

## **Student Sustainable Entrepreneurship in Action: UNIC Methodology and Innovation Gaps on Hvaler, Norway as part of the interreg FREIIA project**

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### **Abstract**

*FREIIA, Facilitating Resilience Embracing Islands Innovation, is a INTERREG project financed by the European Union running from 1. October 2022 until 31. December 2025. The project consists of 14 partners from 6 countries, Netherlands, Denmark, Sweden, Germany, France and Norway.*

*The aim of this project is to help 6 island communities in the European Union to create competences, capabilities & structures that support the public sector in becoming successful in the green transition, through the involvement of community, young entrepreneurs and students. («FREIIA», u.å.)*

*Østfold University College is responsible for Work Package 4 (WP4), which focuses on fostering student entrepreneurship. The main objective of WP4 is to integrate entrepreneurship students into the strategic governance of island innovation, strengthening their role in green transitions. When referring to the FREIIA project in this paper, it refers to WP4 of the FREIIA project.*

*The following sections describe the first phase conducted on Hvaler island, Norway, which focused on identifying innovation gaps through interviews conducted by students with stakeholders from public, private, and civil sectors. Key challenges included limited cross-sector collaboration, an aging population, and insufficient platforms for innovation. These insights, gathered using UNIC and Design thinking principles, will serve as the foundation for the next phase, where Co-creation workshops will develop tailored solutions to address the identified gaps.*



*(Students and professors from Østfold University College at Hvaler archipelago may 2023)*

## Introduction

Through the project, the current and desired state and challenges faced by the island communities around the North sea region are examined to identify potential gaps in between these. In these gaps lies the opportunity for innovation and to improve development capacity. Development capacity, in this context, refers to the ability of various stakeholders to collaborate effectively in driving innovative development and fostering sustainable growth.

The initiative is part of the EU Interreg North Sea Region FREIIA project, which supports Østfold University Collage's 2030 vision: Knowledge for human development and a sustainable society. (Strategy 2030 - Østfold University College, u.å.)

Hvaler, an archipelago in southeastern Norway, was selected as the pilot site for this project. In May 2023, the first UNIC interviews were conducted with local stakeholders to identify challenges and opportunities. Stakeholders included representatives from a broad range of sectors, such as local government, private businesses, NGOs, and residents, each with a vested interest and unique perspective in the island's development.

The FREIIA project's activities on Hvaler included comprehensive mapping and workshops designed to uncover key challenges and opportunities for sustainable development in the island community. This first part of our work package in the project was carried out in April and May 2023, with student teams visiting or hosting interviews with local stakeholders across the Hvaler Archipelago. Stakeholders varied from the mayor and local taxi operator to cabin owners and politicians. This phase, while exploratory, lays the groundwork for the next steps by capturing diverse perspectives and initiating important face to face dialogue about the future of the island from its inhabitants and stakeholders.

The process was based on approximately 20 hours of interview data collected. The challenges identified during Workshop 1 will be used as the foundation for Workshop 2: collaborative problem-solving workshop with the local community and stakeholders.



*(Students at local restaurant in Skjærhalden on the Hvaler islands)*

## Hvaler

Hvaler is an island municipality in southeastern Norway, located at the outer edge of the Oslofjord. It comprises 833 islands and islets, covering a total land area of 20 km<sup>2</sup>. The administrative center, Skjærhalden, is situated on Kirkøy, the largest island in the archipelago. In 2023, Hvaler had a population of 4,762, which swells to over 30,000 during the summer months as tourists flock to the area.

Renowned for its natural beauty, Hvaler is home to Ytre Hvaler National Park, Norway's first marine national park. This protected area features unique ecosystems, including kelp forests and cold-water coral reefs, making it a haven for biodiversity and marine conservation. Cultural landmarks such as the 12th-century Hvaler Church showcase the municipality's rich history, while the rugged coastline and tranquil bays attract enthusiasts of boating, fishing, and hiking.

Strict housing regulations, which permit only registered residents to purchase homes, are designed to preserve the local community's character. However, this policy has sparked debates, particularly in relation to a potential merger with the neighboring city of Fredrikstad, located 28 km away. With a population of 85,230 in 2024, Fredrikstad serves as a regional hub for services and infrastructure.

The municipality is led by Mayor Mona Vauger from the Labor Party, whose priorities include balancing sustainable development with the preservation of Hvaler's unique environmental and cultural heritage. Hvaler's commitment to protecting its natural resources while navigating modern challenges reflects the community's determination to secure its future for both residents and visitors. *(Hvaler – Island by Island, u.å.)*



*(Skjelsbusund Bridge that connects Hvaler to the mainland, making it possible to drive to the islands by car.)*

## Methods: Theoretical frameworks

In this study, we applied principles from the UNIC method and the Double Diamond framework to address challenges in sustainable development on Hvaler. The methodologies share a user-centred approach to problem-solving. This makes them ideal for our needs to gain insights into the challenges faced by island communities and tackling them.

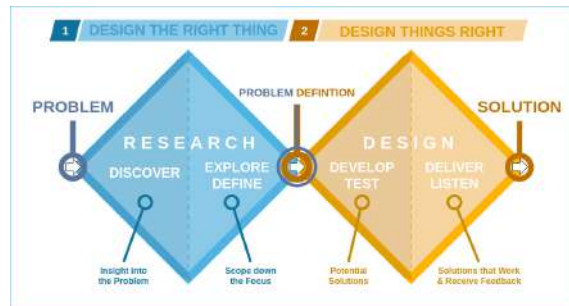
### UNIC Method - Phase 1: Analysis

In the first phase of the UNIC method, we focused on data collecting and analysis. In Phase 1, in-depth interviews with stakeholders from the Hvaler archipelago to understand their challenges, needs, and perspectives on sustainability. This phase is parallel to the "Discover" stage in the Double Diamond framework, focusing on gathering insights about the user's needs and problems. In this case, the users or stakeholders, included community members, business owners, and local officials,

ensuring a wide range of perspectives were captured. (Hein, L. (December, 1988b). Diagnose på udviklingsfunktionen (notat 2). UNIC-gruppen.).

### Double Diamond - Discover & Define

The Double Diamond framework, developed by the British Design Council, structures innovation processes into four phases: Discover, Define, Develop, and Deliver. In this study, we utilized the Discover and Define phases to explore and synthesize stakeholder insights. Thematic analysis of interview data helped identify core issues such as limited collaboration, youth retention, and community engagement gaps. («The Double Diamond Model», 2024)



### Semi-Structured Interview Approach

To ensure consistency across islands, a standardized interview guide was employed. Questions were designed to elicit both specific insights and broader reflections on sustainability challenges. The eight questions included:

1. What is your role in the island community?
2. How would you describe the island community and its current state?
3. What are the biggest challenges the island community faces regarding innovative development and sustainable growth?
4. What initiatives has the island community previously undertaken to address these challenges?
5. How does the island community collaborate to promote innovative development and sustainable growth?
6. In your opinion, how can the island community improve its development capacity?
7. How can you and your organization contribute to improving the island community's development capacity?
8. How can the island community collaborate better with surrounding communities and regions to achieve common goals?



This semi-structured format allowed respondents to explore broader topics beyond the predefined questions, offering valuable insights into the island's present conditions and potential interventions to enhance development capacity. This method is particularly important for exploring wicked problems, which are complex and resist straightforward approaches. In the context of sustainable development, wicked problems are challenges that involve multiple stakeholders, conflicting interests, and long-term impacts, making them hard to address through traditional methods.

## Methods: Applied in practice

Østfold University College (HiØ) plays a key role in supporting the FREIIA project by conducting the UNIC analysis on designated islands. This analysis forms the foundation for identifying systemic gaps and opportunities for innovation, with a particular emphasis on fostering collaboration between local stakeholders and academic institutions.

HiØ initiated the pilot implementation of the UNIC analysis on Hvaler, making it the first island studied in the project. Proximity to Fredrikstad allowed HiØ to utilize its existing network of local stakeholders, ensuring a smooth launch for this initial phase. Hvaler's familiarity and accessibility made it a great testing ground for refining the analysis process, which would later be applied to other islands.

### Stakeholder engagement and interview process

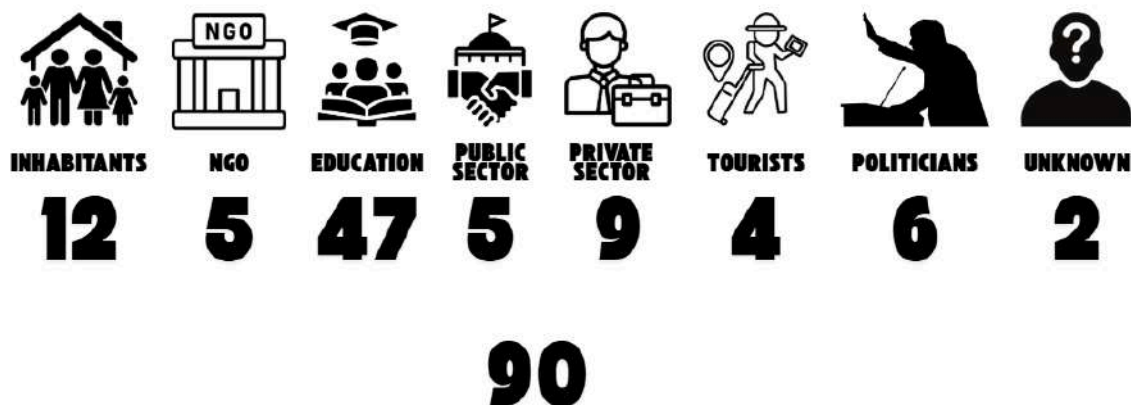
On May 3 and 4, 2023, the interview phase pilot was launched on Hvaler using the selected methods. Student teams of two from HiØ conducted all interviews, blending academic learning with practical fieldwork experience. Stakeholders were identified through HiØ's local network and recommendations, ensuring representation from municipal leaders, business owners, NGO representatives, community members, and returning tourists. This approach was essential for understanding the local challenges related to sustainable development. While most interviews were conducted in person at stakeholders' workplaces, creating a direct connection to their environments, others were held via Zoom to accommodate scheduling constraints.

To complement these structured interviews, students also engaged in spontaneous "stunt interviews" with locals and visitors. These unscheduled interviews showed us that this was an imperative part of collecting diverse perspectives, aligning with the exploratory ethos of the **Empathize** phase in Design Thinking. The stunt-interviews will be incorporated and used consciously as the project progresses.

### Conducting interviews and Data collection

To maintain consistency, all interviews followed a predefined set of 8 questions, the semi-structured interview approach. Each interaction was recorded using SIKT, a security database for data storage, to maintain confidentiality. (*Sikt – Kunnskapssektorens tjenesteleverandør | Sikt, u.å.*) The data was transcribed using the same software, and anonymized by students in the class "organizational development" at HiØ. The students carried out thematic analysis of all collected data.





(This model provides an overview of the number of interviews conducted, and other involved stakeholders in this part of the project, categorized by group, as part of the Innovation Gap analysis on Hvaler)

## Results

The FREIIA project's initial phase on Hvaler identified key challenges and opportunities for sustainable development through a comprehensive analysis of community dynamics. The interviews and workshops captured a wide array of perspectives, providing valuable insight into both structural barriers and emerging opportunities. The analysis highlights challenges that hinder development while also pointing to actionable solutions aligned with the project's overarching objectives of innovation and collaboration. These findings will be used in workshops aimed at co-creating actionable solutions and are providing valuable lessons for future implementations.

Key findings from this phase are summarized below.

1. **Limited Cross-Sector Collaboration** – Despite existing networks, such as the Hvaler Business Association, stakeholders identified a fragmented approach to community development, which often results in overlapping initiatives targeting the same issues, but led by different groups. This lack of coordination leads to duplicated efforts and missed opportunities for greater impact.
2. **Aging Population and Youth Migration** – High housing costs and limited job prospects are driving younger residents away, threatening the demographic balance and future workforce. Although the municipality has expressed a desire to attract young entrepreneurs, this will require more than just encouragement—it necessitates tangible solutions such as affordable housing, supportive infrastructure, and accessible business opportunities to create an environment where young people can thrive.
3. **Over-Reliance on Seasonal Tourism** – Tourism on Hvaler is heavily skewed towards cottage owners and the summer months, with the island's many beaches and campgrounds attracting most visitors during peak season. This seasonal reliance limits opportunities for broader economic diversification. To align with Hvaler's vision of becoming a year-round destination, there is a need to expand tourism offerings, attract off-season visitors, and develop infrastructure that supports year-round economic activity.
4. **Insufficient Platforms for Innovation** – The lack of formal spaces or initiatives for interdisciplinary collaboration posed a significant barrier to developing new solutions. Many private sector actors have expressed a desire for better cooperation with the municipality, while the municipality itself also seeks stronger partnerships with external stakeholders. Additionally, external developers wishing to invest in Hvaler face significant challenges in

navigating local regulations and engaging with key decision-makers, further hindering potential growth and innovation.

5. **Conflicts Between Conservation and Development** – Hvaler's commitment to preserving its natural environment, particularly within Ytre Hvaler National Park, often conflicts with the community's desire for economic growth. Additionally, the mindset of many permanent residents and cabin owners, who value the tranquility and rural character of the island, presents a challenge. This desire for peace and preservation contrasts with the municipality's goals of attracting younger residents, increasing tourism, and making Hvaler a year-round destination, creating tension between maintaining the island's traditional lifestyle and embracing modern growth opportunities.



*(Students and Stakeholders During an Interview)*

Representative from the welfare association:

*"The welfare association works to make it attractive to live on Papper, ensuring that young people have the opportunity to establish themselves here."*

– Highlights the challenge of settlement and depopulation on Hvaler.

Local entrepreneur:

*"Otherwise, there's the experience company we're starting. It's one of the most important things we've set out to do – to make the local community itself engaged and proud of the island."*

– Illustrates efforts to drive business development.

Local politician (mayor):

*"Because we are so attractive, there is an unfortunate effect. Housing prices here are extremely high. So, it's a high barrier for young people to enter the housing market."*

– Describes how Hvaler's attractiveness simultaneously creates economic barriers.

Resident and community advocate:

*"If you look at the demographics, there are many retirees living out here. A sustainable community development requires a better age balance."*

– Emphasizes the need for more young people in the local community.

Local innovator:

*"We need to think differently – maybe the solution lies in a sharing economy, where people can live more affordably by sharing resources like cars, tools, and common areas."*

– Suggests alternative housing and lifestyle solutions.

These insights are directly derived from the interviews done on Hvaler in may of 2023, and underscores the challenges facing Hvaler but also provide a clear foundation for the next steps of the FREIIA project, where collaborative and innovative solutions will be co-created with stakeholders and students to address these challenges.

## Methodological Reflections

The combination of standardized interview questions and spontaneous, informal approaches proved highly effective in gathering diverse data. This dual approach, rooted in Design Thinking principles, enriched the analysis and allowed for the discovery of unexpected opportunities and challenges.

Having students physically present on the islands fostered deeper connections, while their mobility between islands provided a nuanced understanding of local dynamics. Moreover, integrating academic programs such as *Innovation and Project Management* into real-world problem-solving underscored the value of equipping students with practical skills and experience while contributing to the community.

Despite these strengths, certain limitations were observed:

- **Underrepresentation of Key Groups:** Younger residents and seasonal workers were underrepresented in the interviews, creating gaps in the analysis.
- **Time Constraints:** The two-day timeframe limited opportunities for follow-ups and more in-depth exploration of complex issues.
- **Staying objective:** While the students involved in conducting interviews and analysis were committed to maintaining an objective stance, they faced challenges at various stages due to their proximity to the stakeholders and the process. This is not uncommon in projects where researchers engage closely with participants. However, the use of a standardized interview guide and thematic analysis, ensured that the findings remained reliable and unbiased.

These reflections highlight areas for improvement in future analyses, including more extensive training of the student researchers, broader outreach strategies, and extended data collection periods.

## Discussion

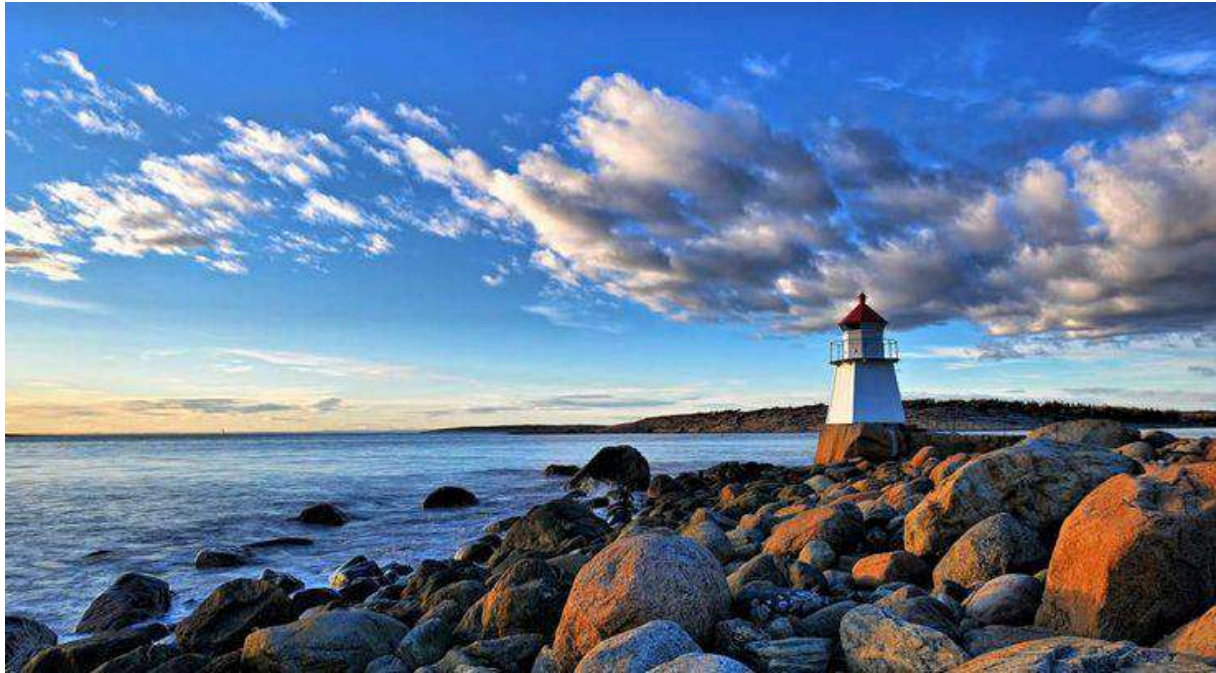
The key findings from the first Phase of the FREIIA projects highlight several significant challenges and opportunities for Hvaler's sustainable development. To address these, there is a clear need for collaboration between the public and private sectors as well as solutions that tackle the aging population and youth migration. Initiatives like affordable housing programs, coupled with incentives for local businesses, could help retain young residents and foster economic growth.

Another significant challenge is the need to balance conservation and economic development. While preserving Ytre Hvaler National Park is crucial, stakeholders are divided on how to approach tourism and growth. Eco-tourism presents a potential solution, balancing environmental protection with economic benefits.

A lack of a shared vision for Hvaler's future further complicates progress. Stakeholders need alignment to develop a cohesive strategy that integrates local, municipal, and business interests. Establishing collaborative platforms and learning from other island communities in the FREIIA project can support this effort.

Despite these challenges, existing networks such as the Hvaler Business Association and Destination Council provide a strong foundation for fostering dialogue and innovation. With targeted initiatives, these networks can be strengthened to support sustainable growth and cross-sector collaboration. By enhancing cooperation and fostering a shared vision, ongoing efforts on Hvaler can be made more

efficient and impactful. Avoiding duplication of work and instead promoting coordinated initiatives will enable stakeholders to achieve greater results together.



*(Brattestø Hvaler, Outer Hvaler National Park)*

## **Conclusions**

The initial analysis of the FREIIA project has provided valuable insights into the island community's challenges and opportunities for sustainable development. By applying the UNIC method and Design Thinking principles, the project identified critical gaps, including limited cross-sector collaboration, an aging population, and a lack of innovative platforms for co-creation. These findings emphasize the need for targeted efforts to foster collaboration, diversify economic opportunities, and attract young people to the area.

This phase established a strong foundation for future work, capturing a diverse range of perspectives through interviews and thematic analysis. The insights gained have not only deepened our understanding of Hvaler's social, economic, and environmental dynamics, but also identified possible opportunities going forward.

Moving forward, these findings will be used in phase two of the project: Co-creation workshop with local stakeholder. By addressing the identified challenges face-to-face with local stakeholders on Hvaler, this pilot has the potential to be a valuable model of how small island communities across the North Sea region can achieve sustainable development through collaboration.

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## References

*FREIIA. (u.å.). Interreg.no. Hentet 3. mai 2024, fra*

*<https://nettsteder.regjeringen.no/interreg-2022/prosjektbank/freiiia/>*

*Hvaler – island by island. (u.å.). Hentet 31. januar 2025, fra*

*<http://www.visitfredrikstadhvaler.com/en/the-hvaler-islands/hvaler--island-by-island/>*

*Sikt – Kunnskapssektorens tjenesteleverandør | Sikt. (u.å.). Hentet 31. januar 2025, fra <https://sikt.no/>*

*Strategy 2030—Østfold University College. (u.å.). Hentet 27. november 2024, fra*

*<https://www.hiof.no/english/about/strategy/index.html>*

*The Double Diamond Model: In Pursuit of Simplicity and Flexibility | Request PDF. (2024). I*

*ResearchGate. [https://doi.org/10.1007/978-3-030-79879-6\\_2](https://doi.org/10.1007/978-3-030-79879-6_2)*

*Hein, L. (December, 1988b). Diagnose på utviklingsfunksjonen (notat 2). UNIC-gruppen.*