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EXPERIENTIAL NATURE TOURISM ARCHITECTURE

Summary of the Doctoral Thesis

RIGA TECHNICAL UNIVERSITY
Institute of Architecture and Design

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RTU Press
Riga 2025

Cover picture by Andra Marta Babre.

DOCTORAL THESIS PROPOSED TO RIGA TECHNICAL UNIVERSITY FOR PROMOTION TO THE SCIENTIFIC DEGREE OF DOCTOR OF SCIENCE

To be granted the scientific degree of Doctor of Science (PhD), the present Doctoral Thesis has been submitted for defence at the open meeting of RTU Promotion Council on 12 December 2025, at 14.00 at the Institute of Architecture and Design of Riga Technical University, Ķīpsalas iela 6, Room 435.

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DECLARATION OF ACADEMIC INTEGRITY

I hereby declare that the Doctoral Thesis submitted for review to Riga Technical University for promotion to the scientific degree of Doctor of Science (PhD) is my own. I confirm that this Doctoral Thesis has not been submitted to any other university for promotion to a scientific degree.

Matijs Babris ……………………………. (signature)
Date: ………………………

The Doctoral Thesis has been written in English. It consists of an Introduction, 3 chapters, Conclusions, 79 figures, four tables, and seven appendices; the total number of pages is 103. The Bibliography contains 147 titles.

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INTRODUCTION

As demand for authentic nature-based experiences continues to rise, many natural destinations are experiencing the strain of overtourism. The influx of visitors, even to previously remote areas, poses serious risks to fragile ecosystems and, at times, to the tourists themselves. High-profile examples include the overcrowding at Everest Base Camp in 2019 and subsequent years, where long queues formed in extreme conditions, placing pressure on the environment and the Sherpa guides navigating tourists through the terrain. More accessible destinations like Stonehenge in the United Kingdom have faced similar pressures. In response to landscape degradation, authorities have introduced measures including restricted visitor access and mandatory guided tours. Norway's Trolltunga, once a less-known hiking destination, has also seen a dramatic rise in foot traffic, leading to trail erosion and environmental damage. A permit system has since been introduced to manage visitor numbers [41], [49], [69]. Selected examples show insight into the impact of overtourism on nature tourism destinations. With the growing interest in outdoor-based experiences, addressing this issue becomes crucial for tourists and the tourism industry, including finding new measures and solutions for overtourism, as the current approach of limiting the number of visitors can reduce access to nature tourism destinations and encourage elitism and tourist segmentation.

These examples reflect a wider issue: as nature tourism grows, traditional management strategies often rely on limiting access, which may inadvertently promote exclusivity and reduce public access to shared natural heritage. Such strategies, while protective, are not sufficient on their own. A more forward-looking approach requires expanding the tourism offer beyond overburdened sites. This research is grounded in literature, case study analysis and extensive fieldwork. Between 2014 and 2024, the author conducted 341 organized outdoor tours across Europe, East and South Asia, and East Africa, covering 17,768+ kilometres on foot. These outdoor tours were complemented by 12 tourism product development workshops held in Latvia, focused on local knowledge transfer. Outdoor tours suggest that nature tourists increasingly value destinations that integrate basic infrastructure and offer a high level of experiential quality. Along hiking routes, visitors often skipped segments lacking interactive or visually appealing features but chose to linger, photograph, and rest at sites offering seating, shelter, or other simple built interventions. These behavioural patterns point to the importance of spatial design in shaping visitor experiences and dispersing tourist flows.

The current model, concentrating tourism in a few iconic destinations, risks long-term environmental degradation and limits broader economic and social benefits. Over-reliance on these sites also narrows the market, failing to attract emerging tourist segments who seek new, innovative, and immersive experiences. There is untapped potential in many lesser-known areas, which, if developed through thoughtful spatial planning and experience-based design, could offer memorable alternatives. To address these challenges, a shift is needed toward more strategic tourism development. This includes investing in destinations with the potential to deliver ecological sustainability and rich visitor experiences, creating a wider network of attractions that are well-integrated with the built environment. Purposefully designed interventions, when aligned with landscape values and local needs, can support balanced visitor distribution and enhance the overall tourism landscape.

Previous Research: Research on nature tourism has grown steadily, with an emphasis on its ecological, cultural, and economic dimensions. Scholars have examined sustainable and eco-friendly approaches, focusing on tourist motivations, preferences, and behaviours. Environmental impact remains a central concern, and studies consistently highlight the role of

local communities, government agencies, and other stakeholders in managing and developing nature tourism destinations. A recurring topic in existing literature is the need for responsible tourism practices, especially in ecologically sensitive areas. Visitor education, infrastructure development, and crowd control have been widely discussed as tools for reducing the pressure of overtourism. These efforts aim to balance conservation and continued growth in tourism. Marketing and communication strategies also play a significant role in shaping how destinations attract and engage visitors. Ecotourism is extensively explored as a form of nature-friendly travel. While many studies address the impacts of tourism on fragile ecosystems, relatively few focus on the potential for built, human-designed environments to support nature tourism. The possibility of using architectural interventions to create new experiential destinations, thus reducing pressure on existing natural sites, remains underexplored in the academic literature [25], [32], [33], [41], [52], [54], [60], [63].

Recent research highlights ecological design and the transformative potential of architecture, where integration of built forms into natural landscapes enhances visitor engagement and fosters meaningful experiences. Architecture is understood not merely as shelter or utility but as a catalyst for deeper interaction with nature. Studies have proposed various organizational typologies for nature tourism architecture, including classification by location, climate, relation to nature, and type of tourist attractor. These models support the development of more experience-oriented and sustainable destinations. The application of green and eco-friendly architecture principles has also gained traction. This includes energy-efficient design, use of local materials, and integration of renewable energy sources, key factors in reducing the environmental footprint of tourism infrastructure. Academic discourse regarding landscape and ecological design highlights integrating architectural art, environmental design technologies, and local cultural elements in ecological parks and similar destinations seeking to elevate the environmental sustainability and cultural resonance of built forms in natural areas. Aesthetic aspects of nature tourism architecture have been discussed in terms of harmony with landscape, contrast, viewing experiences, and architectural authenticity, often seen as contributing significantly to tourist satisfaction and the perceived quality of the visit [3], [7], [13], [15], [62].

While interest in nature tourism, sustainability, and experience design continues to grow, research that brings these threads together, especially through the lens of architecture, remains limited and scattered. There is still little discussion about how built interventions might create new kinds of nature destinations that ease pressure on existing natural sites rather than add to it. This study responds to that gap by exploring how architectural design can help shape a more diverse and sustainable future for nature tourism.

The Research problem focuses on overtourism and crowding in popular natural destinations, arising from a rapid increase in demand for nature tourism. This growing demand, contrasted with the finite capacity of accessible nature sites, accelerates environmental degradation, reduces the quality of visitor experiences, and presents significant challenges to the sustainable management of these locations.

The Research object is the evolution of nature tourism architecture, specifically focusing on the transition from service and sightseeing destinations to involved experiential spaces. The objective is to understand how nature tourism architecture has transformed over time to cater to the changing preferences and expectations of tourists seeking immersive and participatory experiences in natural environments.

The Research aim is to investigate the role of architecture in enhancing the experiential aspects of nature tourism. This study seeks to explore how architectural design can contribute

to creating immersive and meaningful experiences for tourists engaging in nature-based activities. This research aims to provide theoretical and practical insights for architects, destination planners, and tourism stakeholders to design and develop nature tourism spaces that optimize visitor experiences and foster sustainable tourism practices.

Research Tasks

1. Based on literature studies, observe the current evolution of nature tourism architecture, reacting to overtourism and crowding.
2. Evaluate current market trends and tourist attraction approaches through a shared Facebook group using an algorithmic data selection approach.
3. Select and highlight the most valuable approaches for adaptation and development of a cohesive nature experience tourism environment through typological mapping and multi-criteria database, visualizing a variety of tourist attraction methods.
4. Conduct on-site outdoor tours to test and observe nature tourist response on nature tourism destinations through hiking outdoor tours on selected environments, nature parks, coastlines, wilderness areas and cities.
5. Validate hypothesis and gather feedback through practical modelling workshops, intentionally designing innovative nature tourist products with experiential qualities.
6. Compare selected expert feedback through conducting in-person and distanced interviews with tourism service providers, influencers, opinion leaders and nature tourism organisation representatives and nature enthusiasts.

Research Methodology: The methodology used clarifies current trends and perceived development, and highlights opportunities and challenges in each proposed organizational typology. It is essential to understand a more comprehensive framework, its causality, and inner relations for experiential tourism as an industry to sum up and compare experiential nature tourism approaches for localized architectural interventions. The author of the Thesis uses a qualitative visual approach structured in a quantifiable multi-factor database on the airtable.com platform. Collected and structured nature tourism destination data are then grouped by 124 classifiers. Several approaches are considered to define a typology of nature-involved recreational architecture systemization and coordination for more cohesive further research on planned applications and spatial solutions for nature tourism decentralization. In order to achieve the planned result, the author used a 4-stage approach for gathering and analysing information.

A. Selecting data: Selection by algorithm. Source – common interest groups, social media, and news recommendations online.
B. Visual comparison: Graphical layout template on Miro.com (pre-visualization technique).
C. Forming database: Defining structure, classification criteria on Airtable.com, comparing distribution by similar grouping fields. observing distribution, quantitative analysis and updating the visual distribution chart.
D. Testing experiences: Organizing test workshops and on-site visits for selected destinations to validate the gathered data and collect feedback through organizing local experiential workshops in Latvia.

Selection by algorythm from featured posts

Research papers Search **1 and 2**

Amazon books

Social media

Google News

Search 1 - "*Innovations in nature tourism architecture*"

- Web of Science - 78 results
- Scopus - 76 results

1. Featured objects discovered through algorythmic suggestions from marked interests (*nature tourism, travel*) published on public Facebook group for community evaluation - 943 objects.

Search 2 - "*Developing new nature tourism destinations*"

- Web of Science - 165
- Scopus - 158

B - Evaluation

2. Indicative Innovation score assigned from adapted Altschuler innovation level methodology

Disruptive innovation - creates new tourism markets, new technologies, E.g. virtual experiences and synthesized nature

3. Additional search performed destinations. Contacting developers, gathering additional data

Revolutionary Innovation - pivotal change in tourism market, new industries and disrupting existing ones, e.g., immersive and interactive experiences

4. Revised Innovation score assigned from adapted Altschuler innovation level methodology

C - Updating Database

Evolutionary Innovation - new experiences in existing market. Unique accomodations, new way of exploring areas

5. Object or experience submitted to Airtable.com database for further comparison and analysis

Incremental Innovation - significant improvements or modifications to existing experiences. New design elements

6. Extracting of data after reaching planned amount of experiences. Results visualized on chart map for easier comprehension

D - Testing Experiences

Basic Innovation - small improvements or modifications, new amenities or updated infrastructure

7. Organizing test workshops, on site visits and outdoor experiences for selected destinations to validate gathered data

8. Organizing local activities, Post-activity sessions and interviews
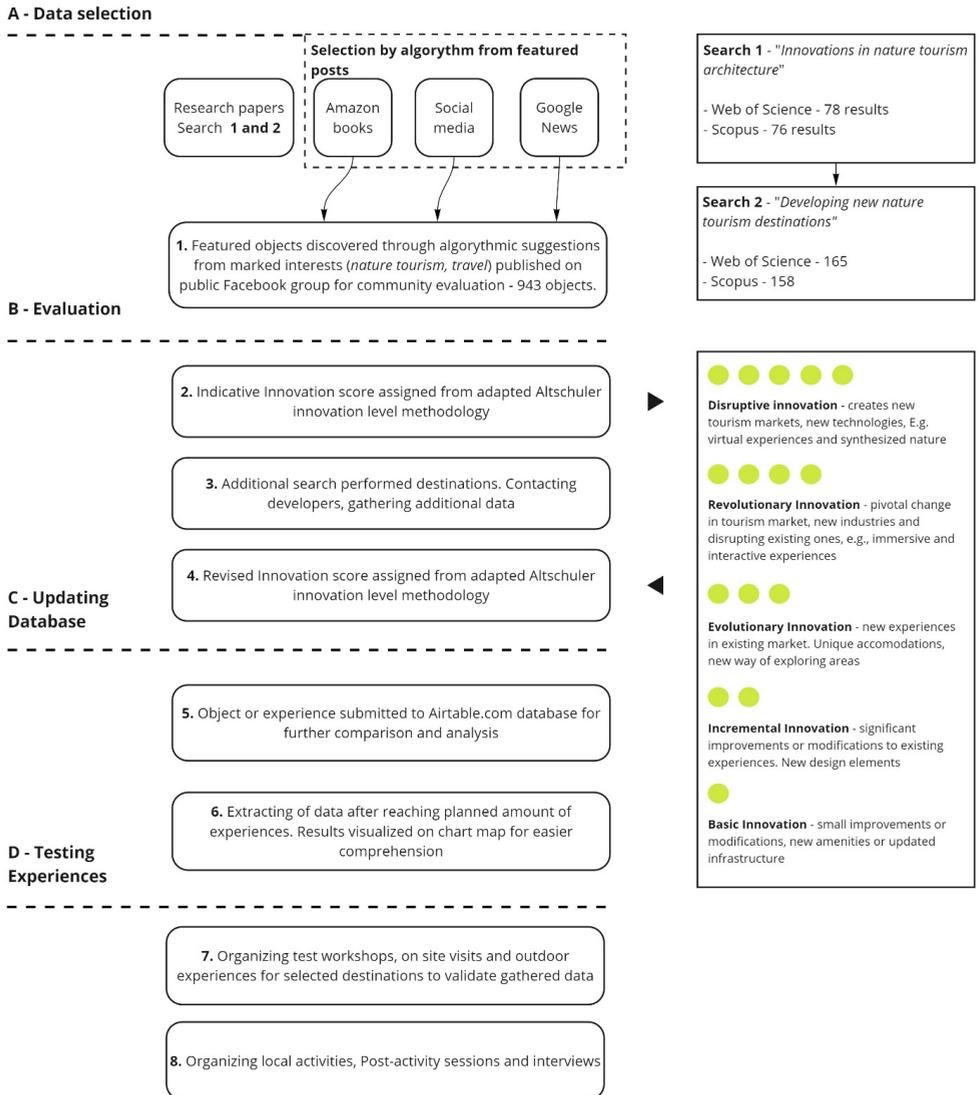
Fig. 1. Selecting and validating information for location analysis.

Data selection. In order to validate what approaches work best in attracting nature tourists to experiential travel destinations, four primary sources were used: 1) literature analysis from research papers, using keywords mentioned in Fig. 1; 2) Amazon books published since 2000, with keywords "nature tourism architecture"; 3) selection by recommendation algorithm from Google news; and 4) social media. In order to avoid intentionally searching for destinations and thus influencing the results, the author selected and actively favorited material related to nature tourist destinations on social media platform timeline, Facebook, Instagram, Google News platform and Amazon.de, Amazon.co.uk and Amazon.com book marketplaces to receive recommended content from suggestion algorithm, targeted ads and recommended posts

on related content and avoid intentional and biased selection of destinations for analysis. On Google.com, several intentional searches were performed using the same keywords; however, only results from organic recommendations through the Google News platform on Android were used during the one-year study period. Social media platforms were chosen as one of the quickest growing marketing channels with user-generated content for nature tourism destination marketing. The author's personal profile was used for the initial search and combined with data from a new public Facebook group, "Experiential Nature Tourism Architecture", for collecting results from other participating social media users. During the research period of 307 days, 3 October 2021 to 1 August 2022, 261 people joined the group, and 809 unique posts were made. Participants represented 71 locations with users from Latvia, Estonia, Lithuania, Bulgaria, Russia, Finland, China, Italy, USA, Pakistan, Spain, India, Nigeria, Australia, Netherlands, Iceland, Georgia, UK, Bahamas, Afghanistan, France, Denmark, Madagascar, Tanzania, Sweden, and Austria. Group members were equally distributed among genders, with the most active age range being 25–34.
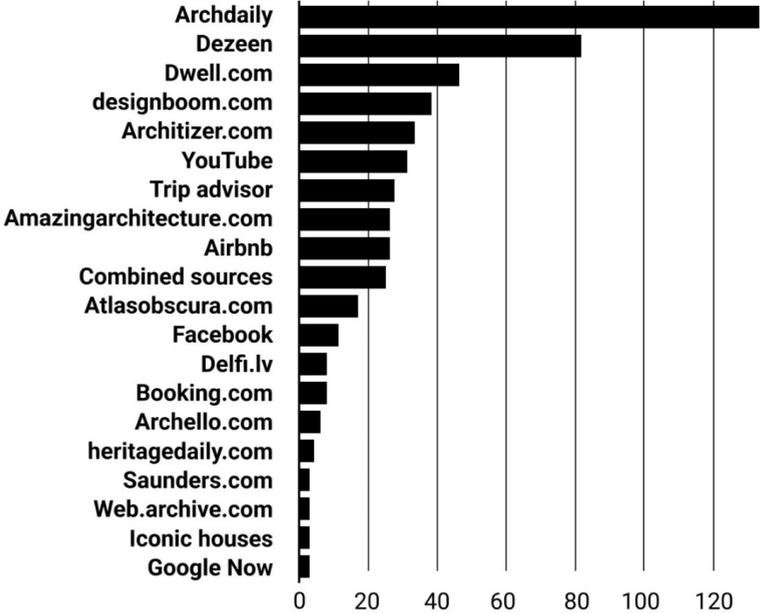

Fig. 2. Distribution of represented sources in experiential nature tourism case-study database.

Most of the selected Nature Tourism destinations came from Archdaily.com, Dezeen, Dwell, YouTube and Amazingarchitecture.com (Fig. 2). In cases where one destination was mentioned in several sources, the most information-dense one was credited. Although social media platforms like Instagram and Facebook played an essential role in the discovery of destinations; however, the linked sources mostly came from established publishers or analysed object home pages after performing an additional search as described in the material selection algorithm (Fig. 1) and the distribution chart (Fig. 2).
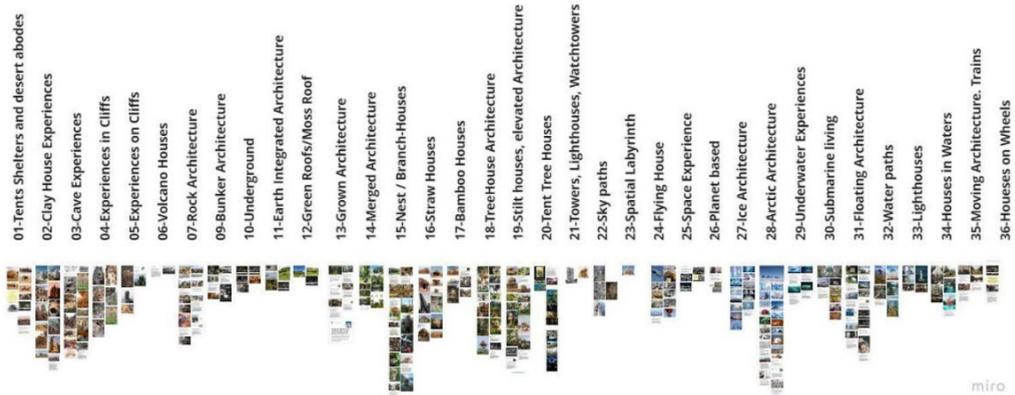
Fig. 3. Miro.com visual database prototype for cataloguing experiential nature tourism architecture research material.

For the second stage of analysis, a visual collaboration board on Miro.com was used, grouping similar experiential tourism examples from a selection that utilized experiential qualities in their design. In the first stage of inquiry, experiential tourism examples were compared to a list of available biomes, possible relationships with surrounding nature and experiences perceived, thus arriving at primary classification criteria for the nature tourism destination database. Given that the visual analysis was not automated, it was inherently limited in its elasticity and adaptability; however, its visual comprehension level was substantial, giving an instant insight into possible object groupings and achieving stratification of analysed data.

When evaluating the results of visual comparison on Miro.com, it was noticed that several parameters overlapped, e.g., destination, materiality, and experiential qualities of grouped objects. A multi-criteria database was created where classifiers and tags grouped selected destinations. Labels were selected by looking at classifiable information provided in the source material, and an additional search was performed when some elements were missing. When forming the grouping criteria, single select fields or numerical values were preferred, where possible, for optimising grouping and further analysis. In cases where it was not applicable, primary, secondary and tertiary qualities were used, or in case of keywords, amenities and features, multiple selection criteria option was enabled (Fig. 4). The database also features several meta criteria that are not directly linked to the nature objects themselves, e.g., chronological record of each cell, authors comments and score of the element's degree of completion. As the author is a non-native English speaker, automated grammar and syntax correction tools like Grammarly, Tilde, and Microsoft Word Copilot were employed when formatting the Doctoral Thesis to improve the structure of sentences, clarity, precision, and overall legibility of the text.

A - OBJECTS AND DESTINATIONS

01_name
02_about
03_photo
04_local_environment
05_main_activity
06_price_per_night
07_country_state
08_main_experience
09_keywords
10_bulding_cost
11_building_type
12_current_function
13_defining_natural_features
14_coordinates
15_main_materiality
16_geocode_cache
17_realization_state
18_architect
19_secondary_experience
20_innovation_level
21_style

22_urbanization_level
23_tour_price
24_year
25_source
26_area
27_plan
28_visited
29_notes
30_feedback_rating
31_positive_fedback
32_negative_feedback
33_summary
34_acess_to_public
35_tourism_intensity
36_last_modified
37_secondary_materiality
38_created
39_secondary_function
40_frame_type
41_construction_speed
42_last_modified_by

43_public_or_private
44_grouping
45_design_principles_used
46_relief
47_climate
48_landscape
49_water_relation
50_level_of_completion
51_secondary_activities
52_main_attraction
53_origins_of_ENTA
54_access_by_transport
55_created_by
56_transportable
57_human_impact_level
58_accessibility
59_wc_locations
60_wc_type
61_wc_access
62_utilities
63_amenities

65_positive_feedback_features
66_negative_feedback_features
67_nature_placement
68_sustainability
69_awards
70_tourism_type
71_amenities_nearby
72_capacity
73_location_approximity
74_seasonality
75_Nr.
76_seasonality
77_can_house_be_bought
78_plans
79_additional_info
80_stories
81_earnings_per_year
82_activity_level
83_development
84_Climate

B - SOURCES

01_name
02_notes
03_web
04_objects
05_relevance
06_type
07_information_described
08_architects
09_platform_publisher
10_created_by
11_main_topic
12_methodology_used

13_quotes
14_aim_of_research
15_author
16_last_modified
17_classofocation
18_attachments
19_abstract
20_manufactured
21_copy_available
22_completion
23_sustainability_features
24_experience

25_tourism_type
26_design_principles
27_materials
28_amenities

C - DEVELOPERS

01_name
02_abstract
03_designed_objects
04_link_to_source
05_year
06_last_modified_by
07_country
08_not_existing
09_count_location
10_objects_developed
11_ob_d_count
12_total

Fig. 4. Grouping criteria and labels for experiential nature tourism architecture data base.

Terminology

Experiential architecture. In the scope of this work, experience is meant as an active or passive activity performed by a participant. This interpretation is based on the premise that the design of sustainable tourism destinations can play a critical role in attracting tourists and providing them with unique, authentic experiences in the natural environment. By focusing on the creation of new, human-made destinations that are designed to provide these types of experiences, it is possible to address the issue of overtourism and provide sustainable solutions for the tourism industry. This approach is distinct from a more traditional architectural interpretation of experience, which primarily focuses on the aesthetic qualities of building interiors, proportions and the way in which people interact with these spaces.

Architectural intervention. In the field of architecture, the term "architectural intervention" traditionally refers to the process of renovating or reconstructing existing structures. However, in the context of experiential nature tourism, the term is used to describe the creation of new built environments that enhance visitors' experiences of nature. In this context, architectural intervention is understood as a way of clarifying the relationship between the built environment and nature, and of creating spaces that encourage people to engage with nature in meaningful ways. This understanding of architectural intervention differs from the traditional understanding of the term, as it focuses on augmenting rather than altering existing structures.

Nature tourism and nature-based tourism. Traditionally, nature tourism focuses on traveling to natural environments, primarily for the enjoyment of natural beauty and recreational activities. Typical activities include hiking, birdwatching, landscape photography, and enjoying natural parks and reserves. Nature-based tourism is about engaging with and contributing to the conservation and sustainability of natural environments. In this study the author has expanded the traditional use of terms nature and nature-based tourism in combination with active tourism and experiential tourism elements, not limited to authentic destinations but rather focusing on the perceived experience of the target audience, thus broadening the scope of the term. For example, in the case of themed entertainment, a tourist in mostly outdoors-based Avatar Park at Disney's Animal Kingdom in Orlando, the world of Avatar themed area inspired by James Cameron film Avatar featuring alien world and bioluminescent rainforests with film's flora and fauna here would be perceived as part of experiential nature tourism using fantasy attractor, while providing visitors with nature-based experience.

Scientific novelty of research

The scientific novelty of this study lies in its comparative analysis of experiential nature tourism architecture as an intentional solution for dealing with overtourism and crowding. This approach is distinct from previous research, which has primarily focused on the dangers of overtourism and the need for infrastructure-based solutions to address this issue [2], [25], [32], [41], [49], [54]. By contrast, this study takes a more proactive approach, exploring the potential of architectural interventions to create new, sustainable tourism destinations that can accommodate the growing demand for nature-based experiences without harming the natural environment, providing a unique perspective on the role of architecture in addressing the challenges of overtourism and crowding in the tourism industry.

Practical significance of the Research

The practical significance of this study has the potential to encourage a more planned approach to reducing the harmful over-reliance on authentic natural attractions as the main tourist attractor. As natural resources are inherently limited and can be easily damaged beyond

repair, it is important to find sustainable solutions for the tourism industry. This work offers a practical approach to addressing the challenges of overtourism and crowding by exploring the potential of architectural interventions to create new, human-made destinations in nature. By providing alternatives to the traditional reliance on natural attractions, this approach can help to preserve the natural beauty and integrity of these areas for future generations, while also providing tourists with unique, authentic experiences.

Approbation of the results

The research findings were disseminated through meetings with planning bodies and municipalities in Latvia, Estonia, the UK, Norway, and Iceland. These engagements enabled dialogue with stakeholders on integrating design strategies into regional tourism development. To support the application, workshops were organized with municipalities, combining presentations of key findings with ideation sessions involving representatives from government, business, civil, and education sectors. These workshops facilitated collaborative problem-solving, fostering ownership and generating practical solutions tailored to local contexts. The author also presented results at conferences on tourism, architecture, and sustainable development, reaching professionals, policymakers, and practitioners. These events provided opportunities for knowledge exchange, networking, and applied follow-up workshops with municipal representatives. Further approbation occurred through participation in two Interreg projects focused on developing nature tourism products for the UK market. In these initiatives, the research informed sustainable business models, export potential, and industry collaboration. Collectively, these activities bridged academic research with practice, influencing policy, supporting municipalities, and advancing international competitiveness in nature-based tourism.

Publications

Babris, M., Bratuškins, U., & Treija, S. (2018). *Non-formal education in architecture: Latvian experience*. Journal of Architecture and Urbanism, 42 (1), 46–51.

Babris, M., & Bratuškins, U. (2019). Practical Modelling in Treehouse Development. AVP, 15 (1), 106–112.

Babris, M., Bratuškins, U., Tihanova, A., & Hartmans, R. (2023). Organisational Typologies for Experiential Nature Tourism Architecture. Architecture and Urban Planning, 19 (1), 164–174.

Miķelsone, E., Babris, M., Piere-Segers J., Beitāne, A., Babre A. M. (2024). Web-based idea management and Quadruple Helix networking of creative industry cohorts for COVID-19. Business: Theory and Practice, 2024, 25 (1), 362–376.

Babris, M., Johnston, J., & Derksen, B. (2024). Engaging Users in Creating the Next Library Space: Best Ideas in Innovative and Experimental Design. Das Offene Bibliotheksjournal.

Submitted publications

Miķelsone, E., Babris, M., Babre, A. M., Saļņikova, A. (2025). Artificial Intelligence vs. Human Creativity from an Idea Management Perspective. Springer Nature Publishing.

Reports at conferences

Babris, M., Bratuškins, U. Organisational Typology for Experiential Nature Tourism Architecture, 2nd Baltic Conference of Young Researchers in Architecture, Landscape Architecture and Urbanism, 4 October 2021, Online.

Babris, M., Bratuškins, U. Innovative Approaches in Developing New Experiential Nature Tourism Destinations. 3rd Baltic Conference of Young Researchers in Architecture, Landscape Architecture, Urbanism and Civil Engineering. Doctoral students conference, 24 November 2022, Kaunas.

Babris, M. Dabas pieredžu tūrisma arhitektūra – kā radīt jaunus un apmeklētus galamērķus, Latvijas Dabas tūrisma konference, 14 September 2022, Ogre

Babris, M. Collaboration and Innovation in Nature Tourism development, Latvian Tourism Forum 2022, 12 August 2022, Sigulda

Babris, M., Bratuškins, U. Balancing Nature and Tourism: Innovative Architectural and Planning Approaches for Mitigating Rising Overtourism, RTU 64th International scientific conference. Section: Architecture and Urban Planning, 3 October, 2023 Riga.

Public Approbation and Communication of Research Results

Date (ISO 8601)	Event	Description	Location
2021-09-02	Iceland 1800 km long distance hiking trail expedition report	Sharing experiences from an expedition around the coastline of Iceland from the Westfjords to the South of Iceland.	Rīga, Latvia
2021-11-09	Moderator at Pan-Baltic Hiking conference	Coordination and moderation of an online event on Baltic long-distance hiking projects	Online
2022-03-09	Nature tourist expert training and development	Coordinating and moderating six public lecture series and workshops combining the best experiences from Finland, the Czech Republic, Estonia, and Latvia	Online in Straupe, Latvia
2022-08-20	Latvian Annual Nature Tourist Assembly	Long-distance trail experiences – a public lecture and panel discussion	Ērgļi, Latvia

2022-12-08	Latvia Tourism Forum	Presentation: Innovative Approaches to Interdisciplinary Tourism Product Development	Sigulda, Latvia
2023-02-17	Jēkabpils regional tourism creation workshop	Moderation of the workshop with local residents	Jēkabpils, Latvia
2023-03-17	RTU Demo Day and CoLAB presentation	Experiential nature tourism database application for developing new nature tourism destinations	Rīga, Latvia
2023-04-17	Aizkraukle tourism industry meeting and creative workshop	Tourism industry meeting	Aizkraukle, Latvia
2023-04-25	Public lecture: Innovations in Small-Scale Nature Tourism Architecture and Modular Housing	Lecture on tourism and modular housing innovations	Rīga, Latvia
2023-05-08	Role of hackathons and idea competitions in developing new innovative products	Interview on lsm.lv Latvijas Radio 3	Rīga, Latvia
2023-05-10	Interreg Central Baltic region NAT-TOUR-EXPO project partner meeting	Experience sharing on nature tourism monetisation models, cross-border collaboration with Estonian nature tourism providers	Prangli, Estonia
2023-05-25	Biomimicry as a tool for nature-inspired innovations in architecture and design	Interview on Radio SWH	Rīga, Latvia
2023-05-26	Modular house challenge	Small-scale architecture in nature with Latvijas Finieris and Latvian State Forests	Jelgava, Latvia
2023-05-31	Ventspils Tourism Symposium	Latvian Nature Tourism Association offer for Baltic Nature tourism new product development programmes and methodologies 2023–2029	Ventspils, Latvia
2023-06-01	Prototyping experience stories on World Design Factory Day	Sharing experiences on developing new nature tourism products through co-innovation methods	Online
2023-06-19	Interview and presentation on Rīta Panorāma lsm.lv	Prototyping innovative connector elements for outdoor shelters and modular adventure-oriented spatial grid structures	Rīga, Latvia
2023-12-24	Nature tourism entrepreneur seminar within the Latvian Nature Tourism Association's general assembly	Innovative product development involving nature tourism service providers	Zentene, Latvia

2024-02-16	Jēkabpils workshop with service providers and tour operators	Workshop with tourism service providers	Jēkabpils, Latvia
2024-02-20	The Nordic Marketplace	Representing Baltic Nature Tourism sector with Baltic country holidays	Copenhagen, Denmark
2024-03-13	Gulbene Municipality workshop	Tourism workshop with local residents and tourism service providers	Gulbene, Latvia
2024-04-18	Trade event at the Embassy of the Republic of Latvia in the United Kingdom of Great Britain and Northern Ireland	Presenting nature tourism offers available in Latvia and Estonia	London, United Kingdom
2024-04-30	Allaži Municipality workshop	Tourism workshop with local residents and nature tourism providers	Allaži, Latvia
2024-05-10	Jelgava Municipality workshop	Tourism workshop with local residents and nature tourism providers	Jelgava, Latvia
2024-06-12	Limbaži Municipality workshop	Tourism workshop with local residents and nature tourism providers	Limbaži, Latvia
2025-03-06	Tourism Industry Entrepreneurs Meeting	Tourism workshop with nature tourism providers	Sigulda, Latvia

1. TRANSFORMATION OF NATURE TOURISM ARCHITECTURE

In the not-so-distant past of nature tourism, visitors would typically observe the natural world from a distance, often from the comfort of a tour bus or a viewing platform. However, as the industry has developed, there has been an increasing emphasis on creating opportunities for visitors to actively engage with the natural environment through activities such as hiking, bird-watching, wildlife photography and other exploration-oriented experiences in nature. This shift has been driven in part by changes in consumer preferences, as more people seek out immersive and authentic travel experiences that allow them to connect with nature on a deeper level. The rise of experiential nature tourism has also been facilitated by advances in technology and transportation, which have made it easier for people to access remote and wilderness areas.

1.1. Evolution of nature tourism. Relationship between observation and participation

As demand for nature-based experiences continues to grow, the design and development of nature tourism destinations is increasingly focused on creating immersive and engaging experiences for visitors. Overall trend is oriented towards flexible destinations that can adapt to different weather conditions and attract clients through a varied programme of nature-related activities and events. Fully authentic nature locations inherently have limited ability to attract tourists, and in cases when they do, without sufficient infrastructure it is not always for the best, as highlighted by the multitude of witnessed events of crowding and over-tourism in popular destinations like Iceland, Norway and Italy. A growing subset of nature tourism – adventure and experiential nature tourism tries to cope with this phenomenon by providing travellers with authentic nature-based experiences that are decentralized and sustainable, support local communities and are mindful of their carbon footprint [53], [95], [113].

Adventure tourism is a form of nature tourism that involves more interactive and participatory experiences, such as hiking, climbing, rafting, and other outdoor activities. In recent years, it has experienced significant growth and development with more travellers seeking out immersive and authentic experiences outdoors. One of the key drivers of the growth of adventure tourism has been the increasing demand for unique and authentic experiences. As travellers become savvier and more selective, they are seeking out destinations and activities that offer a sense of adventure and challenge. This trend has been fuelled by the rise of social media and online travel platforms, which have made it easier for travellers to discover and book adventure tourism experiences and have also helped to promote and market these experiences to a wider audience. As travellers become more aware of the environmental impacts of tourism, they are seeking out destinations and activities that are mindful of their carbon footprint and that support local communities and ecosystems. Adventure tourism, with its emphasis on outdoor activities and immersive experiences, can provide a more sustainable and authentic alternative to more traditional forms of tourism.

In line with the growth of interest in nature tourism, overtourism has become a pressing issue in the development of nature tourism destinations. To cope with the growing number of nature tourists, several approaches have been considered regarding situations where a destination receives more tourists than it can sustainably accommodate, resulting in negative impact on the environment, local communities, and the overall visitor experience. The increased traffic and waste associated with overtourism can lead to pollution and habitat destruction. The increased demand for natural resources, water and fuel can lead to resource depletion and environmental degradation. The negative impact of overtourism is disproportionately scaled

towards hurting local communities and authentic experiences. The influx of tourists can lead to an increase in the cost of living, making it difficult for residents to afford housing and other necessities. The increased demand for accommodation and transportation can also lead to the displacement of local businesses and communities. The overcrowding and congestion associated with overtourism can lead to a decline in the quality of the visitor experience, as tourists are unable to fully enjoy the natural beauty and attractions of the destination [18], [29], [51].

Currently established practices in coping with growing tourist interest, commonly known as visitor management techniques, vary from timed entry and reservation systems, zoning – designating specific areas for tourism activities, capacity limits, setting maximum visitor capacities for certain areas, including not marking destinations in map, limited access policies and local regulations, which can frequently appear to conflict with the countries' goal of attracting more nature tourists. The study aims to highlight two emerging approaches of coping with overtourism in nature while avoiding over-reliance on limiting approaches, entry denial, fines and visitor limitation, leading to enjoyable and responsible over-tourism with increasing visitor numbers and variety of nature tourism destinations through the application of experiential qualities to newly developed nature tourism destinations. In some destinations, the overtourism itself is being provided as an experience, especially in more developed countries like South Korea and Japan, where local communities show how, through balanced application of infrastructure and location dispersion in nature, people can enjoy the sense of community and shared joy of being together outdoors (Fig. 5). It is largely thanks to the role of lifelong learning and training to appreciate nature together, growing up in hiking clubs and local nature tourism societies [18], [32], [34], [51].

Fig. 5. Michinoku Coastal Trail hiking community house, Japan, 2022.
(Photo by Andra Marta Babre).

The impact of COVID-19 has highlighted the need for a decentralized and planned approach to nature tourism development. Starting early 2010s, a new trend of decentralized approach of selling experiences instead of destinations became ever more present. By creating new nature tourism destinations, tourist flows could be better organized and decentralized. The transformation of nature tourism architecture has paralleled the evolution of visitor management techniques, shifting from unregulated development to sophisticated, environmentally conscious designs that prioritize sustainability. Each category within this transformation, early practices, regulations, community involvement, sustainable models, and technological advancements, has influenced the architectural approach to nature tourism.

In the early days of nature tourism and modern development, architecture was largely utilitarian, with little consideration given to the environmental impact of development. This

often resulted in the construction of large-scale, invasive structures that did not account for the fragile ecosystems they were built within. The lack of regulatory frameworks allowed for tourism facilities, resorts and visitor centres, often built with a focus on maximizing visitor capacity rather than minimizing environmental disturbance. As relatively little attention was paid to the natural environment, buildings frequently obstructed wildlife corridors, altered landscapes, and contributed to pollution through unsustainable materials and waste management. This phase led to significant degradation of natural landscapes, necessitating a shift in visitor management and architectural design approaches to mitigate long-term damage. As awareness of the negative effects of unregulated tourism grew, governments and environmental organizations began implementing regulations to protect natural environments. This new regulatory focus influenced nature tourism architecture in several ways. Architects were required to design facilities within specific zones, limiting construction in sensitive areas. For example, the use of boardwalks and designated pathways to guide visitor movement helped prevent soil erosion and habitat destruction. Regulations introduced incentives for sustainable construction, requiring the use of local and renewable materials. Visitor centres in national parks started using local timber and stone to blend with the environment and reduce transport emissions. Many natural reserves introduced caps on the size of new developments to ensure they did not overwhelm the landscape. This encouraged minimalist design principles, where smaller-scale, unobtrusive structures became the norm [5], [27], [65].

Involving local communities in the planning and development of tourism infrastructure led to architecture that is sustainable, culturally appropriate and reflective of local traditions. This approach, seen in projects like Ecolodge Lapa Rios in Costa Rica, has resulted in several architectural transformations. Architects began incorporating local architectural styles and materials, respecting indigenous practices and ensuring that buildings harmonized with the cultural landscape. The emphasis on sustainability further led to the creation of off-grid facilities powered by renewable energy with structures made from bamboo, recycled wood, or thatched roofs, using natural materials from the region. Nature tourism architecture began to include elements that directly benefit local communities, multi-purpose facilities that serve tourists and locals, or community-led construction initiatives where locals are involved in the building process, as seen in sustainable tourism models like the Fogo Island Inn. The development of sustainable tourism models brought about a new era of environmentally conscious architectural design, where the goal is to reduce the ecological footprint of tourism infrastructure. This shift introduced several architectural innovations. Architects like Antony Gibbon pioneered designs that are almost invisible within their surroundings, treehouse accommodations and camouflaged lodges, where the use of natural materials and organic forms minimize the visual impact on the environment. Examples include the Tree Hotel in Sweden and the Juvet Landscape Hotel in Norway, which integrate seamlessly into forests and rural landscapes.

The construction of elevated structures (e.g., treehouses, stilt buildings) became more common to minimize ground disturbance and protect the underlying vegetation and wildlife. These designs ensure that the land below remains undisturbed, preserving delicate ecosystems. Building materials in sustainable tourism architecture have shifted to recycled, reclaimed, and biodegradable options. Examples include the use of hempcrete, straw bales, or recycled plastic in construction, as seen in projects like Practice Architecture's eco-lodges. Sustainable buildings are often designed with passive heating and cooling systems, green roofs, and natural ventilation to minimize energy use. Geothermal energy and solar panels are common in eco-lodges like the Fogo Island Inn, reducing reliance on non-renewable resources.

The integration of modern technology has revolutionized the management of visitors and the design of nature tourism architecture, allowing for more adaptive, real-time responses to environmental conditions. Some modern nature tourism facilities are equipped with real-time

monitoring systems that adjust energy use based on occupancy and environmental factors, enhancing sustainability. Sensors can detect temperature, humidity, and even foot traffic, allowing for dynamic management of energy and water consumption. The rise of virtual experiences and online booking systems has reduced the need for large, physical visitor centres, allowing for smaller, more discreet facilities that still serve the needs of tourists. Visitor apps provide educational content and self-guided tour information, reducing the demand for on-site infrastructure. Advances in renewable energy technology and water recycling systems have allowed for fully autonomous tourism facilities. These buildings operate off the grid, drastically reducing their environmental impact. As a means of reducing physical strain on ecosystems, some destinations have incorporated virtual reality tours, allowing visitors to experience sensitive environments without physically being there, up to some extent reducing the need for permanent structures in fragile ecosystems [43], [50].

1.2. Integration of natural elements and landforms in nature tourism destinations

Different landscape types present distinct opportunities and challenges for integrating architecture with natural elements. Desert landscapes are characterized by arid climates and unique biodiversity. Architectural approaches often prioritize climate-resilient design, using thermal mass, natural ventilation, and minimal water consumption. Architects like Rick Joy and Diller Scofidio + Renfro emphasize structures that harmonize with dunes, rock formations, and canyon features. Mountain landscapes host ski resorts and retreats where architecture follows steep contours, employs stone and wood, and uses panoramic glazing. Designers like Peter Zumthor and Shigeru Ban adapt to snow loads and seismic risks while blending structures with rugged terrain. Forest landscapes integrate dense vegetation and uneven topography. Buildings by Alvar Aalto and Henning Larsen use timber and stone, often elevated on stilts to reduce ecological impact. Open plans and large windows enhance immersion in forest environments. Island landscapes respond to tropical ecosystems, limited resources, and marine exposure. Architects such as Oscar de la Renta and Renzo Piano employ bamboo, stone, and thatch, combined with elevated, naturally ventilated structures. Unlike coastal settings, island architecture frequently emphasizes self-sufficiency and resilience to storms. Agricultural landscapes combine rural character with sustainable practice. Glenn Murcutt and Herzog & de Meuron use low-profile, functional designs in wood, stone, or metal. Projects often integrate rainwater harvesting, passive solar design, and respect for farming activities. Coastal landscapes focus on the interface of land and sea. Architects like Tadao Ando and Richard Meier use durable materials and elevated forms to mitigate wind, salt spray, and flooding. Designs by Alberto Campo Baeza and David Chipperfield adopt minimalist aesthetics, while Kengo Kuma and Norman Foster follow shoreline contours to balance durability and environmental sensitivity. Lakes and rivers emphasize serenity and direct engagement with freshwater environments. Frank Lloyd Wright and Zaha Hadid have designed projects with terraces and docks, elevating structures to address flooding and erosion, while incorporating sustainable water management. Urban landscapes integrate green spaces within dense city environments. Bjarke Ingels and Norman Foster incorporate vertical forests, rooftop gardens, and compact forms that enhance sustainability while offering accessible nature-based experiences. Human-impacted landscapes, industrial sites or landfills demand reclamation and adaptive reuse. Architects like Lacaton & Vassal and Anne Lacaton focus on ecological recovery, transforming degraded areas into cultural or ecological hubs. Unlike urban environments, these landscapes require solutions aimed at restoration and resilience, with potential for eco- or cultural tourism [4], [42].

The landscape is often used to describe the aesthetic or visual qualities of an area and may be analysed in terms of its beauty, diversity, and other nature tourism-related characteristics. Chart 1 shows the frequency of featured landscape elements in the analysed nature tourism destinations overall dominated by forest, urban and mountain landscapes. Analysis of 957 selected cases shows varying degrees of nature integration in tourism destinations. Eighty-three cases rely mainly on artificial constructs with little natural presence, while 30 focus on passive observation of nature without direct interaction. The largest group, 638 cases, situates structures adjacent to natural features, maintaining clear boundaries. Fifty-eight cases demonstrate full integration with surrounding landscapes, and 30 emphasize construction using natural materials. Another 37 incorporate living elements, vegetation, into buildings. 77 cases combine multiple approaches, blending architecture and environment. Only four examples prioritize unaltered nature as the main attractor, highlighting the rarity of destinations where minimal infrastructure preserves pristine landscapes.
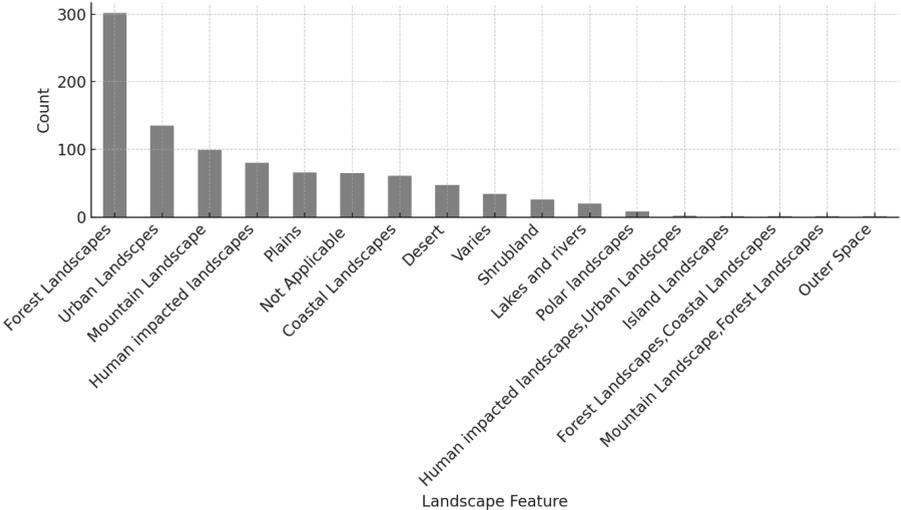

Chart 1. Count of landscape features of selected destinations.

Landforms strongly shape the appeal of nature tourism destinations, offering opportunities and challenges for architecture. Mountains, valleys, and plateaus provide dramatic settings for outdoor recreation while demanding resilient design solutions. Architects often use timber, stone, and weather-resistant materials and techniques to address snow, wind, and ecological sensitivity. Mountain resorts combine accommodation with immersive experiences, skiing, hiking, or climbing, while integrating built forms with panoramic views to enhance comfort and environmental harmony. In valleys and flood-prone areas, architectural resilience is essential, using raised foundations, flood-resistant materials, and adaptable structures. Such landscapes attract rafting, kayaking, and fishing, often paired with rustic, eco-friendly accommodations such as tents or cabins. Plateaus, by contrast, offer spacious settings for lodges and retreat centres, with open horizons supporting birdwatching, photography, and stargazing. Springs enhance ecological and cultural value. At Phugtal Monastery in India, natural springs sustain agriculture and complement the spiritual landscape, attracting visitors through their integration with architecture. Similarly, small streams in sites like Moni Timiou

Monastery in Greece enrich cultural and ecological settings, providing irrigation, serenity, and opportunities for hiking and exploration. Streams play a central role in visitor experience. Footbridges, pathways, and open-air spaces encourage interaction with flowing water. Destinations such as Plitvice Lakes National Park in Croatia, Teton Mountain Lodge in the USA, and Oregon's Columbia River Gorge demonstrate how streams and waterfalls enhance recreation, biodiversity, and visual appeal. Hot springs further extend nature tourism's experiential dimension. The Blue Lagoon in Iceland exemplifies architectural integration with geothermal waters and volcanic terrain, combining therapeutic bathing with low-impact design, aligning wellness, environmental preservation, and immersive engagement with natural landscapes [56].

Water bodies serve as focal points in nature tourism, shaping architecture and visitor experience. Yishun Pond at Khoo Teck Puat Hospital integrates therapeutic landscapes into urban design, supporting well-being, biodiversity, and sustainable water management. In tourism settings, ponds attract visitors for birdwatching, education, and relaxation. Lakes provide opportunities for immersive, water-based architecture. Examples include Powell Lake's Float Cabins in Canada, offering off-grid living on floating platforms; the Grotto Sauna on Lake Huron, where sculptural design enhances wellness experiences; Latvia's Floating Sauna OGLE, blending simplicity with direct lake immersion; and The Hut in the Purple Beech near Lake Geneva, where minimalist treehouse architecture balances woodland and water settings. These cases illustrate how lakeside projects use water as a visual backdrop and interactive element, enhancing isolation, wellness, and reflection.

Wetlands demand sensitive architectural interventions that preserve fragile ecosystems. Elevated walkways, boardwalks, and observation towers allow access without disturbance, while eco-lodges and visitor centers employ sustainable design, rainwater harvesting, and solar energy. Wetlands offer unique opportunities for education, wildlife observation, and tranquil experiences, making them increasingly valued in eco-tourism. Wetlands attract eco-tourists through birdwatching, guided tours, and education, while serving as habitats for endangered species and vital systems for water management. Notable models include Everglades National Park (USA), Kakadu National Park (Australia), and the Okavango Delta (Botswana), where boardwalks, observation points, and stilted eco-lodges balance access and ecological preservation [10].

Canals, urban and rural, integrate water into tourism and architecture. The Hood River Retreat (USA) incorporates canals into a forested lodge setting, enhancing wellness and ecology. London's Regent's Canal features the floating Viewpoint Shelter, blending modern design with heritage waterways. In Peru, the ancient Waru Waru terraces demonstrate long-standing canal-based irrigation, now a cultural tourism attraction showcasing sustainable farming heritage. Rivers provide opportunities for recreation and immersion. Latvia's Mirror House uses reflective architecture to merge with the riverside forest, while Bali's Aura House employs bamboo design to frame river views and sounds, creating tranquil, nature-focused retreats.

Waterfalls remain iconic destinations for hiking, sightseeing, and photography, offering dramatic natural focal points that attract visitors and often shape surrounding architectural interventions. Waterfalls provide aesthetic and experiential value in tourism. Frank Lloyd Wright's Fallingwater exemplifies direct architectural integration, with terraces built over a waterfall to merge sound, movement, and natural stone into the living environment. Pension Briol (Italy) and the Salt Spring Island Cabin (Canada) highlight waterfalls as ambient landscape features that enhance tranquillity and retreat. Adventure-focused destinations such as the Gibbon Experience Treehouse in Laos use waterfalls as focal points for hiking, swimming, and zipline exploration, combining immersion with active engagement.

Reservoirs serve dual roles in resource management and recreation. Around reservoirs, visitor centres, lodges, and parks are often designed to balance functionality and ecological sensitivity, supporting boating, fishing, and leisure while integrating built structures into surrounding landscapes. Reservoirs often evolve into tourism destinations, combining engineering significance and recreation. Observation decks and visitor centres highlight water management and sustainability, while eco-lodges, marinas, and campgrounds integrate fishing, boating, and hiking. Lake Mead (USA), created by the Hoover Dam, exemplifies large-scale engineering paired with leisure opportunities. Lake Vyrnwy (Wales) and Wadi Dayqah Dam (Oman) show how reservoirs provide urban water supply and tourism functions, blending ecological utility with scenic appeal. Seas, with diverse coastal landscapes and ecosystems, attract large-scale tourism, demanding architectural solutions that balance recreation, conservation, and resilience to harsh marine conditions. Seas provide settings where architecture highlights natural beauty and cultural heritage. At Coron Palawan Twin Lagoon (Philippines), stilted wooden cabins integrate with limestone cliffs and clear waters, enabling swimming, snorkelling, and kayaking in a serene marine environment. The Cape Hatteras Lighthouse (USA) demonstrates how coastal architecture can serve functional and educational roles, linking maritime history with dramatic ocean views.

Oceans offer larger-scale opportunities for architectural innovation. Oceanix City by Bjarke Ingels Group (BIG) envisions floating, modular, self-sustaining urban settlements designed to address sea-level rise. Incorporating renewable energy, water filtration, and food systems, the project exemplifies how oceans can serve as a setting and resource for sustainable, future-oriented architecture. Coastal accommodations highlight the ocean as a backdrop and experience. Examples include yurts at Treebones Resort (USA), beachfront huts in Indonesia, and forest-integrated designs, Art Villa Coco (Costa Rica) and Hapuku Tree Houses (New Zealand). These projects emphasize ocean views, direct water access, and eco-conscious design, offering visitors a balance of immersion, comfort, and sustainability

Aquatic parks create engineered water-based experiences, from slides and wave pools to naturalized lagoons. Designs integrate landscaping, sustainable water management, and shaded leisure areas, positioning aquatic parks as hybrid attractions between recreation and nature immersion. Aquaculture facilities increasingly connect food production with tourism. Loch Fyne Oysters (Scotland), salmon farms in Chile, and research centres in Tasmania offer tours, tastings, and demonstrations of sustainable practices. Architecture features tanks, ponds, and visitor centres, making aquaculture educational and experiential.

Water elements shape microclimates, aesthetics, and visitor engagement. Their presence adds sensory richness and ecological value, anchoring many of the world's most successful nature tourism destinations [1], [39], [53].
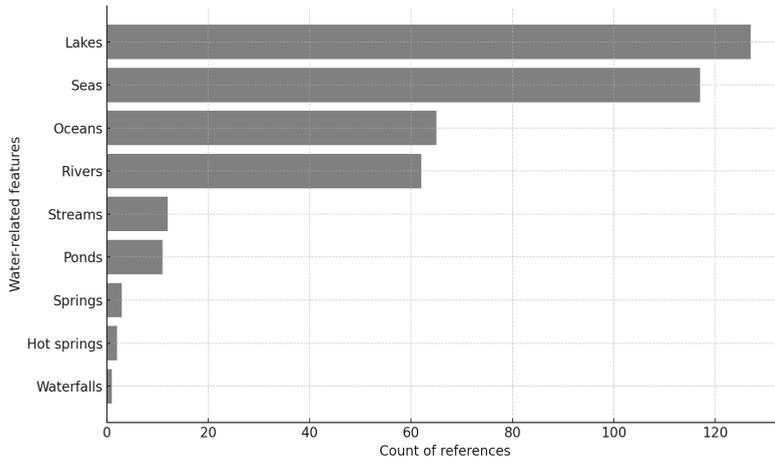
Chart 2. Count of water-related features in selected locations.

Nature and architecture have a complex and multifaceted relationship. The interaction between these two elements provides numerous benefits, including improved mental and physical health, increased productivity, and a sense of connection with nature. At its most basic level, nature interacts with architecture through the incorporation of natural materials into the design of buildings and structures. Natural materials like wood, stone, and clay can be used to create a connection between the built environment and nature, as well as the use of biophilic design principles in which nature can interact with architecture. Biophilic design involves the integration of nature into the built environment, using natural elements, plants, water, and sunlight. In more practical aspects, the relationship between built environments and natural landscapes can be categorized into several distinct approaches, each reflecting varying degrees of integration between human-made structures and nature. Based on existing cases from analysed architectural and tourism projects these approaches range from minimal interaction with nature to fully immersive designs, illustrating a spectrum of interactions between tourism infrastructure and natural environments. The majority of cases (638) fall under the "Adjacent to nature" category, indicating that most tourism setups are situated near but not within a natural setting. Other types, such as "Artificial or without nature" (83) and "Combined approach" (77), show moderate representation, while direct immersion models like "Only nature" (4) and "Made from elements of nature" (30) are less common. This distribution suggests a prevalent strategy of proximity rather than full integration with nature in nature tourism development.
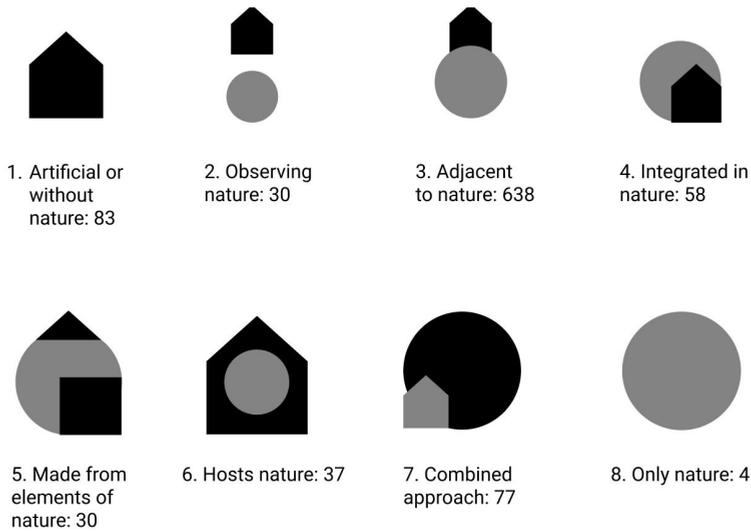
Fig. 6. Nature integration approaches.

Integration of architecture and nature in tourism requires balancing aesthetics, functionality, and ecological sensitivity. Each landform presents specific challenges (snow and wind in mountains, flooding in valleys, or ecosystem impact on plateaus) demanding resilient and responsible design. Sustainable planning, ongoing maintenance, and sensitive integration of natural elements are essential for creating engaging visitor experiences while supporting ecological vitality and long-term business potential. Over time, architecture's role in nature tourism has shifted from providing access and basic infrastructure to actively shaping new destinations. Beyond visitor centres and trails, contemporary projects now create immersive environments in previously undeveloped areas, blending with landscapes to broaden accessibility and enrich tourism experiences.

1.3. Industry shift and emerging trends in nature tourism architecture

Starting with a specific illustration, Iceland is a prime example of a natural destination with valuable biomes and fragile natural ecosystems that are in need of protection. The country's unique and diverse landscapes, including its glaciers, volcanoes, and geothermal hot springs, are among its most valuable natural assets. These ecosystems are also fragile and vulnerable to the impacts of human activity, pollution and overtourism. One way in which Iceland is addressing the challenges of protecting its natural ecosystems is through the creation of new human-made nature-based destinations. These destinations provide visitors with unique and immersive experiences that allow them to connect with nature in meaningful ways, while also minimizing the negative impacts of tourism on the environment. A growing trend in Iceland is the creation of nature-based experiences near existing urban centres. This allows visitors to experience the country's natural beauty without having to travel long distances, while also minimizing the environmental impact of tourism. The city of Reykjavik is home to several nature-based experiences: whale watching tours, birdwatching excursions, and geothermal baths, which allow visitors to experience the country's natural beauty without having to leave the city. Iceland's approach to protecting its natural ecosystems through the creation of new

human-made nature-based destinations is an effective strategy that allows the country to balance the needs of its natural environment with the economic benefits of tourism. Creating unique and immersive nature-based experiences near existing urban centres, Iceland offers its visitors memorable and enriching experiences while minimizing the negative impacts of tourism on the environment. The ability of a given region to attract new nature tourists can be influenced by a range of factors, including the natural and cultural attractions of the area, the availability of infrastructure and support services, and the level of competition from other destinations. In a more general sense, globally, the landscape of nature tourism is undergoing a significant transformation, shifting from traditional, remote natural destinations to city-based nature experiences. This evolution is driven by several interrelated factors, including the increasing urbanization of populations, environmental concerns, accessibility challenges, and the growing demand for convenience in travel. As more people reside in urban centres, the practicality of traveling to distant natural sites diminishes due to time constraints and environmental impacts associated with long-distance travel. Strict environmental protection laws are limiting access to fragile ecosystems, necessitating innovative approaches to nature tourism that balance conservation and visitor engagement.

   User feedback from various destinations underscores the importance of this shift. Positive experiences are often linked to visually striking architecture, cultural significance, and unique, memorable vistas. As mentioned in the previous chapter, destinations like Casapueblo and Göreme National Park receive acclaim for their aesthetic appeal and heritage value. Conversely, negative feedback highlights issues related to overcrowding, difficult access, and high costs, which detract from the overall experience. This contrast emphasizes the need for destinations to provide enriching sensory and emotional experiences while addressing practical concerns of accessibility and comfort [48].

Fig. 7. Case study map of experiential nature tourism architecture.

   Regional differences play a crucial role in a destination's ability to attract nature tourists. Factors, including the inherent natural and cultural attractions, the level of infrastructure, and the competitive landscape, influence visitor numbers. Regions rich in unique natural features and cultural heritage can draw tourists, but without adequate infrastructure and services, they often struggle to provide a satisfying experience. Areas with well-developed tourism infrastructure can better accommodate visitors but must differentiate themselves to stand out in a competitive market. The case study of Iceland exemplifies how destinations can adapt to changing dynamics. By developing human-made, nature-based attractions near urban centers, Iceland offers immersive experiences while keeping nature safe. This approach mitigates

environmental impact and enhances accessibility for a broader range of tourists, including those with mobility issues or limited time. Growing customer demand for sustainable and engaging urban nature experiences caters to the evolving needs of modern travellers. Integration of natural elements within urban settings and leveraging innovative architectural design can provide meaningful connections to nature and preserve authentic natural sites for conservation and specialized use by researchers and dedicated nature enthusiasts. This balance ensures that the economic benefits of tourism do not come at the expense of environmental integrity, paving the way for a more sustainable and inclusive nature tourism industry.

Observing user feedback from data collected during research shows positive feedback from various destinations and often highlights specific recurring features that enhance visitors' experiences. Aforementioned destinations, such as Casapueblo, are frequently praised for their beautiful sunsets, cleanliness, and rich architecture. Similarly, Göreme National Park is noted for its stunning architecture and the UNESCO heritage recognition, drawing attention to its cultural significance. Many natural and remote destinations, Mount Fanjing and Phugtal Monastery, receive positive mentions for their breathtaking views and the unforgettable experiences they offer, underscoring the importance of unique, memorable vistas in positive feedback.
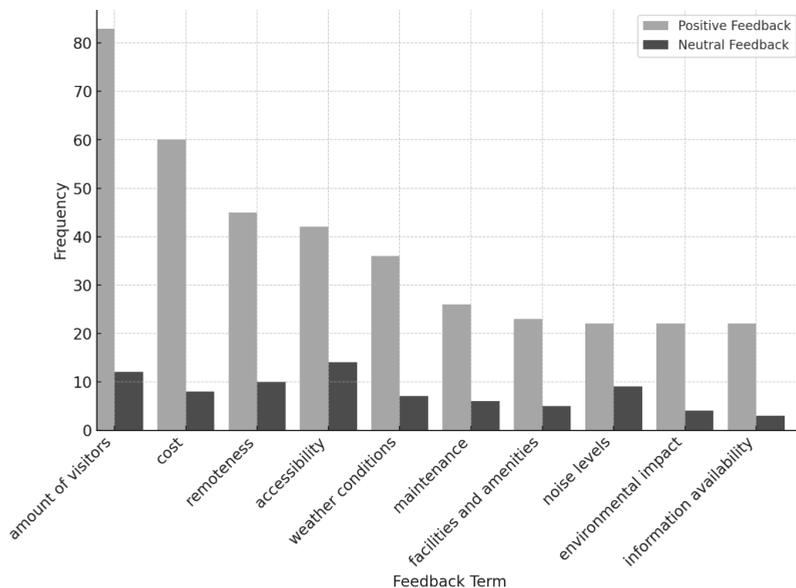
Chart 3. Comparison of positive and neutral feedback terms for nature tourism destinations.

The comparison between positive and negative feedback terms (Chart 3) reveals a clear distinction between what visitors value and what detracts from their experience. Positive feedback involving terms "views," "architecture," and "unforgettable experience" often highlights the visual appeal and unique, memorable aspects of destinations, showcasing the importance of natural beauty and cultural significance in creating positive impressions. In contrast, negative feedback terms such as "crowded," "difficult access," and "expensive" point to logistical and comfort-related issues that can frustrate visitors. While the positive feedback focuses on the sensory and emotional impact of the location, negative feedback typically addresses more practical concerns, accessibility, cost, and maintenance. This comparison

underscores the balance needed between providing a visually and culturally enriching experience while ensuring comfort and convenience for tourists.

Destinations receive critique regarding accessibility, commercial crowding, or preservation. Stunning places like Mount Fanjing can struggle with being overtouristed, detracting from the serene experience many visitors expect after being exposed to marketing materials emphasizing serene fantasy. Across the board, keywords associated with views, architecture and heritage are frequently linked to praise and criticisms, reflecting the balance between maintaining authenticity and accommodating visitors. There can be significant regional differences in the ability of nature tourism destinations to attract new visitors. These differences are influenced by factors such as the natural and cultural attractions of the area, the level of infrastructure and support services available, and the level of competition from other destinations. In some regions, the natural attractions and cultural heritage of the area can be a major draw for nature tourists. For example, a region with a rich history, abundant wildlife, and unique natural features, like national parks or natural landmarks, may be highly attractive to nature tourists. In other regions, the availability of infrastructure, support services, accommodation, transportation, and guide services can be a major factor in attracting new visitors. A region with well-developed tourism infrastructure, roads, airports, and visitor centers, will be able to adequately accommodate and support a larger group of nature tourists.

Like all limitations, the growing influence of nature protection laws can drive innovation in creating new experiences. Impact varies by region. The level of competition from other nature tourism destinations can also influence the ability of a region to attract new nature tourists. In some cases, a region can be part of a larger tourism area, where there are many nature tourism destinations competing for visitors. In this situation, a region needs to differentiate itself to attract new visitors by offering unique natural attractions or cultural experiences. A region with few competitors can to attract visitors by promoting the natural attractions and support services available. More developed countries are attracting more nature tourists with built environments as opposed to a limited number of authentic natural destinations, the current trends point towards the nature tourism industry shifting toward city-based nature tourism. Nowadays, more people than ever live in urban centers, so travelling to remote nature destinations outside of cities becomes less practical, time-consuming, and environmentally harmful. Additionally, growing environmental pressure is leading to increased restrictions on travel, which is forcing the industry to adapt and find new solutions – city-based nature tourism, which allows people to enjoy the benefits of nature without the need for long-distance travel. Notably, cities also seem to offer better access to investment and improved accessibility for people with disabilities or mobility issues. As a result, the future of nature tourism architecture is likely to focus on creating new marketable and accessible urban nature destinations that can provide visitors with a sense of connection to nature, while also addressing the challenges posed by growing environmental pressure, leaving authentic destinations for trained nature lovers, researchers, and advanced educated consumers.

2. ROLE OF EXPERIENCE IN NATURE TOURISM ARCHITECTURE

The role of immersive experience in nature tourism architecture is closely tied to how spatial design shapes human engagement with natural environments. Architectural elements, sensory integration, material choices, and responsiveness to local climate conditions contribute to how visitors perceive and connect with the landscape. As nature tourism evolves toward deeper forms of engagement, the built environment serves as a mediator between the visitor and the ecological context. Examining how climate, materiality, and sensory design inform these environments helps clarify the architectural strategies that support experiential connections to place [26], [48], [64].

2.1. Immersive environments in nature tourism: The role of story, climate and materiality

Immersive environments in nature tourism play a crucial role in connecting visitors to nature through sensory experiences. Using architecture, materiality, and a calculated relationship with the local environment, nature tourism destinations can be designed to engage multiple senses and create a feeling of immersion, featuring buildings made from locally sourced materials that blend seamlessly into the surrounding landscape or walking paths that take visitors through a variety of ecosystems and habitats. The design of these environments can be planned to incorporate sensory experiences, the sound of a nearby river or the smell of wildflowers in bloom, thus engaging the senses, enhancing the visitor experience and fostering a deeper connection to nature [5], [23], [55].

In this Thesis, climate zones have been adapted from the industry-standard Köppen climate classification system. The Köppen climate classification system is used by meteorologists and climatologists to describe and understand the Earth's various climate zones. For clarification and better adaptability, some of the climate zones have been combined for easier comprehension and distinction for architectural purposes, focusing on organization system based on the characteristics of temperature and precipitation, rather than using the specific Köppen classification codes [12]. In tropical climate zones, high temperatures and high humidity can create a sense of warmth and moisture, which can be enhanced using materials and design elements that promote airflow and ventilation. In polar climate zones, cold temperatures can create a sense of starkness and isolation, which can be used to create immersive experiences using materials and design elements that promote warmth and shelter. In addition to the direct effects of climate on sensory experiences, climate can also influence the types of natural elements and landforms that are present in each region. In tropical climate zones, lush vegetation and diverse wildlife are more prevalent, while in polar climate zones, ice and snow will dominate the landscape. In addition to the direct effects of climate on sensory experiences, climate can also influence the types of natural elements and landforms that are present in each region. Designing for specific climate zones can present several challenges and considerations. In some cases, the climate conditions of a given region can be extreme or unpredictable, requiring designers to consider the durability and adaptability of materials and design elements. In addition to these practical considerations, architects and designers must also consider the sustainability and conservation of local ecosystems when designing for specific climate zones. This involves the use of materials and design elements that are sourced locally or that have a low impact on the environment, as well as the incorporation of features that promote the conservation of local flora and fauna [44], [46], [47].

Climate strongly shapes nature tourism architecture, influencing design strategies across polar, temperate, dry, tropical, marine, and highland zones. In polar regions, insulation, durable materials, and minimal footprints address extreme cold and permafrost, as seen in projects like The 7th Room (Snøhetta) in Sweden. Temperate climates allow versatile approaches, from Cappadocia's rock-cut dwellings in Turkey to China's Mount Fanjing temples, which balance comfort with environmental integration. Dry climates demand water-conscious, heat-mitigating designs, demonstrated in Peru's Choquequilla terraces and contemporary resorts. Tropical climates emphasize ventilation, rain protection, and ecological harmony, evident in Geoffrey Bawa's Kandalama Hotel in Sri Lanka and Tanzania's Manta Resort. Marine climates require resistance to dampness and salt, with examples like Denmark's Camp Adventure Tower and Kahn's Salk Institute in California showcasing durability combined with openness to ocean views. Highland regions challenge designers with altitude, wind, and cold. Phugtal Monastery in India, the Bunker in Montana, and Slovenia's Bivouac Shelter highlight solutions ranging from traditional cliff-carved dwellings to prefabricated shelters. From the collected data, temperate climates dominate (293 cases), followed by marine (219), dry (81), tropical (67), polar (58), and highland (27) (Chart 4). Each climate-landscape pairing demands unique architectural adaptations, insulation, shading, ventilation, or elevation, ensuring resilience while enhancing experiential tourism. Seasonal changes further shape activities and visitor experiences, reinforcing the interdependence of climate, architecture, and nature-based tourism.
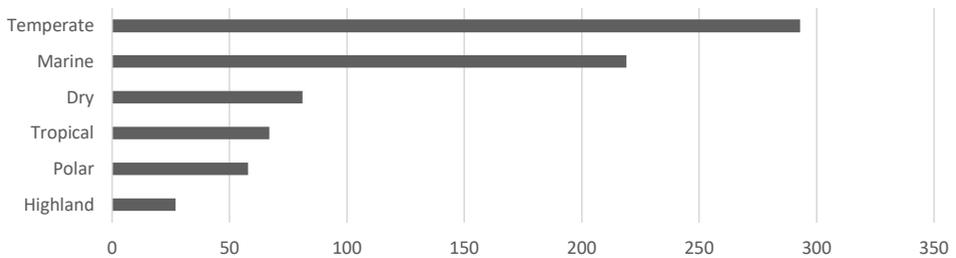
Chart 4. List of climate zones featured on selected destinations.

Materiality plays a central role in shaping immersive nature tourism experiences. Natural materials, wood, stone, bamboo, and earth are most common (348 mentions), fostering a sense of place and connection to the landscape, as seen in projects by La Cabane Perchée, Bourgeois Lechasseur, and Saunders Architecture. Processed natural materials, concrete, adobe, or plywood (166 mentions) allow minimalist yet context-sensitive designs, exemplified by Studio MK27, metals like steel or corten (89 mentions) introduce resilience and modernity, blending with natural tones over time (Olson Kundig, Gracia Studio). Glass and fiberglass (17 mentions) emphasize transparency, light, and openness, used by Leapfactory and Pirinen & Salo to merge architecture with panoramic views. Sustainable and recycled materials (17 mentions), including bioplastics and hemp bricks, highlight ecological responsibility, appealing to eco-conscious visitors (Antony Gibbon, Practice Architecture). Material choices are closely linked to climate: tropical settings favour open, ventilated structures, while polar regions demand insulation and energy efficiency. Across all zones, locally sourced, climate-appropriate materials enhance sensory immersion and reinforce the bond between architecture and the natural environment.

Table 1

List of Material Types in Selected Destinations (Created by M. Babris)

Material Type	Examples	Count
Natural materials	Earth, volcanic rock, stone, wood, bamboo, brick, local rock, sandstone, granite, limestone	348
Processed natural materials	Concrete, cement, adobe block, burnt larch wood, plaster, glulam, OSB, plywood, thermowood	166
Metals	Metal, aluminium, steel, corten steel, stainless steel, galvanised steel, iron	89
Glass and modern materials	Mirrored glass, glass, fiberglass, ETFE, smart glass, thermal glass, polyester	17
Sustainable and recycled materials	Recycled wood, bio-plastic, recycled soda bottles, hemp bricks, recycled materials	11

Materiality plays a crucial role in shaping the function and aesthetic of architectural spaces, significantly influencing how visitors perceive and experience a structure. As seen in the dataset in Table 1, the role of experience in modern nature tourism architecture has become central, with increasing emphasis on creating immersive, multisensory environments. Sound, light, scent, and the use of natural materials, wood, stone, and clay enhance visitor connection to place, while technologies like virtual and augmented reality expand opportunities for exploration. Beyond design, experiential marketing, including storytelling and social media, supports the promotion of unique, engaging environments, positioning experience as a design principle and a driver of destination appeal. Interaction between climate, architecture, and materiality shapes the immersive qualities of nature tourism destinations. By creating spaces that are attuned to their environmental context, architects and designers can foster a deeper connection between visitors and nature, enhancing the environmental sustainability of these destinations and the overall visitor experience.

2.2. Designing for experiences to connect with the local environments

The sensory experiences in popular local environments are shaped by the unique combination of natural elements and their influence on the visitor's perception. For instance, coastal environments, like the project at Cabot Shores in Nova Scotia, designed by Paul Hawman, provide an immersive experience defined by the rhythmic sounds of the ocean, the scent of salty sea air, and the tactile feel of soft sand or rugged coastal rocks. This environment fosters a sense of openness and tranquillity, making it ideal for activities like beach exploration or kayaking, where the sensory elements heighten the experience. In forested environments, such as Baumraum's Treehouse in Germany, designed by Andreas Wenning, the sights, smells, and sounds of dense foliage create a feeling of being enveloped by nature. Visitors here engage with the earthy scent of wet leaves, the sound of rustling trees, and the vibrant greenery. The experience is calming and lively, drawing tourists into the depths of the forest for hiking, wildlife observation, or simply enjoying the serenity of the woods. Mountainous environments offer a starkly different sensory experience, as seen in Zinc House in Norway, designed by Carl-Viggo Hølmebakk. The visual landscapes of towering peaks, the crisp, cool air, and the tactile interaction with rocky paths and steep terrain evoke feelings of adventure and awe, ideal for

activities like trekking or climbing, where the challenges of the terrain enhance the physical and emotional engagement with the surroundings [11], [66].

The interaction between sensory experiences and local environments plays a crucial role in shaping how travellers perceive and connect with natural landscapes. Each environment offers a distinct combination of sights, sounds, smells, and textures that collectively define a visitor's experience. In nature-based tourism, the richness of these sensory inputs enhances the immersion, making the experience memorable and transformative. Sight is often the first and most impactful sense engaged in nature tourism. The visual diversity of different environments, from towering mountains to serene beaches, dense forests to vast deserts, creates a lasting impression impacted by the colours, forms, and scale of a landscape. The vibrant greenery of a tropical rainforest or the sweeping vista of a coastal region offers a dynamic visual experience that can draw visitors into the environment. Each environment has its own soundscape, which can significantly impact a visitor's experience. The rustling of leaves in a forest, the crashing of waves on a shore, or the silence of a remote desert all contribute to the immersive quality of nature. Soundscapes also communicate important information about the ecosystem, the presence of wildlife or changing weather conditions. Bird calls and flowing rivers can enhance the sense of serenity in a woodland setting, while the sounds of wind across a desert or the call of distant wildlife can add to the feeling of isolation in arid landscapes [19].

Smell is closely linked to memory and emotion, making it a powerful component of nature-based tourism. Different local environments offer distinctive smells that can deepen the sensory experience. In coastal environments, the scent of saltwater and marine life can evoke a feeling of freedom and openness, while in a forest, the earthy smell of moss, pine, or wildflowers brings a sense of freshness and life. These olfactory experiences can transport visitors back to specific moments, making their connection to the place more personal and emotional [14]. The tactile experience involves physical interaction with the environment, whether through touch or movement. Walking barefoot on soft sand, feeling the rough bark of a tree, or the cool spray of a waterfall creates a deeper sensory engagement. These tactile moments allow tourists to form a direct, physical connection with the environment, enhancing their sense of presence and grounding them in nature. The Treetop Walk in Germany's Black Forest illustrates how immersive sensory experiences can strengthen connections to place. Its 1250-meter wooden walkway, rising up to 20 meters and culminating in a 40-meter tower, engages visitors through touch, scent, sound, and sight while ensuring accessibility with a gentle gradient. During the author's visit in March 2025, the integration of sensory design and inclusivity demonstrated how built environments can foster meaningful engagement with nature. More broadly, nature-based tourism architecture is shaped by location, activities, and accessibility. Landscape, climate, and topography dictate design choices, while proximity to water or forest informs opportunities for immersion or recreation. Human interaction is central: design ranges from minimalist cabins in remote settings to larger structures in high-traffic sites, with accessibility ensuring inclusivity for all visitors. Hiking, kayaking, or wellness retreats influence materials and forms, from portable lightweight solutions for adventure tourism to organic wood and stone for calming environments. Sensory elements, waves at the coast, and pine scents in forests deepen immersion and make experiences memorable. Architecture in this context must balance functionality, sustainability, and aesthetic sensitivity to enhance visitor experiences while respecting natural surroundings. The developed organizational chart visualizes these principles, dividing them into interconnected branches of location-oriented elements such as landscape, climate, environment, and topography. These categories demonstrate how natural settings shape architectural form and function, ensuring environmental harmony and meaningful visitor engagement.

Analysis of interaction modifiers shows that most nature tourism destinations prioritize sustainability and low human impact, with 331 low-impact sites compared to 273 medium, 174

high, and 52 minimal impact cases. Accessibility remains uneven: stairs dominate (394), while ramps (24) and elevators (16) are rare, highlighting limited inclusivity. Private destinations (438) far outweigh high-intensity (43) or overtourism (16) sites, and time-based pricing (290) leads monetisation models. Amenities like toilets (319), kitchens (300), and bedrooms (285) are common, while luxury features are less frequent, reflecting a preference for comfort without excess. Integration is most often adjacent to nature (638), especially in plains (344), hills (213), and coastal areas (181), with forests (313) and urban contexts (151) as leading landscapes. Temperate (293) and marine (219) climates dominate, while facilities cluster near towns (150), forests (124), or mountains (131), balancing access with immersion. Materials are led by wood (323), followed by concrete (173) and metal (115), with recycled options rare (3). Accommodation is central, including hotels (137), holiday homes (100), and cabins (171), complemented by tree houses (68) and villas (47). Design principles emphasize clarity and rhythm, white space (263), pattern (257), and symmetry (246) with variation through contrast (193) and colour (137). Activities range from exploration (56) and hiking (52) to swimming (31) and kayaking (8), supported by lightweight shelters, lakeside decks, or water access points. Wellness and relaxation, skygazing (28) and saunas (27), favour enclosed, wood-based spaces, while creative and cultural activities, sightseeing (49), education (19), or museums (19) require interpretive infrastructure and context-sensitive design. Together, these findings indicate that architecture in nature tourism prioritizes low-impact, semi-private, and experience-driven environments, balancing functionality, immersion, and sustainability.

The experiential chart demonstrates that nature-based tourism architecture responds simultaneously to environmental context and visitor activities, emphasizing the interdependence of place, activity, and design. In active destinations, where hiking, climbing, or water sports dominate, structures are minimal, lightweight, and often prefabricated, using natural or recycled materials to blend with ecosystems while maintaining portability and low impact, an approach seen in projects by Bjarke Ingels Group. Wellness-oriented destinations, saunas, spas, or meditation retreats, employ organic forms and warm materials like wood and stone to create calming environments. In contrast, cultural and educational sites adopt more monumental forms, prioritizing accessibility, storytelling, and public engagement. Here, principles like symmetry and repetition are common, with firms like MAD Architects integrating cultural significance and environmental awareness into large-scale designs. Together, these variations underscore how architectural strategies adapt to activity type, ensuring that destinations enrich visitor experience and preserve their natural setting.

LOCATION ORIENTED — NATURE-BASED EXPERIENCES: — ARCHITECTURAL ELEMENTS

DEFINED BY ACTIVITY

INTERACTION MODIFIERS

ARCHITECTURAL ELEMENTS

Use of Materials
Wood – 323
Metal – 115
Concrete – 173
Glass – 69
Rock, stone – 51
Natural materials – 41
Composite materials – 41
Other materials – 28
Masonry – 26
Fabric / leather – 25
Recycled materials – 3

Building type
Cabin – 171
Traditional house – 153
Tree house – 68
Villa – 47
Community building – 23
House complex – 21
Sauna – 20
Tower – 19
Dome – 15
Prefab house – 15
Tent – 12
Shelter – 9
Ghost Town – 8
Apartment building – 8

Design principles used
White space – 263
Pattern – 257
Symmetry – 246
Repetition – 236
Contrast – 193
Colour – 137
Rhythm – 78
Asymmetry – 68
Variety – 50
Unity – 48
Sculpting – 47
Cluster – 38
Organic – 31
Utilitarian – 23

Defined by Function
Accommodation – 210
Hotel – 137
Holiday home – 100
Airbnb – 41
Tourist attraction – 44
Community – 27
Religious building – 23
Sauna – 25
Viewpoint – 21
Resting place – 20
Museum – 23
Guest House – 14
Restaurant – 22

Natural features
Plains – 131
Slope – 116
Coast/river bank – 75
Residential area – 61
Forest – 51
On water – 43
Clump of trees – 33
Cliff – 34

Local environment
City/town – 150
Forest – 124
Mountain/hill – 131
Woodland – 100
Coastal – 80
Plains – 72
Water related – 74
Suburban – 64

Climate
Temperate – 293
Marine – 219
Dry – 81
Tropical – 67
Polar – 57
Highland – 27

Landscape
Forest – 313
Urban – 151
Mountain – 117
Human altered – 83
Coastal – 67
Desert – 47
Island – 1
Lakes/rivers – 21

Bodies of water
Distant – 456
Lake – 129
Sea – 120
Oceans – 66
Rivers – 65
Not applicable – 82
Canal – 21
Streams – 12

Topography
Plains – 344
Hills – 213
Coastal – 181
Mountains – 66
Plateaus – 30
Escarpments – 24
Valleys – 7

Integration
Adjacent to nature – 638
Artificial nature – 84
Combined approach – 77
Distanced from nature – 30
Hosts nature – 37
From nature – 30
Integrated in nature – 58
Only nature – 4

Human impact level
Low human impact – 331
Medium human impact – 273
High human impact – 174
Minimal impact – 52

Accessibility features
Stairs – 394
Raised entrance – 85
Ladder – 46
Narrow spaces – 25
Ramp – 24
Elevator/lift – 16
Footbridge – 11
By boat – 10
Escalator – 2
Zip line – 2
Electric indoor transport – 1
Slide exit – 1

Tourism intensity
Private – 438
Low – 116
Medium – 114
High – 43
Overtourism – 16

Monetisation model
Time based pricing – 290
Admission fee – 123
Government grants – 50
Pay-per-activity – 48
Educational programs – 35
Food and beverage sales – 34
Retail sales – 33
Corporate or group events – 23

Amenities
Indoor toilet – 319
Kitchen – 300
Bedroom – 285
Shower – 274
Balcony – 157
Indoor fireplace – 141
Pool – 94
Bathroom – 79
Living room – 71
Wi-fi – 61
TV – 59
Sauna – 54
Air conditioning – 44

WC type
Private WC – 433
Shared WC – 174

WC location
WC inside – 376
WC outside – 177

DEFINED BY ACTIVITY

Cultural and educational activities
Sightseeing – 49
Education – 19
Museums – 19
Fishing – 16
Culinary – 16
Meditating – 9
Religious – 9
Photography – 6

Social and leisure activities
Festival and Events – 6
Weddings – 3
Board games – 2
Escape rooms – 1
Darts – 1

Creative activities
Art making – 11
Painting – 1
Pottery making – 1
Embroidery – 1

Relaxation and wellness
Skygazing – 28
Sauna – 27
Playing – 11
SPA – 6
Gardening – 3
Massage – 3
Playing – 13

Adventure and outdoor activities
Exploration – 56
Hiking – 52
Bike riding – 12
Kayaking – 8
Sailing – 4
Bird watching – 3
Diving – 3
Air-balloons – 3

Sports and physical activities
Swimming – 31
Skiing – 13
Horse riding – 9
Mountain biking – 5
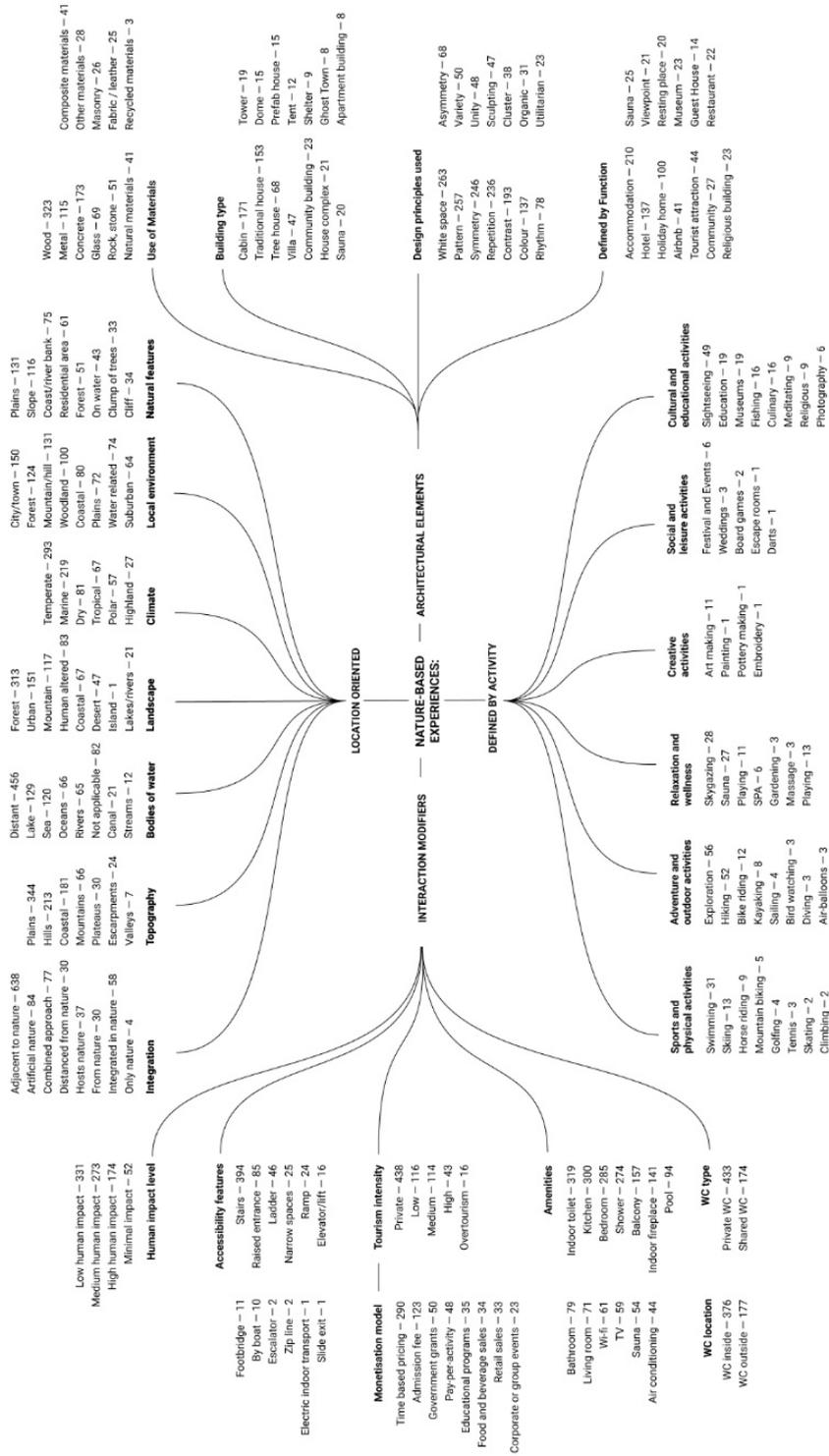Golfing – 4
Tennis – 3
Skating – 2
Climbing – 2

Fig. 8. Experiential map of nature tourism synthesis with location, architectural elements, activities and interaction modifiers.

Landscape context directly shapes architectural responses in nature tourism. City-edge environments (150; 18 %) dominate, requiring transitional forms that blend urban infrastructure with natural aesthetics. Mountain/hill (131; 15.7 %) and forest (124; 14.9 %) sites emphasize elevated platforms, cantilevering, and modularity to preserve terrain and vegetation, while woodlands (100; 12 %) demand spacing to protect root systems. Coastal (80; 9.6 %) and water-related (74; 8.9 %) destinations call for moisture- and salt-resistant materials with open designs maximizing views, whereas plains (72; 8.6 %) allow dispersed, horizontal layouts. Suburban (64; 7.7 %) and desert (40; 4.8 %) contexts prioritize shading, ventilation, and compact forms for thermal comfort. Across all settings, architecture adapts to topography and ecology, balancing resilience, minimal impact, and immersive visitor experience (Chart 5).
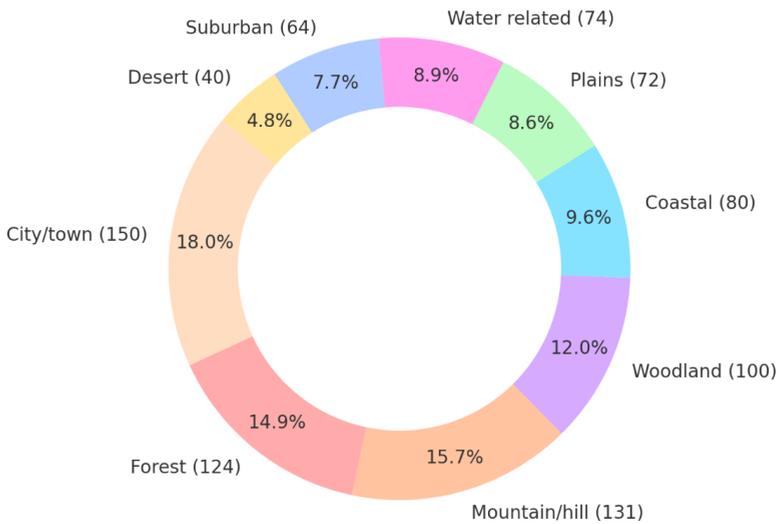
Chart 5. Distribution of local environment types (4 % and above).

The use of sensory experiences in nature tourism can enhance the visitor experience and deepen their connection nature. Experiences are a combination of several criteria, destination, activity, weather and local community-based activities. The chart of local environments highlights only categories exceeding 4 % of the total distribution, focusing on the most significant settings in nature tourism. Forests, mountains, and coastal areas dominate, offering immersive qualities that attract the largest visitor numbers and support diverse outdoor activities. These environments rely heavily on sensory engagement, sight, sound, touch, taste, and smell to enhance enjoyment and deepen immersion, while also serving educational purposes by revealing the unique ecological and cultural features of each destination.

2.3. Impact of marketing optimised architecture on nature tourist attraction

Nature tourism and experiential marketing are closely related, as both focus on creating engaging, immersive experiences for visitors. Experiential marketing is a form of marketing that involves creating interactive, hands-on experiences that allow consumers to engage with a brand or product on a deeper level. In the context of nature tourism, experiential marketing is

utilised to create unique, engaging experiences that allow visitors to connect with nature in a meaningful way. For example, a nature tourism destination might offer guided hikes, birdwatching tours, or nature photography workshops that allow visitors to learn about and engage with the local environment. By using experiential marketing techniques, nature tourism destinations can create memorable, enriching experiences that enhance the visitor experience and foster a deeper connection to nature. Marketing-oriented design allows architects to contribute to the branding and storytelling of the destination. By aligning the architectural design with the destination's brand identity and narrative, architects can reinforce the desired image and communicate the destination's essence to visitors. Through thoughtful design decisions, architects can evoke emotions, establish a sense of place, and create a cohesive and memorable experience that aligns with the destination's marketing strategy. Architects can collaborate with marketing professionals and destination stakeholders to ensure that the architectural design is effectively promoted to the target audience. By actively participating in marketing discussions and incorporating marketing materials into their design presentations, architects can contribute to the overall marketing efforts. This collaboration can enhance the visibility and appeal of the architectural design, attracting attention and interest from potential visitors. A marketing-oriented approach enables architects to demonstrate the value of their designs in the context of nature tourism. By aligning architectural design with market demands, architects can showcase their ability to create sustainable, immersive, and experiential environments that enhance the visitor experience. This positions architects and designers as crucial strategic partners in the development of nature tourism destinations and opens doors to further opportunities and collaborations within the industry [30], [61], [68].

A marketing-oriented approach in nature tourism architecture shows how design doubles as destination branding. La Cabane Perchée, with over 500 treehouses worldwide and 40+ examples, presented in Annex 7 of the full text of the Thesis, pioneered the "hospitality treehouse," turning elevated forest living into self-promoting, photogenic attractions. Saunders Architecture achieves a similar effect in remote landscapes, with projects like Aurland Outlook and Fogo Island Inn transforming rugged sites into architectural landmarks where minimalist forms frame dramatic scenery. Snøhetta creates globally recognizable attractions using contrasts between organic interiors and rigid shells to market wilderness as designed experiences. Olson Kundig designs cabins and resorts such as Gulf Islands Cabin and Bryce Canyon Resort, where glazing, framing, and siting turn architecture into experiential magnets for eco- and adventure tourists. MAD Architects employs futuristic, sculptural forms that make destinations instantly iconic, while Javier Senosiain's bio-architecture attracts visitors to organic, landscape-embedded projects positioned as living eco-tourism destinations. LUO Studio targets eco-conscious travellers with low-impact, recycled-material projects like Luotuowan Pergola, aligning design with ethical marketing narratives. MVRDV adapts urban contexts, transforming disused infrastructure into tourist attractions, reframing cities as experiential nature destinations. Jarmund/Vigsnæs (JVA) turn challenging terrains into marketing assets, evident in Svalbard Science Centre and Steinsdalsfossen Waterfall, where adaptation to snow, wind, and climate reinforces narratives of architectural mastery. Gracia Studio redefines desert tourism through minimalist steel-frame ecolofts like Hotel Endémico, marketed as refined, off-grid luxury embedded in harsh arid landscapes. Collectively, these practices illustrate how architectural design increasingly functions as a marketing tool shaping narratives, enhancing visual appeal, and transforming remote and urban landscapes into self-advertising nature tourism destinations.

Building upon the concept of marketing-optimized architecture in nature tourism, Disney parks serve as a quintessential case study of how immersive, experience-oriented design can transform outdoor destinations into global attractions. Disney seamlessly integrates architectural elements with storytelling to create environments where every structure, pathway,

and landscape contributes to a cohesive narrative. This deliberate design strategy fulfils functional needs and enhances the marketability of the parks, making them compelling destinations for tourists seeking unique and memorable experiences. In contrast, Switzerland's marketing campaigns featuring Roger Federer leverage the country's authentic natural landscapes and cultural heritage without significant architectural intervention. By aligning with Federer's global appeal, Switzerland promotes its existing outdoor attractions, emphasizing genuine experiences in nature rather than engineered environments. This juxtaposition highlights two distinct approaches: Disney's creation of meticulously designed, narrative-rich spaces that rely heavily on architectural innovation to drive tourism, versus Switzerland's use of celebrity endorsement to amplify the allure of its natural beauty. Both strategies underscore the vital role of marketing in shaping tourist destinations, whether through the built environment or through the promotion of inherent natural assets [5], [67].

The role of experience in nature tourism is instrumental in crafting destinations that resonate with visitors on a deeper level. Disney parks illustrate how deliberate architectural design, intertwined with storytelling, can create immersive, experience-rich environments that become powerful marketing assets contributing to a cohesive narrative, enhancing the park's appeal and setting it apart in a competitive market. Switzerland's marketing campaigns featuring Roger Federer showcase how leveraging authentic natural landscapes and cultural heritage can attract tourists without extensive architectural intervention. By capitalizing on Federer's global recognition and the country's inherent beauty, Switzerland promotes genuine outdoor experiences that appeal to travellers seeking authenticity. These contrasting approaches highlight the critical role architects play in aligning design with marketing strategies through creating engineered, narrative-driven spaces or enhancing the allure of natural attractions. Embracing a marketing-oriented mindset enables architects to contribute significantly to a destination's branding and storytelling, ultimately enriching the visitor experience and ensuring the destination's success in the global tourism landscape.

The role of experience in nature tourism is central to shaping destinations that resonate with visitors and strengthen marketing impact. Disney parks demonstrate how storytelling and architecture merge to create immersive, branded environments, while Switzerland's campaigns with Roger Federer highlight the power of authentic landscapes and cultural identity to attract tourists with minimal built intervention. These contrasts show how design can either construct narrative-driven spaces or amplify natural appeal, positioning architecture as a tool for destination branding. A marketing-oriented approach allows architects to align projects with visitor expectations through market research, ensuring that design choices, whether materials, cultural integration, or experiential features, serve functional needs and promotional goals. By embedding unique selling points into the built environment, architecture becomes a differentiating factor in a competitive market, enhancing engagement, satisfaction, and long-term success of nature-based tourism destinations.

3. INNOVATIVE APPROACHES IN DEVELOPING NATURE TOURISM DESTINATIONS

To assess the impact of innovations in nature tourism, this research adapts Altschuler's innovation evaluation approach, emphasizing novelty, feasibility, commercialization potential, and environmental and social impact. Complemented by TRIZ methodology, which evaluates problem-solving capacity and competitiveness, the combined system enables a holistic assessment of innovation capacity across destinations. Global perspectives, OECD reports, further contextualize innovation by mapping international influence and investment potential. Transformation in nature tourism architecture is increasingly shaped by technological integration, VR and AR for immersive experiences alongside sustainable practices using natural materials and energy-efficient methods. Equally important is community involvement, ensuring local perspectives inform design and development [6], [16], [24], [35], [58].

3.1. Role of workshops and community engagement in creating successful nature tourism products

Community engagement is central to developing successful experiential nature tourism destinations. Involving residents in planning and management ensures responsiveness to community needs, supports local economies, and fosters ownership that strengthens conservation and long-term sustainability. Engagement can occur through consultations, surveys and focus groups or through partnerships with local organizations, businesses, and artisans, aligning tourism activities with cultural values and environmental priorities. Examples include collaborations with conservation groups to create interpretive trails or with local craftspeople to develop culturally rooted products, demonstrating how community involvement enriches visitor experience and regional development. Community-driven initiatives play a significant role in experiential nature tourism. Trail angels exemplify grassroots support, providing food, lodging, or transport for long-distance hikers, while local groups and non-profits often create and maintain community trails, fostering outdoor recreation and stewardship. Eco-tourism programs further embed sustainability, supporting local businesses, protecting habitats, and promoting responsible visitor behaviour. The author's experience with EU long-distance hiking projects highlights how community groups along trails strengthen engagement and conservation. The Michinoku Trail *in* Japan (1200 km) illustrates these principles internationally: residents and businesses provide lodging, meals, guidance, and discounts, ensuring visitor support and economic benefit, demonstrating how integrating community engagement into trail management sustains local economies and deepens visitor connection to landscapes and promotes long-term conservation [21], [45].

Nature tourism workshops in Latvia illustrate how community engagement and innovative planning methodologies can drive sustainable tourism development. Using tools such as idea workouts and associative thinking and organized workshops during the research period fostered creativity and interdisciplinary collaboration among residents, professionals, and institutions. Latvia was chosen as a case study due to its strong traditions of community involvement, rich natural resources, and strategic focus on sustainable tourism, with the author's local knowledge enabling culturally attuned application of international insights. The workshops demonstrated how cross-disciplinary cooperation and active municipal support can generate tourism products that are innovative and responsive to community needs. Their proliferation reflects Latvia's proactive commitment to education, collaboration, and sustainable growth, reinforcing the role of participatory approaches in creating tourism

experiences that balance economic development, social cohesion, and environmental conservation (Fig. 9).

Fig. 9. Yoga experience in Festival LAMPA, Cēsis, Latvia (Photo by the author).

Nature tourism workshops contribute to tourism offerings that are responsive to local needs and interests. This approach can enrich the visitor experience and promote economic growth, social cohesion, and environmental conservation within Latvian communities. The extensive occurrence of workshops highlights Latvia's proactive stance in harnessing collaborative innovation to advance sustainable nature tourism.

3.2. Use of technology in developing and enhancing nature tourism destinations

Technology increasingly enhances nature tourism by enriching visitor experiences and supporting biophilic design. Mobile apps and web platforms provide real-time maps, trail guides, and ecological information, while AR and VR create immersive interactions, from overlaying virtual data onto landscapes to simulating remote natural environments. Beyond education, advanced tools, remote sensing, and generative design enable precise mapping of vegetation and spatial conditions, ensuring that architectural interventions integrate harmoniously with natural surroundings. Technologies expand experiential and design possibilities, making tourism more engaging, informative, and environmentally responsive. Generative design allows for the creation of complex and dynamic designs that are informed by the principles of biophilic design. By using algorithms to generate and optimize design solutions, generative design can help architects and designers to create biophilic spaces that are efficient, functional, and aesthetically pleasing. The use of new technologies, remote sensing and generative design can inspire and aid biophilic design approaches by providing higher levels of detail and more precise spatial information. By accurately mapping the existing natural environment and using algorithms to generate optimized design solutions, these technologies can help to create biophilic spaces that are harmoniously integrated into the natural environment

and enhance the overall visitor experience. This approach has been frequently used by the author in outdoor projects like Conversation Festival LAMPA (Fig. 11).

Additive manufacturing and 3D printing are emerging technologies that have the potential to revolutionize the design and construction of nature tourism destinations, allowing for the creation of custom solutions that are tailored to the specific needs and requirements of each project, making it possible to create unique and immersive experiences for visitors. One key benefit of additive manufacturing and 3D printing is their ability to create complex and dynamic designs that are not possible with traditional manufacturing methods. By using algorithms to generate and optimize design solutions, it is possible to create structures and environments that are aesthetically pleasing, functional, and efficient. This can lead to a higher level of engagement and immersion for visitors, enhancing the overall visitor experience. Another

Fig. 11. 3D model integrated in the site scan for Conversation Festival LAMPA 2025, Cēsis, Latvia (M. Babris, N. Predella).

benefit of additive manufacturing and 3D printing is their ability to reduce waste and promote sustainability. These technologies allow for the creation of custom solutions that are tailored to the specific needs and requirements of each project, minimizing the need for excess materials and reducing the environmental impact of construction. The use of additive manufacturing and 3D printing in the design and construction of nature tourism destinations has the potential to create unique and immersive experiences for visitors. These technologies can help to enhance the overall visitor experience and promote the health and vitality of the natural environment by allowing for the creation of complex and dynamic designs and promoting sustainability [31], [37], [40], [57].

Mapping and remote sensing enable destinations to offer enriched experiences to visitors while promoting sustainability and conservation. One of the primary applications of remote sensing in nature tourism is the creation of high-resolution maps using satellite imagery and aerial photography, offering intricate details of landscapes, including terrain features, vegetation types, water bodies, and wildlife habitats. Detailed mapping is essential for designing trails, planning infrastructure, and ensuring that tourist activities are well integrated

with the natural environment (Fig. 12). During the author's organised outdoor tours, several high-resolution maps were printed on up to 2-meter large posters with the ability to consult locals, mark down comments and research specific areas. In the Crossing Iceland expedition and during a follow-up expedition in Greenland, real-time satellite maps were used to validate snow cover, ice flows and possible crossing sites. The combination of advanced mapping technologies, remote sensing, and concrete 3D printing is transforming the way nature tourism destinations design and implement site-specific structures. It is possible to create objects that adapt to the unique characteristics of each destination and enhance the visitor experience by leveraging precise spatial data and innovative construction methods. Resulting data gathered from remote sensing made it possible to design a site-adapted 3D concrete printed sauna for public use near an environmentally sensitive winter swimming spot in Sigulda.

Fig. 12. Integrating Treehouse observation platforms in a 3D scanned environment at the guest house Spāre in Latvia, 2018 (M. Babris).

Sustainable energy solutions, solar panels and wind turbines are increasingly embedded in nature tourism destinations, reducing environmental impact and appealing to eco-conscious travellers. Technologies, including mapping, remote sensing, wearables, IoT sensors, and AI, enhance planning, personalization, and conservation, supporting immersive and sustainable visitor experiences. Integration must remain balanced with traditional practices and ecological preservation. The *Michinoku Trail* in Japan demonstrates how low-tech infrastructure and thoughtful design can effectively manage resources and enrich visitor experiences without overshadowing the natural setting. Technology in nature tourism should serve to complement and deepen connections with nature, ensuring that innovation enhances rather than detracts from the landscapes that attract visitors.

3.3. Monetisation and integration of sustainability principles in nature tourism development

The integration of sustainability principles is central to nature tourism development, ensuring destinations protect ecosystems while supporting local communities. Different monetisation models shape architectural responses. Time-based pricing, as used at Underhill (Vermont State Parks) and *La Cabane en l'Air*, requires spaces that encourage lingering through lounges or recreational areas, with dynamic rates balancing occupancy and revenue. Publicly funded structures, for example, Eastern and Western Bathing Resorts in Silkeborg, Denmark, demonstrate how government investment can prioritize sustainability and accessibility, using local materials, habitat impact assessments, and low-impact designs to align recreation with environmental stewardship. Pay-per-activity models, seen in Streetmekka Aalborg and

Zollverein Coal Mine, rely on modular, adaptable spaces with clear signage, supporting diverse user-specific experiences while fostering community interaction. By contrast, admission fee models offer simplicity through single-entry access but lack the flexibility of activity-based pricing. Across all models, architectural design, whether modular, minimalist, or experiential, serves operational needs and sustainability goals, ensuring nature tourism destinations remain economically viable, environmentally responsible, and visitor-oriented [17], [36].

Efficient crowd control enhances visitor experiences by minimizing wait times, preventing congestion, and ensuring smooth navigation. Admission fee models, like those at the Palace of Knossos in Crete, regulate access and support preservation and operations. As of April 2025, entry fees are €20 for adults and €8 for EU seniors, while EU citizens under 25 enter free. Revenue sustains conservation, while temporary closures during the 2023 "Kleon" heatwave demonstrated how admission policies can adapt to climate challenges. Similarly, House Attack and the Dubai Frame use admission fees to manage flow and maintain quality experiences. The Dubai Frame charges AED 50 for adults and AED 20 for children, with free entry for infants and people of determination. Its design, a golden-ratio frame with exhibitions, observation decks, and galleries, aligns architecture with tourism revenue, creating a self-sustaining attraction. In contrast, membership fee models provide a steady income for eco-friendly infrastructure, modular designs, and community-focused spaces. The National Trust in the UK exemplifies this approach, offering members exclusive access, reserved parking, and private tours across natural and cultural sites. Mount St. Michael extends this with specialized passes, including a "Locals' Pass" and "Mount Memories Pass," reinforcing community ties while ensuring long-term stewardship. Together, admission and membership models illustrate how financial structures directly shape architectural design, accessibility, and sustainability in nature tourism [9], [28].

Monetisation models in nature tourism directly shape architectural strategies and visitor experiences. Donation-based models rely on open, transparent spaces that align with site missions, encouraging emotional engagement and voluntary contributions, as seen in the Diane Middlebrook Studios and Freedom Cove, where design highlights sustainability and visible conservation work. Event-ticketed models, as those in Royal Botanic Gardens, Kew, demand flexible, multifunctional venues with efficient circulation to accommodate seasonal programming and enhance the natural setting through curated pathways and adaptive infrastructure. Retail-based income, exemplified by One Central Park in Sydney and the Michinoku Trail's vending machine network, integrates commerce seamlessly into visitor routes, combining convenience, cultural connection, and in some cases, disaster preparedness. Accommodation-driven revenues focus on immersive design, privacy, and comfort, with heritage-sensitive or eco-lodge typologies embedding visitors in the site's cultural or environmental character, as illustrated by stays near the Bobo Dioulasso Grand Mosque. Sponsorship models require careful balance: projects like Varden and Flake House show how partnerships can support maintenance and programming while maintaining authenticity through restrained branding. Across all models, architectural design is a financial enabler and an experiential mediator: time-based pricing emphasizes comfort and immersion, grants prioritize ecological stewardship, pay-per-activity requires modular adaptability, admissions rely on circulation efficiency, and memberships create exclusivity (Chart 6).
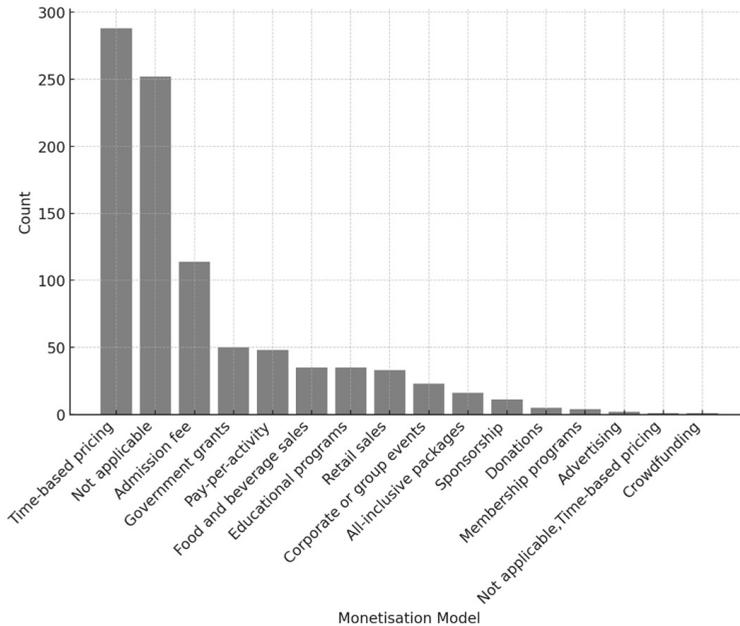
Chart 6. Primary monetisation models of selected nature tourism destinations.

Key principles of sustainable nature tourism development include conserving natural resources and engaging local communities. Conservation involves limiting harmful activities, pollution, overuse, or uncontrolled camping, while managing visitor numbers and enforcing regulations to protect ecosystems. Community engagement requires involving residents in planning and management, supporting local businesses, and using regional materials and labour in infrastructure development. One effective approach is the adaptive reuse of existing structures, where barns, warehouses, factories, or lighthouses are converted into tourist accommodations. These repurposed destinations minimize environmental impact, preserve cultural heritage, and generate economic benefits. Examples range from converted coastal lighthouses offering panoramic views to historic train stations reimagined as hotels, restaurants, or tourism centres. In Latvia, the former Ērgļi train station illustrates this model by hosting festivals and providing hospitality services, thereby preserving heritage while fostering local tourism economies. Responsible resource management underpins sustainability, requiring renewable energy use, waste reduction, and recycling initiatives. Long-distance trails and human-powered travel further exemplify low-impact practices. These trails, inherently carbon neutral, connect natural and cultural attractions while reducing reliance on carbon-emitting transport. They also support local economies, as hikers and cyclists often engage with small businesses in rural areas, while trail construction and maintenance create local employment opportunities. By combining conservation, adaptive reuse, resource efficiency, and low-carbon travel, sustainable nature tourism can balance environmental stewardship with economic and cultural vitality. During the COVID-19 pandemic, Airbnb adapted its strategy by emphasizing experiential marketing, particularly through the promotion of nature-based destinations. Recognizing the growing demand for escapism and relaxation, the platform highlighted treehouses, glamping sites, and secluded cabins, aligning with shifting consumer preferences. Unlike competitors like Booking.com, Airbnb differentiated its product by emphasizing immersive, personalized experiences and fostering connections between guests, hosts, and local

communities. This pivot not only capitalized on increased interest in nature tourism but also reinforced Airbnb's brand identity as a provider of unique, locally grounded stays, positioning the company effectively during a period of industry disruption [8], [38], [59].

Long-distance trails and human-powered travel contribute to global sustainability by promoting carbon-neutral mobility, supporting local businesses, and reducing reliance on carbon-intensive transport. Their development should follow a planning approach that engages local governments, businesses, and communities to ensure mutual benefits and economic opportunities. Offsetting emissions from construction and maintenance through carbon credits or renewable energy investment further reduces environmental impact. Sustainable monetisation models are equally important in securing long-term viability. Tiered pricing systems can regulate visitor flows, generate conservation funding, and prevent overcrowding. Eco-friendly accommodations, designed with renewable energy, water-saving technologies, and green building practices, attract environmentally conscious tourists willing to pay a premium, with revenues reinvested into conservation and community projects. Partnerships with local stakeholders ensure revenues circulate locally, from hiring guides to sourcing regional products, fostering economic resilience and environmental stewardship. Together, these strategies balance economic, ecological, and social goals, positioning long-distance trails and nature tourism destinations as engines of sustainable development. Adopting a "polluter pays" principle offers a sustainable monetisation pathway by charging higher fees for environmentally intensive activities, off-road driving or motorised water sports, with revenues directed toward mitigation and habitat rehabilitation. Technology further expands opportunities through digital platforms that sell virtual experiences, educational content, or facilitate global donations and crowdfunding for conservation. These models diversify income streams while strengthening visitor engagement with sustainability goals. More broadly, sustainable monetisation requires aligning economic development with ecological preservation and community well-being. Prioritising conservation, engaging local communities, and managing resources responsibly ensures that tourism supports environmental stewardship and local economies. Innovative practices, adaptive reuse of existing structures, including converted lighthouses or train stations, illustrate how destinations can minimise environmental impact while preserving cultural heritage and creating unique accommodations that enhance visitor experience. Together, these strategies reinforce the long-term viability of nature tourism by balancing revenue generation and ecological and social responsibility [20], [22].

The rise of long-distance trails and human-powered travel exemplifies a shift toward more sustainable, carbon-neutral tourism practices that benefit visitors and local businesses. Case studies like Airbnb's strategic pivot during the COVID-19 pandemic highlight the growing demand for nature-based and experiential travel options, demonstrating the industry's potential to adapt and thrive sustainably. Sustainable monetisation strategies, including tiered pricing systems, eco-friendly accommodations, community partnerships, and leveraging technology, are essential for balancing economic objectives with environmental stewardship. By adopting these practices, nature tourism destinations can ensure their viability for future generations, contributing to a more sustainable and equitable global tourism landscape. Embracing sustainability protects natural resources and enhances the overall value and appeal of nature tourism, creating lasting benefits for all stakeholders involved.

CONCLUSIONS

Nature tourism has evolved significantly, shifting from passive modes of sightseeing to participatory and experiential engagement. This transformation reflects broader societal changes in leisure expectations, where visitors seek meaningful, personal connections with natural environments. As a result, nature tourism infrastructure is increasingly designed to facilitate emotional, educational, and sensory experiences. Architectural planning must therefore accommodate smaller-scale, decentralized models that distribute visitor flows and encourage longer, more immersive stays, mitigating overtourism. The built environment plays a crucial role in shaping nature tourism by integrating natural elements such as topography, water bodies, and vegetation. Purpose-built architectural features can improve immersion and sustain visitor interest while minimizing ecological disruption.

The degree to which experiential nature tourism architecture can engage with the landscape varies widely, from isolated buildings inserted into the scenery to projects that are physically and conceptually embedded within natural systems. While many developments remain adjacent to nature, higher-impact experiences and ecological benefits are found where design is carefully integrated with topography, materials, and ecological processes, demanding a nuanced design process to avoid commodification or environmental degradation. The architectural challenge is achieving a balance between visibility, utility, and harmony with the environment. The effectiveness of nature tourism destinations depends on their ability to create immersive experiential environments that engage multiple senses. The choice of materials, climate-responsive design, and integration of storytelling elements can enhance visitor experiences and ecological awareness.

The nature tourism sector is influenced by shifts in traveller preferences, environmental policy, and spatial dynamics. Demand is rising for sites that combine aesthetic quality, authenticity, and ease of access. There is growing interest in "near nature" experiences close to urban areas, as well as a preference for destinations with strong place identity and low environmental impact. Regulatory frameworks increasingly require compliance with conservation goals, prompting architectural innovation in designing for minimal footprint and modular flexibility. As a result, nature tourism architecture must address economic, ecological, and experiential dimensions simultaneously.

The effectiveness of a nature tourism site is closely linked to its experiential qualities. It tells a story, responds to local climate, and engages the senses through material choices. Immersive environments enhance visitors' emotional connection to place, which in turn supports educational and stewardship goals. Elements such as scent, sound, light, and temperature must be intentionally designed, not simply left to chance. When architecture becomes a medium for experiences in nature through sensory and narrative engagement, it can leave lasting impressions and cultivate deeper respect for nature.

Experiential nature tourism architecture that draws on local materials, traditions, and ecological knowledge offers more resilient and contextually appropriate tourism experiences, reducing environmental impact through shorter material cycles and better climate fit and increasing community acceptance and user appreciation. Engagement with local ecosystems and cultural landscapes allows for a richer interpretation of place and enhances the uniqueness of each site. The result is a visitor experience that is less generic and more tied to the specific qualities of the destination.

The visual appeal of experiential nature tourism architecture significantly shapes tourist perceptions and online marketing success. Instagram and social media-friendly features, recognizable silhouettes, and photogenic views amplify a destination's visibility and appeal. A well-designed structure can become a functional space and a tool for communication. Architecture plays a dual role in nature tourism, shaping the on-site experience and serving as a symbol that attracts visitors through digital platforms. This signals the need for intentional design that resonates with contemporary media behaviours, with a focus on environmental and cultural integrity.

Engaging local stakeholders in the design and development of nature tourism infrastructure leads to outcomes that are more sustainable, inclusive, and responsive to user needs. Workshops that involve residents, local entrepreneurs, and visitors facilitate the co-creation of solutions that align with tourism goals and community interests. Participatory approach increases the legitimacy, adaptability, and long-term stewardship of nature tourism sites, contributing to social innovation and capacity building within rural and nature-based communities.

Digital technologies offer tools to enhance the planning and user experience of nature tourism architecture. Geospatial analysis aids in selecting appropriate locations, AR/VR and smart visitor apps enrich interpretation and navigation. Monitoring technologies support adaptive management by providing real-time data on visitor flows and environmental impacts, enabling higher precision in designing personalized experiences for users and data-driven decisions for operators, balancing technological innovation and accessibility, privacy, and the preservation of a sense of remoteness.

Successful experiential nature tourism architecture applications combine economic viability with ecological responsibility. Profitability can be achieved through well-designed experiences that emphasize quality over quantity, attract high-value tourists, and spread demand seasonally and spatially. Monetisation strategies, e.g., ticketing, partnerships, and premium services, must avoid extractive practices that degrade the environment. Long-term success for each new destination depends on integrating sustainability principles across all stages from design and construction to maintenance and marketing, ensuring that tourism leaves a positive impact on ecosystems that enable nature-based experiences.

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