure that our development of EcoVoyage had a firm foundation based on the right insights, our team has undertaken a dual approach of both primary and secondary research. This means that we were able to collect holistic data that could contribute to every step from idea generation to implementation.

Our primary research aimed toward identifying the primary needs and desires of today's travelers by considering any interviews conducted with relevant personas. This would mean that we have direct insight into understanding the motivations, frustrations, and expectations of such users of EcoVoyage potential. The personas were relatively diversified: budget adventurers, eco-lovers, and luxury travelers who want sustainable options. By listening carefully to these perspectives, we were able to extract several recurring themes, given the needs for affordability, accessibility, and transparency when traveling toward eco-friendly options. This data has built the foundation upon which those travel packages are designed and user experience improvements on the mobile app and website.

Our secondary research work consists of reviewing articles, research papers, and industry reports about sustainable tourism and consumer behavior. It offered solid insights on market dynamics in terms of challenges and opportunities. Topics that were examined include travel consumers' barriers to sustainable

travel, the effects of tourism on the environment, and the impacts of technology in transforming the travel industry. The conclusions drawn from this study included increasing demand for green options, consumers' willingness to pay for sustainability, and the critical importance of expressing trust along with the consumers.

It is possible to come up with a highly integrated knowledge of the sustainable travel scene through using primary and secondary sources. While primary study had qualitative insights into traveler behavior, secondary study added some quantitative and broader perspectives on the industry. This is really helpful in identifying actionable solutions, which really address both the individual travelers' needs and systemic challenges faced by the industry.

Through this rigorous research process, it is ensured that EcoVoyage not only resonates with market demand but also stands ready to fight the battles that prevent sustainable tourism for so long.

Industry Overview and Context

Tourism Sustainable Environment

Number of respondents who plan to visit at least once an eco-friendly accommodation during their travels increased to 78%, from 73% of previous year. 82% of travelers use the policies of environmentalism while travelling. 61% state that due to the pandemic, they want to travel sustainably.

Current Market Analysis

Recent industry data reveals compelling trends in sustainable tourism:

- Global sustainable tourism market value: \$181.1 billion (2019)
- Projected CAGR: 9.4% (2020-2025)
- 78% of travelers intend to stay at least once in an eco-friendly accommodation (up from 73% in previous year)
- 82% of travelers actively seek out environmental policies when booking
- 61% claim the pandemic has made them want to travel more sustainably

Key Industry Challenges

Our team's collaborative research sessions, we identified several critical industry challenges:

1. Standardization Issues
 - a. Lack of unified sustainability metrics
 - b. Inconsistent certification processes
 - c. Varying regional standards
2. Price Perception Barriers
 - a. 45% of travelers perceive sustainable options as more expensive
 - b. Limited understanding of value proposition
 - c. Unclear cost-benefit relationship
3. Implementation Challenges
 - a. Infrastructure limitations in developing regions
 - b. Technology integration barriers
 - c. Staff training requirements
4. Market Education
 - a. Consumer awareness gaps
 - b. Complex sustainability messaging
 - c. Greenwashing concerns

TravelCorp and EcoVoyage Initiative

Organizational Context

Our team conducted extensive research into TravelCorp's current position:

Company Overview:

- Market leader in global travel services
- 25+ years of industry experience
- Present in 50+ countries
- 10,000+ employees globally

EcoVoyage Mission Statement: "To revolutionize travel by creating sustainable experiences that benefit both travelers and destinations while preserving our planet for future generations."

1. Current Initiatives:
 - a. Carbon Offset Programs
 - b. Partnership with leading offset providers
 - c. Transparent reporting system
 - d. Customer contribution options
2. Community Engagement
 - a. Local business partnerships
 - b. Cultural preservation programs
 - c. Economic development initiatives
3. Environmental Protection
 - a. Waste reduction programs
 - b. Energy efficiency measures
 - c. Wildlife conservation efforts

Market Opportunity - Detailed Market Analysis

Our team conducted extensive market research, including:

Primary Research:

1. In-depth customer interviews
2. 5 focus group sessions

Secondary Research:

1. Analysis of 15 industry reports
2. Review of 30+ academic papers
3. Competitive analysis of 20 leading providers
4. Social media sentiment analysis

Key findings include:

1. Consumer Behavior Shifts
 - a. 67% increase in sustainable travel searches
 - b. 89% willing to pay more for verified sustainable options
 - c. 73% prefer digital booking platforms
2. Technology Adoption
 - a. 82% use mobile apps for travel booking
 - b. 91% want personalized recommendations
 - c. 77% interested in impact tracking
3. Market Gaps
 - a. Limited personalization in sustainable travel
 - b. Lack of integrated booking platforms
 - c. Poor verification systems

Design Thinking Process

1. Empathy Phase

Collaborative Research Methodology

The TravelCorp team employed a robust and collaborative research methodology to deeply understand the needs and perspectives of their various stakeholders during the empathy phase of their design thinking process. This comprehensive approach involved dedicated weekly research sessions, rotating interview roles, collaborative data analysis, and regular synthesis workshops to ensure a well-rounded understanding of the problem space.

The primary research component of the study consisted of in-depth interviews with 30 customers, including 15 experienced travelers, 10 sustainable travel newcomers, and 5 travel industry professionals. Additionally, the team conducted 10 employee interviews, engaging with 3 travel guides, 2 booking agents, 3 marketing team members, and 2 sustainability officers. These interviews provided valuable insights into the diverse needs, pain points, and aspirations of both the end-users and the internal stakeholders responsible for delivering the travel services.

Complementing the primary research, the team also performed observational studies, dedicating 20 hours to analyzing the booking process, 15 hours to observing customer service interactions, and 10 hours to monitoring social media behavior. These observational studies offered a nuanced understanding of the existing user experiences and operational challenges within the travel ecosystem.

To further enrich their research, the team delved into secondary sources, including industry reports from the World Tourism Organization, Sustainable Travel International, and various market research publications. They also conducted an in-depth academic literature review, examining over 25 peer-reviewed articles, 10 case studies, and 5 industry white papers to gain a comprehensive understanding of the latest trends, best practices, and emerging opportunities in the sustainable travel domain.

Enhanced Stakeholder Mapping

The collaborative research approach allowed the team to develop an enhanced stakeholder map, identifying both primary and secondary stakeholders. The primary stakeholders included travelers, such as solo adventurers, eco-conscious families, business travelers, group tourists, and luxury seekers; service providers, including local guides, accommodation providers,

transportation services, and activity organizers; and internal stakeholders within TravelCorp, such as employees, the management team, the IT department, and the customer service team.

The secondary stakeholders encompassed community partners, including local businesses, cultural organizations, environmental groups, and educational institutions, as well as industry partners, such as tourism boards, certification bodies, travel agencies, and technology providers. By thoroughly mapping the diverse stakeholders, the team ensured that their design process would address the needs and concerns of all the key players within the sustainable travel ecosystem.

This comprehensive research approach, combining primary and secondary sources, as well as the detailed stakeholder mapping, provided the TravelCorp team with a deep and nuanced understanding of the problem space. The insights gleaned from this empathy phase laid the foundation for the subsequent stages of the design thinking process, enabling the team to develop innovative solutions that truly resonate with their target audience and address the challenges faced by all the stakeholders involved.

The collaborative nature of the research methodology, with its emphasis on regular team sessions, rotating interview roles, and collective data analysis, fostered a shared understanding and ownership of the problem among the team members. This collaborative approach not only enhanced the quality of the research but also laid the groundwork for a cohesive and coordinated design and development process moving forward.

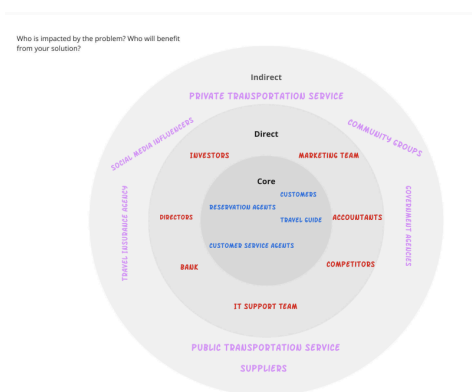


Figure 1: Stakeholder Map

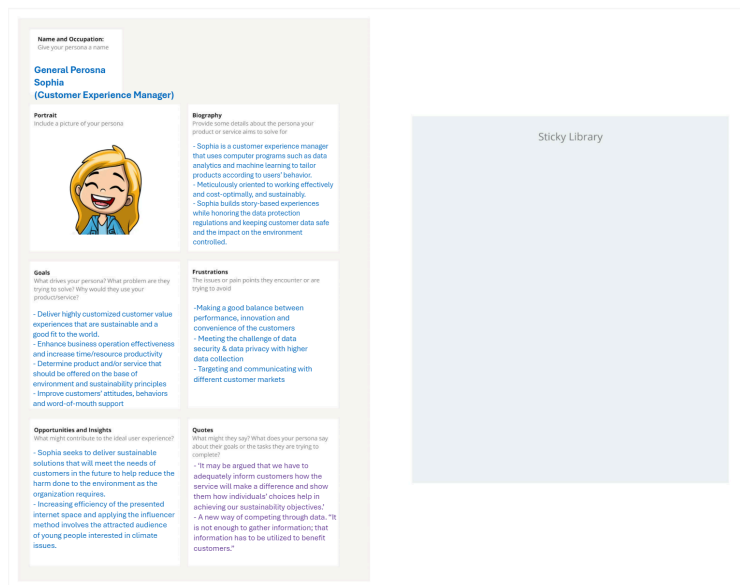


Figure 2: Persona

Put yourself in the user's shoes. To populate these, you need to conduct some research using observation, interviews, surveys etc.

Sophia Empathy Map

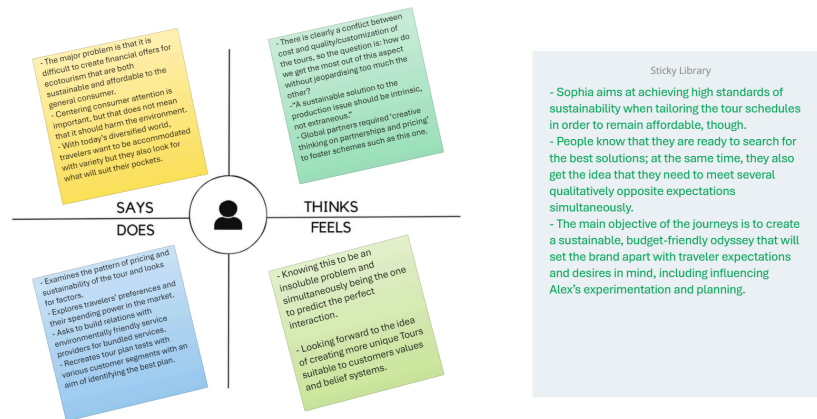


Figure 3: Empathy Map

2. Define Phase

Synthesis of Insights

In the empathy phase, the TravelCorp team conducted intensity research that delivered copious amounts of data to support the defined phase. This was done with the help of customer interviews as well as industry, academic, and observational research in order to establish a number of central themes and potential possibilities that would influence the idea for the sustainable travel platform.

The first and perhaps one of the most important that emerged was the discovery of the several barriers to sustainable travel among travelers. The study found out that it is hard to engage people into sustainable travel due to factors such as: general travel choices are rather complex and it is not easy to find the most sustainable means of travel;; many consumers are price-sensitive;; there is low credibility concerning green claims; and, due to tight schedules, people are inclined to take more convenient though probably less sustainable and or environmentally friendly methods of travel. The above barriers depicted areas that were hugely sensitive and should be worked on by removing the hurdles.

Further analyzing the users' needs, the team outlined certain critical expectations presupposed for the development of a convincing and efficient sustainable travel solution. As a result, the need for personalisation becomes a key factor observed while people travel in search of relevant options according to interests, affordability and environmental footprint they can make. Another recognized requirement was the transparency with which users demand clear and approved information about the environmental burden and other social consequences of certain travel decisions. Another factor was accessibility – people expected that all necessary preparations should be made with minimum intricacy and effort. Lastly, the research found that travelers required assurance, in which they sought to confirm that sustainable claims of service providers were genuine and worthy of credence.

Apart from the user needs, the team was also able to identify several hard surfaced market opportunities of the travel and tourism industry which can be targeted to enhance positioning of a sustainable travel platform. What was also identified as a way of handling the complexity of the systems, as well as the barriers to transparency, was the integration of progressively sophisticated technologies, including personalization through Artificial Intelligence and visualization of impacts. The especially important activity of building an active and engaged community of conscious travelers was also seen as another major lever for creating a sense of purpose and

activism. Further, the study highlighted a role in fostering effective and empowering local participation as a strategy for creating valuable and distinctive travelling experiences.

Problem Statement Definition

By a process of co-creation and iteration for the facts from the empathy phase, the facts were by the TravelCorp team condense into a unified problem statement that would be a guide to their design and development. The problem statement reads as follows:

"How might we create a personalized, transparent, and convenient sustainable travel platform that empowers conscious travelers to make verified positive environmental impact while maintaining budget consciousness and authentic experiences?"

This problem statement also neatly sums up the areas that are important in response to the challenge of sustainable travel. It incorporates the user's desire to personalize, have visibility, and be convenient while it reinforces the need to allow operational positive change, stay affordable, and real.

It will be noted that the creation of a clear and concise problem statement helped the TravelCorp team set up the right goals and objectives from the onset and to focus on the right outcomes and results. It would become the reference point for the next design and development phases of this work, which would help to remain focused on the target users' needs and other interests of sustainable travel markets.

The methodological guidelines of research and synthesis provided a solid ground for the team's further design thinking activities. When joined with certainty offered by the problem statement, the beliefs of the TravelCorp team gained solid ground throughout the empathy phase and ready to proceed to the next phase, knowing that all their work will be based on proper understanding of what's going on and what people expect from them.

Placement of the Sustainability Insights:

The insights about how the problem statement relates to key sustainability goals

The problem statement arising from the analysis of the TravelCorp challenge corresponds to several objectives of sustainability. The focus on empowering conscious travelers to make verified positive environmental impact speaks to the **United Nations Sustainable Development Goal (SDG) #12: Responsible Consumption and Production.**

The emphasis on authentic experiences also connects to **SDG #11: Goal 11 – Sustainable Cities and Communities**, as the company would want to popularize its platform given the importance of cultural and economic touristic destinations. Furthermore, the acknowledged understanding of emerging budget-sensibility also corresponds to the general sustainability agenda since sustainable tourism has to be affordable and mainstream across society. Thus, by catering to those sustainability-oriented aspects, the TravelCorp team made sure that work on platform development meets the goals of global sustainability as its basis.

Journey Stage	Awareness	Planning and Research	Booking and Preparation	Experience	Feedback	
	<ul style="list-style-type: none"> 1. Viewing Social Media post or Advertisement. 2. Discussion with Friends 	<ul style="list-style-type: none"> 1. Research about Travel Agency 2. Checking Tour packages 3. Reviewing different itineraries 4. Comparing prices and reviews 5. Details on amusement park website 	<ul style="list-style-type: none"> 1. Book a tour pack with travel agency. 2. Calling a customer service for the details of Trip 3. Getting required material 4. Making arrangements to travel during a time when crowds are smaller 5. Budgeting for additional costs like food, transportation, and tickets to attractions. 	<ul style="list-style-type: none"> 1. Navigating through crowds at popular tourist attractions. 2. Standing in long lines for rides, food, and entry to attractions. 3. Constantly making sure the trip runs smoothly so his children have a memorable experience. 	<ul style="list-style-type: none"> 1. Sharing photos and stories with friends and family. 2. Writing reviews about his experiences. 3. Evaluating the overall success of the trip for future planning. 	
	<ul style="list-style-type: none"> 1. Social Media post 2. Travel vlogs 3. Word of mouth or reference 4. Targeted advertisements 5. Emotional appeal 6. TV, Radio 	<ul style="list-style-type: none"> 1. Customer reviews 2. Travel agency office 3. Email Newsletter 4. Social Media reviews 5. Advice from friends 	<ul style="list-style-type: none"> 1. Travel Agency 2. Customer service 3. Payment gateway 4. visa office 5. family-friendly hotels 6. Mobile apps for travel bookings and itinerary management 	<ul style="list-style-type: none"> 1. Theme parks, restaurants, tourist spots, and guided tours. 2. Dining at restaurants, waiting in lines for rides. 	<ul style="list-style-type: none"> 1. Social media posts, review platforms, conversations with other families. 2. Follow-up emails from booking platforms requesting reviews. 	
	<ul style="list-style-type: none"> 1. Relaxation 2. Family Time 3. Affordable Family Trip 4. Kid-Friendly Adventure 	<ul style="list-style-type: none"> 1. Advice 2. Trusted Reviews 3. Research on Internet and Social Media 4. Details and Articles on Amusement Park 	<ul style="list-style-type: none"> 1. Booking website 2. Visa for tour 3. Date of travel 4. Family-friendly hotels 5. Travelling options on destination 	<ul style="list-style-type: none"> 1. Travelling options 2. Affordable food options 3. Plans helps to avoid crowded area 4. Managing the budget 	<ul style="list-style-type: none"> 1. Review posting platform 2. Sharing thoughts among peers 	
						

Figure 4: Journey Map

3. Ideation: Unleashing Creative Potential

Ideation phase was the moment of creative fleshing or brainstorming and concept mapping. New product development proceeded through design thinking frameworks such as the Crazy 8s Sessions to foster idea generation as well as converge on the best designs. The conventional brainstorming process was thereby expanded on this approach since it created a definite but elastic system for innovation.

The mind mapping exercise proved particularly illuminating, revealing four interconnected domains of potential impact: Efficient Technology Integration, User Friendly, Sustainability and Community Centricity. The six domains were important aspects of the realistic sustainable travel environment, emphasizing that technological impact was a complex process.

Key Brainstorming Outcomes

The ideation process yielded a rich array of potential features and innovations:

1. Mobile App Integration: An online marketplace that acts as the initial touch point of a traveler and offers customized and responsible travel.
2. AI-Powered Personalization: Superior capability of implementing algorithms to learn about the specific traveler's needs, things he/she would want to have advisable and concerning the impacts on environment.
3. Impact Tracking System: Travel choices and their environmental and social impacts were measured and represented systematically.
4. Community Marketplace: A socially interactive web environment where travelers, locals as well as sustainable service providers meet.
5. Carbon Offset Integration: Systems enabling the travelers to grasp, reduce, and offset their carbon footprint.
6. Reward System: Promotions of incentive structures to practice sustainable travel behaviors and citizens' participation.
7. Virtual Reality Previews: Virtual reality that allows a traveler to experience places and their possibilities of interaction with the environment at a particular destination within a virtual environment before physically visiting the location.

Idea Selection Criteria

Sustaining creativity and developing innovative solutions was comprehensive, following an assessment tool. In view of this, the team forged an overall evaluation framework bearing in mind six crucial factors:

1. **Technical Feasibility:** Evaluating the technological support and readiness to support new ideas, which otherwise will be called innovations.
2. **Business Viability:** Explaining areas of possible revenues, customers' requirements, and further market viability.
3. **User Desirability:** It indicates the comprehension that is related to traveler preference, their pain and potential barrier to adopt a solution.
4. **Environmental Impact:** Measuring and categorizing the biological gains which could arise out of proposed remedies.
5. **Scalability:** Feasibility of development for the platform to be scalable and flexible in addressing varied future markets and changing technological environments.
6. **Resource Requirements:** To know the cost of implementing and whether certain measures meet the organization's resources, capacity or potential.

Selected Solution Architecture

Following on a strategic discussion in the team, it was possible to decide upon a twofold solution that would comprise of an intelligent mobile application as well as improved web environment.

Mobile Application

The mobile app emerged as the primary user interaction point, designed to provide:

1. **Personalized Recommendations:** Recommendations of AI based on traveler persona, preferences as well as sustainable objectives and initiatives.
2. **Impact Tracking:** A way to illustrate each user's as well as the community's impact on the environment in real time.
3. **Community Integration:** Components that allow smooth networking with local professionals and tourists.
4. **Local Expert Connection:** Methods of real and locally sourced travel information and solutions to sustainable tourism.
5. **Special Sustainable Tour plans:** Published the sustainable group tour plans for solo travellers, Group Travellers, Family groups, etc.
6. **Gamified Mode:** Collect Tour points which can be redeemed for the next tour.

4. Prototype Development Journey

The prototyping process followed a meticulous, iterative approach divided into two sophisticated stages:

Low-Fidelity Wireframes

A first concept known as paper Sketch to assess wireframe and define first user Scenarios & establish the basic user journeys & main areas of the application. This stage was concerned with concept validation as well as initial interaction design (*Wireframe IS6025* | *Lucidspark*, n.d.).

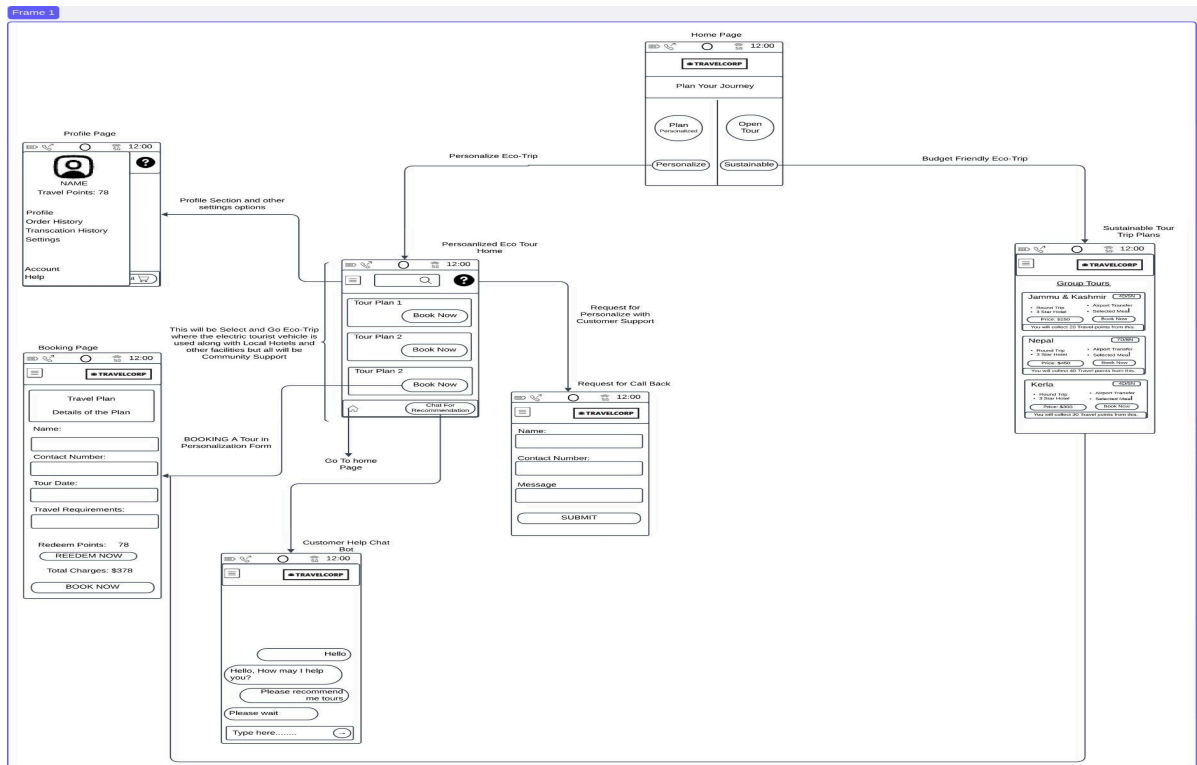


Figure 5: Wireframe Prototype [LINK](#)

High-Fidelity Prototype

Testing for navigability, visual and UX design and creation of an advanced design including such components as designs for animation, and an overall interaction map. This stage provided the last work as close to the end result as possible.

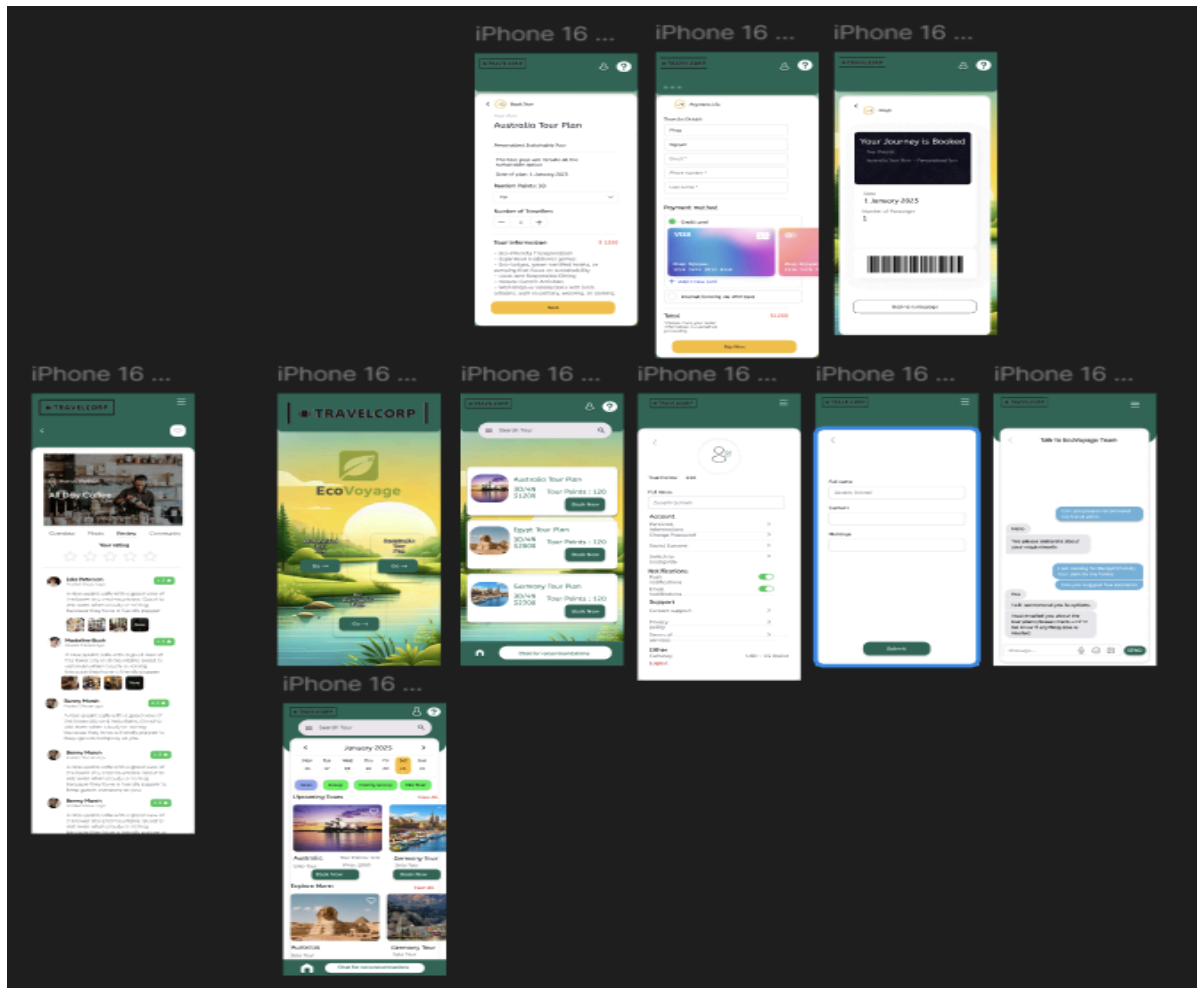


Figure 6: Figma Prototype [LINK](#)

Key Prototyped Features

Based on the wireframe provided, the key prototyped features of the app include:

1. Home Page: Desirable because it allows the user to see the points and the balance they have earned or accumulated for traveling. New User Functionality – Membership to the “Travelcomp” section. Drop-Down menu- Plan Your Journey submenus- Plan Tour - Open Tour. Additional features as personalization and sustainability settings for the Eco-Trip
2. Profile Page: This includes the profile details of the user as well as the order details and transaction details of the user and other settings.
3. Booking Page: Enables the booking of a tour, and entry of data such as the user’s name, contact number, the intended date for the tour, and any special needs during the trip. Offers a “Travel Plan” tab to see and modify the details of the tour being planned

4. **Personalized Eco-Tour:** Enables the client to set preferences and schedule an environment friendly tour. It is important as it offers various choices of eco-tourism plan such as personal and sustainable.
5. **Budget Friendly Eco-Trip:** Presents the user with a sustainable tours plan. Open Tour plans for Solo Traveller, Group Travellers, Family Tours. This Page will publish the tour plans which will be completely sustainable and are in the group. Any Individual can join the group to experience a Budget Friendly Sustainable tour.
6. **Customer Help Chat:** Contains a chat box where the user receives help.
7. **Request for Call Back:** It provides the user with an option of calling the customer support team back.

In general, the concept of the app is to provide a user with tools for creating and arranging a trip, choosing the places and types of traveling in a friendly and eco-friendly manner as well as tools for booking and organizing the tours, and getting a customer's support (*IS6025-EcoVoyage*, n.d.).

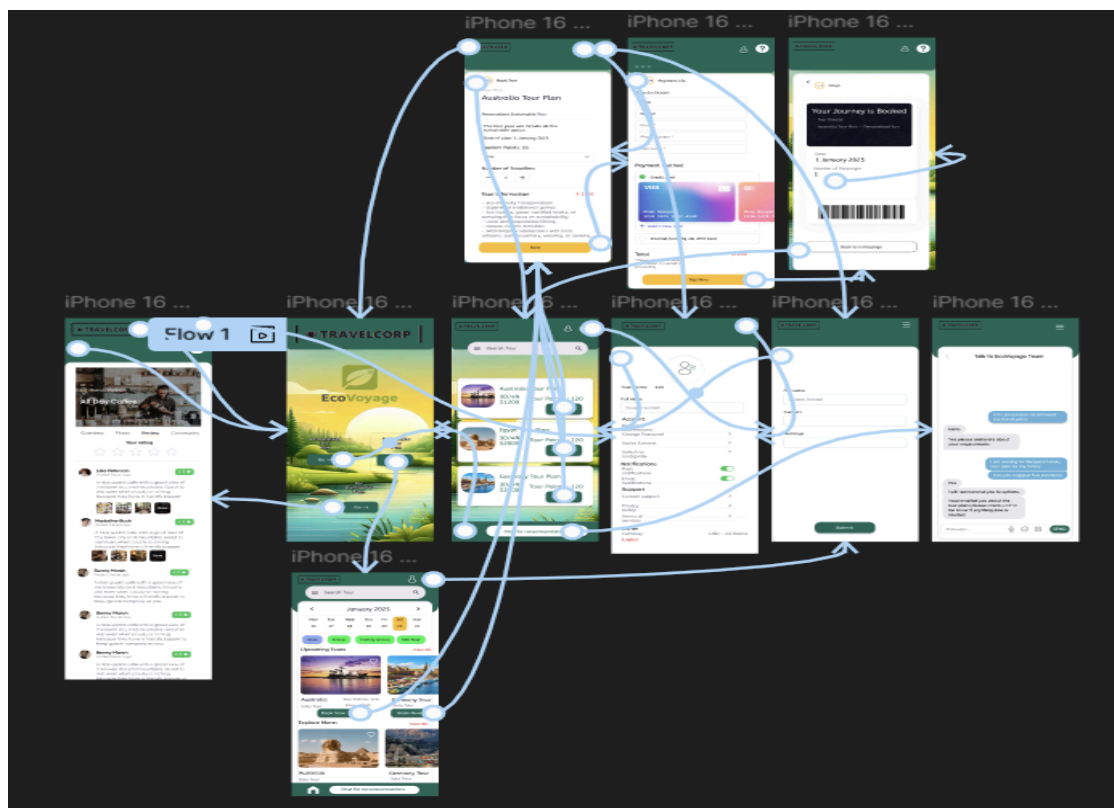


Figure 7: Final Figma Design

5. Testing Methodology

The testing strategy represented a holistic approach to validation, incorporating multiple assessment dimensions:

For this app prototype, the testing methodology would likely involve the following:

1. Usability Evaluation: It means that they should perform user interviews and focus groups in order to obtain the evaluation of the proposed User Interface, Information architecture and the overall User Experience. This should involve several rounds of testing with potential users engaging with the developed prototype and being asked to evaluate how easy it is to use, how easily one can accomplish some key tasks using the prototype among other things. Evaluate findings in terms of user behaviour and profile, pain, and gain, as identified during the usability testing sessions.

The results of the user feedback should be used to enhance the working model of the prototype.

2. Feasibility Assessment: Assess the relative practicality of the provided features and flow within the prototype of an internet bidding system. Determine any limitations or contingencies that could occur during the development phase and which may hinder integration or their integration point. Evaluate the availability of necessary technologies, third party APIs or outsiders services which are required for the prototype's operations. Get the feedback of the development team in order to properly consider the layout of the prototype and its requirements against this technology.
3. Heuristic Evaluation: Heuristic assessment of the prototype should be performed by usability experts to determine whether any of the design principles or recommended practices are violated. Evaluating the mentioned principles like, the visibility of system status, user control and freedom, consistency and standard, error prevention, and flexibility and efficiency of use in the given prototype. Record all such observations and suggestions that one finds capable of enhancing the design of the prototype and the overall user interaction.
4. Accessibility Review: Measures how well on a low fidelity prototype you can conform to guidelines and standards like WCAG 2.1. Determine whether the web application implemented in the prototype can be accessed with assistive technologies and whether the application can be usable for people with disabilities. Suppose users with various accessibility needs could provide feedback on your application, it would be best to consult with them to know where you went wrong.

5. **Workflow Validation:** Consider the primary flows and use cases usually presented as a prototype for the application to check their ad hoc correctness and completeness concerning the essential features. These include areas where the design of the prototype and general functionality do not meet users' goals and experience expectations. Discuss the situational analysis findings with professionals in the identified area as well as other stakeholders to fix all that is wrong with the selected workflows.
6. **Responsive Design Testing:** Confirm that the layout of the prototype involves responsive design, in a sense that the options are suitable for viewing on different screen sizes, kind of the device and position of the screen. All UI elements, texts and layouts should be preserved and optimised for the use on various devices. Search for any layout or design problems when the prototype is accessed using particular devices or screen resolution and then adjust the layout.

Test Results and Insights

The rigorous testing process for the app prototype yielded a wealth of valuable insights that will inform the next stages of development:

Positive Observations:

Intuitive User Interface Design: Specifically, the user testing sessions showed us the strength of the app's interface design. Everyone agreed with each other and singled out the clearly structured and minimal navigation and easily understandable and clearly structured information architecture and the ease of use. They remain visually clean and easy to navigate because the layout and elements given provided quick visual anchors and key tasks.

Effective Personalization Algorithms: The respondents reacted very positively to the personalization options of the prototype which select the eco-tours to recommend according to the preferences stated by the users. The customer's liked that the recommendations were timely and focused on their specific needs which helped increase engagement and credibility of the platform.

Clear and Engaging Impact Visualization: They felt employing the sustainability metrics, and the interactive graphics used to present environmental and social effects of eco-tours was very effective. People stated that such elements are helpful and encouraging, as they correlate with the main aim of the platform.

Improvement Opportunities:

Performance Optimization, Particularly Loading Speed: Most of the participants found the prototype to be quite functional with certain complaints, which involved slight delays or latency issues during the tour booking and in the chat conversation in the customer support section. Additional gradual refining of loading speeds and response of the system will also be very important to ensure consistent user interactive experience.

Expansion of Payment Method Options: Regarding the payment, the current options remain satisfactory but were suggested as potential for development. Several users showed a need for more options and the ability to make payments through mobile or other online platforms.

Enhanced Community Engagement Features: While the prototype has included minimal community support features such as the customer help chat, there are increased expectations about more comprehensive features of peer to peer communication, content generation profiles, and social sharing tools. It might help to strengthen the feeling of acceptance or even advocacy among users, if the community engagement parts of the platform were cranked up even further.

Altogether, the testing course drastically unveiled important factors that the development team will use to improve the application's layout, features, and usability. By addressing improvement opportunities identified on the platform and leveraging strengths that have been found to work in this context, it will be possible for the team to achieve an even more effective and outcome-driven eco-travel solution.

Business Analytics and AI Integration

Based on the insights gathered from the extensive user testing and evaluation of the app prototype, we identified several key areas where the strategic integration of business analytics and AI could significantly enhance the platform's capabilities and overall user experience.

Personalization and Recommendation Algorithms

One of the prototype's strengths was its effective personalization of eco-tour options based on user preferences. Building upon this foundation, the team plans to leverage advanced machine learning and predictive analytics to further refine the personalization algorithms. By analyzing user behavior data, purchase patterns, and feedback, the AI-powered recommendation engine will be able to provide increasingly accurate and relevant tour suggestions, tailored to each individual's interests, budget, and sustainability goals. This will not only improve user satisfaction but also drive higher conversion rates and customer loyalty.

Operational Efficiency and Performance Optimization

The user testing revealed the need to address performance issues, particularly around page loading speeds and system responsiveness. By incorporating real-time analytics and monitoring, the team will be able to identify performance bottlenecks and implement data-driven optimizations. This could involve using AI-based load forecasting to proactively scale infrastructure, implementing intelligent caching mechanisms, and leveraging cloud-based services to ensure seamless and reliable platform performance, even during peak usage periods.

Enhanced Community Engagement

To address the user-identified need for more robust community features, the team plans to integrate AI-powered sentiment analysis and engagement analytics. This will enable the platform to automatically detect and surface trending topics, user-generated content, and areas of high engagement. By leveraging these insights, the team can design more effective community-building tools, such as personalized activity feeds, user forums, and influencer-driven content, further strengthening the platform's sense of community and fostering greater user participation and advocacy.

Payment Optimization

To expand the available payment options and provide a more seamless checkout experience, the team will leverage data analytics to identify the most popular and preferred payment methods among the user base. By analyzing transaction data, customer feedback, and industry trends, the team can prioritize the

integration of these preferred payment options, ensuring that the platform caters to the diverse financial needs and preferences of its user community.

By strategically integrating business analytics and AI capabilities throughout the app's core functionalities, the development team can continuously optimize the user experience, drive operational efficiency, and unlock new opportunities for growth and innovation. This data-driven approach will enable the platform to stay responsive to evolving user needs and market trends, solidifying its position as a leading eco-travel solution. Hence the AI intent aims at building a sustainable travel recommendation platform leveraging on Real time personalization recommendations, simplified and improved user engagement as well as Impact analysis. It is to help users with devices such as “Green Budget Planner” and “Traveler ‘Impact’ Dashboard” that incorporate open source sustainability reports, carbon footprints calculators and databases of eco-relevant certifications for aid in the selection of eco-friendly and sustainable travel experiences. This intent links the transparency, individualization, and the considerations of the environment to offer a competitive, customers’ oriented eco-travel market.

Research and Evidence

Summary of Primary and Secondary Research

Primary and secondary research was undertaken by the team in order to gain comprehensive understandings regarding sustainable travel. Key points and problems identified with key stakeholders were captured during Primary research through recorded and structured interviews covering various potential users like environmentally sensitive travelers, cost-conscious travelers and luxury travelers. The team also evaluated the competitor, his/her plans, working and the demands of the customers for green travel. Also, Secondary research incorporated data from official reports, scholarly articles, and case analyses that provided quantitative data on the developments in the market and consumer preferences.

Competitors we researched:

- a. **Natural Habitat Adventures:** This company is the official travel partner of the World Wildlife Fund and is committed to environmentally friendly nature travel (Luraschi, 2020).
 - <https://www.pietroluraschi.it/press-media/links/4536>
- b. **G Adventures:** This adventure travel company offers a variety of sustainable tours around the world. They focus on small group travel, responsible tourism practices, and supporting local communities (*Adventure Tours & Small Group Trips - G Adventures*, n.d.).
 - <https://www.gadventures.com/>
- c. **Responsible Travel:** This UK-based company specializes in sustainable travel and offers a wide range of eco-friendly tours and holidays. They work with local communities and support conservation projects (*Responsible Travel - Holidays | Environment | Local People*, n.d.).
 - <https://www.responsibletravel.com/>

Inspiration:

Alpha Adventure's model of the restricted number of tours catering to solitary travelers is one of the most sustainable and effective manners for personal development. What makes them so great is that by choosing off-the-tourist-path locations, encouraging the purchase of local products, and highlighting an environmentally sustainable business model, they make opportunities for people to find new friends and utilize tourist services while getting to learn about the local culture and customs. They can realize their approach not only for the tourists themselves but also for the improvement of the communities' health as well as geographical environment (*Instagram*, n.d.).

- <https://www.instagram.com/alphaadventures.in/?hl=en>

Key Findings from Interviews, Stakeholder Mapping, and Market Trends

Thus, interviews presented the four distinctive and often repeated customer requirements concerning a more sustainable form of traveling. Primary and secondary stakeholders were analyzed depending on their

relation to the project including the target clients who are the travelers and service providers. Market trends presented in the article revealed growth in demand for sustainable travel, nearly 80% of the travelers look for budget-friendly green accommodations; though, not many are ready to pay a premium for sustainable travel products.

Application of Demographic Data and Relevant Statistics

The demographic analysis shows that customers of this market would be environmentally conscious, mostly Millennials and Gen Z. The international context of the sustainable tourism market shows promising prospects for market growth, which will create the best conditions for finding specific solutions. Further light on the traveler preferences is shed by observational research and social media sentiment analysis, showing that sustainability is becoming popular among the travelers and is seen as a luxury good. The consumer is demanding more and more ethical sustainably sourced high-end travel experiences, and therefore the market is being driven towards the provision of such products and services.

Few Companies use sustainable way of providing Luxurious experiences of tours:

- a. **Six Senses Resorts:** Known for their commitment to sustainable practices, Six Senses offers luxurious accommodations in stunning natural settings. They prioritize organic and locally sourced food, energy-efficient designs, and waste reduction initiatives.
 - <https://www.remotelands.com/hotel/six-senses-yao-noi>
- b. **Paradisus Resorts:** Paradisus Resorts in the Caribbean offer all-inclusive luxury experiences with a focus on sustainability. They use organic ingredients in their restaurants, promote water conservation, and support local communities (*Paradisus Cancun – Cancun – Paradisus Cancun All Inclusive Hotel & Resort*, n.d.).
 - <https://www.paradisuscancun.com/>

Use of Sample Interviews and Secondary Data to Support Decisions

Based on the customer interviews, very specific and differentiated personas were created to show the principal pains and driver. These suggestions in sum up with secondary data analysis affirmed the two issues of price sensitivity as well as the problem of green wash on the components. In order to overcome these challenges, we implemented features, such as impact tracking and AI-driven personalization within our platform. It lets the users quantify the benefits of their decision and receives suggestions based on their sustainability objectives.

Visualizations for Data Gathered During the Empathize Phase

Concept mapping on flipcharts and paper, sticky notes, and post-its, journey maps, and thematic dots charts were used in the process of analysis. These kinds of visualizations allowed the team to better recognize interactions and injuries, so the corresponding design solutions could be applied.

Collaboration Tools and Process

Tools Used for Collaboration

The team leveraged a suite of tools to ensure efficient and effective collaboration throughout the project.

Key tools included:

- **Microsoft Whiteboard:** Encouraged and organized Group idea generation and concept mapping, making it possible for team's members to build upon the thoughts of the others immediately.

Link:

https://uccireland-my.sharepoint.com/:wb:/g/personal/a_pope_ucc_ie/EV9mLe2zmVZEiAfZOeLEl1kBTk8TmRVl7aRJ52zmgQyggA?e=ucaFjq

- **Team Meeting:** We all live in the same accommodation. We prefer live meetings. We tried Microsoft team conversation but it was less effective compared to live meetings.
- **Figma:** Provided support on collaborative working model of prototype and design reviews for the EcoVoyage platform.

Link:

<https://www.figma.com/design/NOHPrNWn8wgkyNYBjsDHHM/IS6025-EcoVoyage?node-id=0-1&t=tgVj3N62kRb6Neg6-1>

Evidence of Team Engagement

- **Snapshots of Whiteboards:** While brainstorming the team used the Microsoft Whiteboard to capture and develop ideas as the process progressed. Scenes were represented by brainstorming on Crazy 8s, maps for the ideas, and a user journey map to show how ideas change over time.

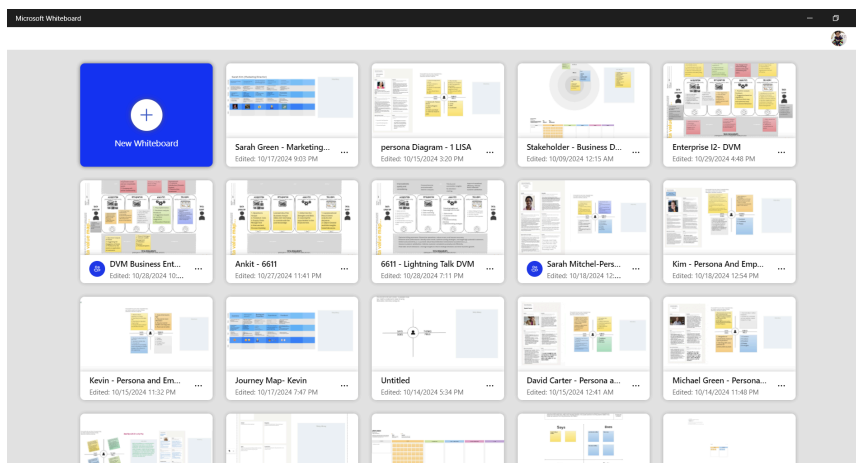


Figure 8: Whiteboard

- **Meeting Minutes:** We all live in the same accommodation. We prefer live meetings. We tried Microsoft team conversation but it was less effective compared to live meetings (*Redirecting*, n.d.).

Reflection on Group Dynamics and Problem-Solving Strategies

The team demonstrated strong group dynamics characterized by open communication, role clarity, and mutual respect. We also considered the feedback received from the instructor on Microsoft Teams. Key reflections include:

- **Diverse Strengths:** Everyone contributed specific strengths regarding stakeholder interviews and business analysis and design thinking and technical development.
- **Problem-Solving:** Issues like integration of the contrary findings of different learned studies were solved through group discussion as well as feedback.
- **Collaborative Creativity:** Interlocking ideas with Crazy 8s and Story Mapping helped bring ideas from different POVs and helped the team to refine and agree on actionable ideas.

Stakeholders	Customer	Marketing Team	Investor	Community Group
Purpose	Convenient and user-friendly eco-booking platform	Promoting EcoVoyage effectively to a competitive market	Maximized returns while adhering to sustainability goals	Support for local tourism and eco-friendly initiatives
Physical	Easy-to-navigate interface, mobile compatibility	Design of compelling, branded materials	Tools to analyze ROI and environmental impact metrics	Collaboration tools for partnerships
Cognitive	Clear guidance on eco-options, simple reservation process	Insights into customer behavior and preferences	Reports on sustainability benefits	Information on the benefits of EcoVoyage for communities
Aesthetic / Emotion	Empowerment through sustainable choices, sense of value	Inspiration and motivation to position a sustainable travel brand	Confidence in aligning with ethical and profitable investment	Satisfaction from contributing to sustainable development

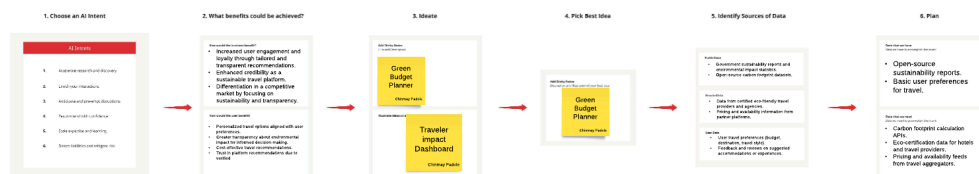


Figure 9: Product Metrics and AI Intent

Storyboard:



Figure 10: Storyboard 1



Figure 11: Storyboard 2

Ranveer, an adventurous and eco-conscious traveler, decides to plan his next trip using the EcoVoyage app. Armed with his smartphone and a desire to travel sustainably, he embarks on a journey that's as kind to the planet as it is thrilling for him.

Scene 1: Planning the Journey

Ranveer opens the EcoVoyage app, greeted by two main options: Select an Itinerary: Open Tour. He gets thrilled and selects the Plan Your Journey and goes through the Personalized Eco-Trip link.

It offers him two locally customized eco-tour itineraries and offers locally sourced accommodations, eco-friendly activity options, and carbon-neutral transport. During his comparison, Ranveer chooses Tour Plan 1, which consists of some nature walks and eco-tour farm-stays. He is sure of his decision, so he click the Book Now button.

Scene 2: Completing the Booking

On the Booking Page, Ranveer fills in his details: including name, phone number, preferred dates and any special request. He sees his Eco Points – earned from previous trips – and uses them so he can subsidize the cost of his tour. The transparent pricing policy also make Ranveer sure that all the Royal M wipe cost is being spent on sustainability. His booking process is completed once a tap is placed on Book Now.

Scene 3: Seeking Assistance

One day when Ranveer is patiently waiting for the call for his departure, he gets a question about the tour plan. He gets to the Customer Help Chat which exists inside the application and starts typing: “What are the things to do in the area that I am going to?” It immediately replies with related eco-friendly attractions such as cycling tours and bird watching tours. Even when he is planning, Ranveer noted the app to be very responsive and is supportive of him all along.

Scene 4: Sign Up For a Budget Friendly Group Tour

Indeed owing to the inspiration derived from the working of the application, Ranveer also selects the Budget-Friendly Eco-Trip. Here, he gets package tours to Kerala, Nepal, Jammu & Kashmir and more and all of them are affordable and one can actually call them sustainable. That is how Ranveer books himself a personalised tour, but he makes up his mind to join one of these organised group travel next time.

Scene 5: Preparing for the Journey

On his way, Ranveer discovers the Request for Call Back feature and calls for advice on how to pack sustainably. In less than five minutes, the support agent should come through with tips on environmentally friendly gears to use while travelling, and how to pack lightly. They now equip Ranveer to embrace what is ahead of him.

Scene 6: On the Adventure

And when Ranveer finally wakes up and sets off for the location, he is dumbfounded to see how much the EcoVoyage app has revolutionized the whole journey. This spot supports him with solar-powered eco-lodge accommodation, bike trails through the greenery, and meals that originate from the nearby farm, cooked by inhabitants. Through the app's Personalized Eco-Trip feature, he has been able to mine into the environment and the community, in a deeper sense than before.

Scene 7: Reflection and Gratitude

At the end of the journey, Ranveer leaves feedback through the 'Customer Help Chat' where he appreciates how easy it is to book, and how the app has made sustainable travel possible. He looks at the credit history of his new Eco Points, and he is already starting to think about the next trip.

Conclusion and Recommendations for EcoVoyage

Key Findings

Market Insights

- Sustainable travel is on the rise with 78% of travelers willing to stay at environmentally friendly accommodation.
- According to new research, 61% of travelers will want to travel more sustainably after the pandemic.
- plenty potential remains for personalized and integrated tech solutions and for accurate, honest, and compelling sustainability reporting.

User Needs and Challenges

- Travelers want unique, easy, and genuine sustainable travelling options
- Key barriers include:
 1. The Sustainability and complexity of Travel Decisions
 2. Price sensitivity
 3. Disablement of general green claims by low credibility
 4. Some level of ignorance of environmental consequences

Technological and Strategic Opportunities

- AI can respond to user needs and preferences and thus personalization based on AI can solve the problem.
- Impact tracking systems can offer transparency
- Socially-generated entities can improve the reaction
- Integration of these advanced technologies can bring ease to sustainable travel.

Comprehensive Recommendations

1. Integrated Management of Sustainable Development

- Create not just a carbon offsets type of approach to sustainability but a well integrated one And ensure that they have verified and clear sustainability indicators.
- Involves tourism cooperation with local communities for non-touristic travelling experiences.
- These target areas should be aligned to the platform features with reference to the United Nations Sustainable Development Goals –SDGs.

2. Technology and Innovation

- Continuously improve algorithms related to AI-proposed personalization in learning and knowledge management
- Incorporate enhanced monitoring of the Impacts that can gives its members constant information about the environmental and social performance of the organizations they deal with.
- Create short computer presentations to enable the traveler to learn about the sustainability of the destination.
- Build an intelligent environment that will be able to incorporate new sustainable solutions.

3. Usability and User Interaction

- A convenient and easily remunerated mobile application ensure a strong reward system that will encourage long-term appropriate travel patterns
- It should foster the involvement of community participation from travellers and knowledge from local gurus and services.
- A series of guidelines which state that the information: ‘should be straightforward, informing people about the environmental and social implications of travel options’.

4. Market Sensitization and Acquaintance

- It will be necessary to create educational content for the experiment concerning sustainable travel.
- It shall fight green washing and promote sustainable lifestyles through realistic and credible claims.

- For successful storytelling, develop features such as balanced, POS (Positive Environmental & Social) templates.
- Collaborate with sustainable advocates and bloggers.

Two of the most crucial characteristics of the proposed solution is scalability as well as continuous improvement.

- Organize a balanced technology environment that can be both quickly responsive to various market demands.
- Included is the conduct of user research and testing at least once a week.
- Incorporate key decision making on the basis of valuable data.
- Look into collaborations with sustainable tourism certification organizations.

Future Directions

Short-Term Goals (1-2 years)

- Deploying the mobile application and frequent updates of the android application
- Build a robust user base
- Improve the specifics of personalization and measuring communication effects
- Promotional partnerships with environmentally sound service providers

Medium-Term Goals (3-5 years)

- Go global
- Improve the level of Artificial Intelligence and Machine learning.
- Design sustainability rating scale
- Create communities of change makers around the world

Long-Term Vision

- It is vital to become the leading marketplace that would change the attitude of the travel sector towards sustainability.
- Promote responsible tourism around the world.
- Enable traveler to leave a positive environmental and social footprint.
- Development of a network that would foster the local community as well as would also ensure the conservation of culture.

Strategic Impact Beyond App Features

EcoVoyage could not only deliver each traveler to the desired destination but also so much more. By focusing on education, community engagement, and transparent impact measurement, the platform can:

- Enlighten the world on environmentally friendly tourism
- Contribute local economies and culture.
- Facilitate safe consumerism.
- Be active in the protection of the global environment.

Conclusion

This is the broad perspective and intensity of the EcoVoyage project helping to make green tourism possible, purposeful, and fun. With advanced technology integrated, focus on the user's needs, and a real passion for sustainability, the platform has a future readiness to change how people perceive and engage in travels.

There are likely to be key success factors involved in developing, implementing and sustaining this radical approach in the field of sustainable tourism and hospitality management that will entail flexibility, innovativeness in responding to new technologies, changing user demands, and the emerging environment for sustainability.

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