Student Sustainable Entrepreneurship in Action:
Design thinking and Co-creation *on Schiermonnikoog, Netherlands as Part of the INTERREG FREIIA Project*

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Abstract
FREIIA (Facilitating Resilience Embracing Islands Innovation Approaches) is an INTERREG North Sea Region project funded by the European Union, aimed at enhancing resilience and innovation capacity in island communities across six countries.

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.

In the first phase of this project, we identified innovation gaps on the island of Schiermonnikoog, Netherlands, through semi-structured interviews with stakeholders from the public, private, and civil sectors. Key challenges included limited cross-sector collaboration, an aging population, and insufficient platforms for community engagement.

This paper presents the next phase of the project, which uses design thinking and the double diamond framework to co-create solutions to the identified challenges through workshops. Initiatives include a Mobile Innovation Hub to facilitate entrepreneurship, community-centered educational programs, and new digital platforms to enhance municipal-citizen dialogue.

This study offers a model for fostering sustainable development through collaboration, creativity, and local ownership and offers a model for other island communities facing similar challenges.

(Figure students and stakeholders on Schiermonnikoog's co-creation workshop.)

Introduction

Through the project, the current and desired state and challenges faced by the island communitie of Schiermonnikoog 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 diverse stakeholders- public officials, private enterprises and civil society- to collaboratively drive sustainable innovation and growth.

Schiermonnikoog is a small, car-free island in the Netherlands, part of the West Frisian Islands in the North Sea. Known for its pristine beaches, dunes, and salt marshes, it is a designated national park and a haven for nature lovers. Shiermonnikoog was the second island we conducted both phases on, Unic analysis and Design thinking workshop.

In the first phase of the FREIIA project, the UNIC analysis on Schiermonnikoog revealed four key gaps:

1. **Circular Economy Understanding**: While the municipality showed significant interest, many stakeholders found the concept abstract and disconnected from their daily operations.
2. **Retention of Young Adults**: The high cost of housing and limited opportunities drive young residents to urban centers, creating demographic challenges.
3. **Cross-Sector Collaboration**: Despite a willingness to collaborate, the lack of a dedicated arena for dialogue and cooperation hindered progress.
4. **Space and Resource Optimization**: Strict building laws and limited physical space constrain the island's ability to grow sustainably.

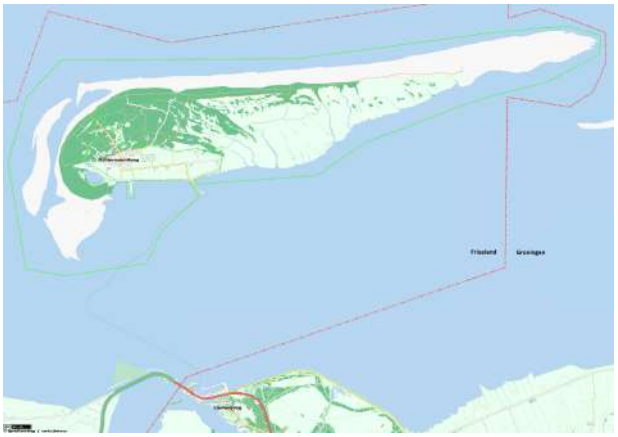
These findings established the foundation for the second phase of the project, which this paper is about. Here we employed Design Thinking principles to co-create actionable solutions tailored to Schiermonnikoog's unique needs. By involving local stakeholders in structured workshops, the second phase aimed to address these gaps through collaboration and prototyping, ensuring that the solutions resonated with the community and were feasible within the island's socio-economic and environmental context. (*Innovation as a Learning Process*, u.å.)

Schiermonnikoog

Schiermonnikoog is one of the West Frisian Islands in the Netherlands, located in the province of Friesland. The smallest inhabited island in the archipelago, it lies in the Wadden Sea, a UNESCO World Heritage Site. Covering approximately 40 square kilometers and home to around 950 residents, Schiermonnikoog combines a small, closely-knit village with vast, open natural landscapes.

The island is renowned for its unique natural environment and commitment to sustainability. Large parts of Schiermonnikoog are designated as a national park, featuring sand dunes, expansive beaches, and a rich variety of wildlife, including numerous bird species. A popular destination for tourists, especially nature enthusiasts, the island is celebrated for its peaceful atmosphere, eco-friendly tourism, and cycling-friendly infrastructure. Visitors can only get around by foot or bicycle, as the island is car-free for tourists. Regular ferry connections link the island to the mainland.

Tourism is the primary source of income for Schiermonnikoog, with a strong emphasis on balancing economic activity with environmental preservation. The combination of a rich ecosystem, focus on sustainability, and a unique location makes Schiermonnikoog an integral part of the Netherlands' efforts in environmental conservation and local development.



Methods: Theoretical framework

In this study, we applied principles from Design Thinking and the Double Diamond framework to guide the co-creation workshops aimed at addressing sustainable development challenges on Schiermonnikoog. Both methodologies share a user-centered approach, making them ideal for tackling complex challenges faced by island communities.

Design Thinking: Define, Ideate, and Prototype

(«Tim Brown, Change by Design», 2024)

Design Thinking emphasizes empathy, creativity, and iteration. In this study, we utilized the Define, Ideate, and Prototype phases to co-create solutions:

- Define: Insights gathered from earlier interviews with stakeholders were synthesized to identify the core challenges facing the community, including youth retention, economic development, and collaboration gaps.
- Ideate: During the co-creation workshops, stakeholders collaboratively brainstormed a wide range of potential solutions. These sessions were designed to encourage creativity and generate diverse ideas to address the identified issues.
- Prototype: The most promising ideas were developed into low-fidelity prototypes. These prototypes were simple, testable models that allowed for iterative refinement based on stakeholder feedback.

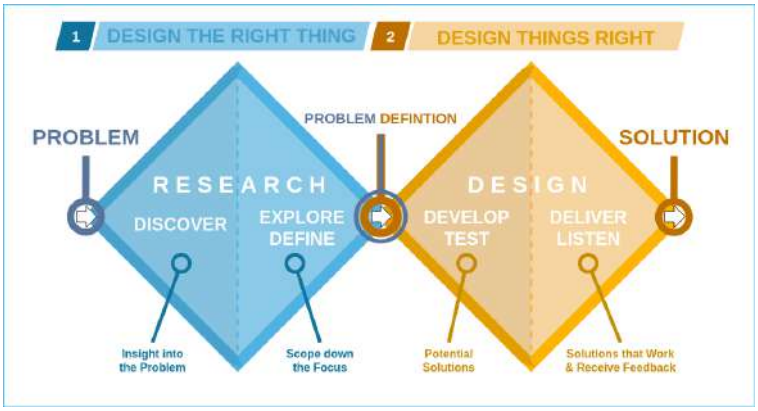
Double Diamond: Define, Ideate, and Prototype

(«The Double Diamond Model», 2024)

The Double Diamond framework structures innovation into four phases: Discover, Define, Develop, and Deliver. In this study, we focused on the Define, Ideate, and Prototype phases:

- Define: This phase involved synthesizing insights from the Empathize phase (interviews) into clear problem statements. This ensured all stakeholders had a shared understanding of the core issues.
- Ideate: Collaborative brainstorming sessions allowed participants to explore multiple solutions, ensuring that ideas were generated with input from a diverse set of perspectives.
- Prototype: The most promising solutions were turned into prototypes, which were evaluated and iterated upon during the workshops.

Both Design Thinking and Double Diamond provided a structured approach to problem-solving, ensuring a creative and collaborative process that focused on real-world needs.



Methods: Applied in practice

Building on the findings from the Empathize and Define phases of Design Thinking in Workshop 1, we, as operative project leaders, together with Head of Research, Dr. Gunnar Andersson, decided to invite representatives from the municipality of Schiermonnikoog and Natuurmonumenten to a preliminary workshop ahead of the main co-creation workshop.

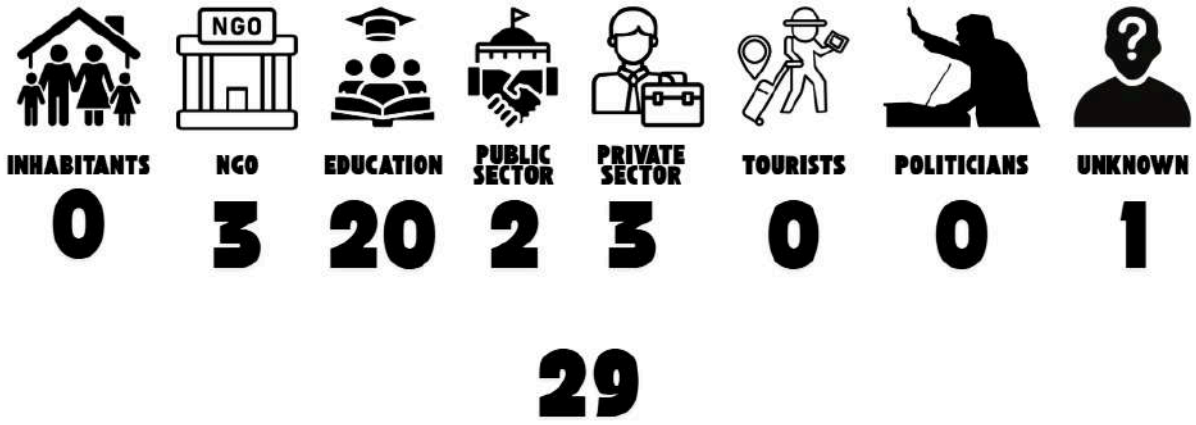
Our aim was to conduct an interest-based conflict resolution workshop, focusing on development vs. conservation as the core theme. This workshop was conducted via Zoom, where the representatives from the municipality and Natuurmonumenten worked with us to assess the key challenges and determine which areas should be prioritized in the upcoming co-creation workshop.

Following this, we organized a co-creation workshop on Schiermonnikoog, designed to engage stakeholders in developing solutions to the identified challenges. This workshop moved into the Ideation and Prototyping phases of Design Thinking, fostering collaboration between a diverse group of participants.

Stakeholder Involvement

After analyzing the transcribed interviews and identifying core challenges from Workshop 1, we invited stakeholders and students to participate in the next phase. Participants included students from Hanze University of Applied Sciences and Artevelde University of Applied Sciences—this time a different group of students than those who participated in Workshop 1. Additionally, the workshop included stakeholders from both the public and private sectors and students from Østfold University College's Innovation and Project Management program.

This diverse composition ensured a range of perspectives, which was essential for addressing the identified challenges effectively.



(This model provides an overview of the participants in the co creation (design thinking) workshop categorized into groups)

Ideation Phase

To ensure a structured and interdisciplinary approach, students were first organized into designated groups, after which stakeholders were strategically assigned to different tables based on their roles and expertise. This approach facilitated cross-disciplinary collaboration, ensuring that each team benefited from a diverse range of perspectives and fostered a dynamic exchange of ideas.

Aligned with the Ideation phase of Design Thinking, teams selected a problem statement relevant to the core challenges identified in previous phases and worked collaboratively to develop innovative solutions. By structuring teams intentionally to maximize diversity, the workshop promoted open dialogue, creative brainstorming, and solution-oriented discussions, ensuring a comprehensive and inclusive approach to addressing the identified challenges.

Student involvement

For this iteration of the workshop, we took student involvement a step further by entrusting two second-year students from Norway with the task of designing and facilitating the session. With close support and mentoring, these students led the workshop, ensuring an engaging and structured process, while also gaining valuable hands-on experience in facilitation, stakeholder collaboration, and interdisciplinary problem-solving.

This approach emphasized student leadership and active participation, reinforcing the importance of practical learning and interdisciplinary teamwork in addressing real-world challenges. By stepping

into leadership roles, the students were able to develop critical skills, such as adaptability, communication, and stakeholder management, all of which are essential in professional settings.

Furthermore, their involvement bridged the gap between academic learning and real-world application, demonstrating how student-led initiatives can actively contribute to local development. This also benefited stakeholders, as fresh perspectives and innovative methods were introduced into the workshop, fostering a more dynamic and interactive exchange of ideas.

By integrating student leadership into the core of the workshop, this model showcases a sustainable and scalable approach to inclusive engagement, where young professionals are empowered to take ownership of collaborative problem-solving processes.

Emphasis on Collaboration and Inclusivity

Due to logistical constraints, it was not feasible to conduct a World Café session in the Netherlands this time. Norwegian and Dutch students arrived and departed the island at different times, resulting in limited shared time for joint activities. Additionally, securing stakeholder participation beyond a single workday proved challenging, as they had to balance workshop involvement with their professional responsibilities. A recurring challenge in such engagements is the time commitment required from stakeholders, making it essential to structure participation efficiently to maximize impact while minimizing disruption to their ongoing work obligations.

(Students and stakeholders at the workshop.)

Results

The second phase of the FREIIA project on Schiermonnikoog centered on converting the challenges identified in Workshop 1 into practical, community-focused solutions. These solutions were collaboratively designed during an interactive workshop that brought together students and stakeholders from diverse sectors. This interdisciplinary approach fostered creative problem-solving and provided a platform to tackle pressing issues such as limited cross-sector collaboration, low youth engagement, and the need to enhance innovation capacity.

Through structured discussions and collaborative activities, participants co-created a range of innovative concepts specifically tailored to the context of Schiermonnikoog. Below is an overview of the key solutions developed during the workshops:

Key Stakeholder Collaboration

The municipality and the local waste management company must work together to develop educational programs on waste management. By engaging young people in creative reuse initiatives, such as turning waste into new products, a mindset shift can be fostered. This approach would help reframe waste as a resource, promoting a circular economy perspective and encouraging sustainable practices within the community.

Using Social Media and Influencers

Social media platforms and influencers can serve as powerful tools to shape public attitudes toward sustainable tourism. By leveraging digital campaigns, the goal is to encourage eco-friendly behaviors, attract visitors who prioritize responsible tourism, and reduce the ecological footprint of tourism-related activities. This strategy would help integrate sustainability into the local tourism industry while making it more appealing to environmentally conscious travelers.

Creating a Collaboration Arena

A dedicated physical space should be established to facilitate interaction and cooperation between the local community and the municipality. Currently, the lack of a structured venue for joint initiatives and discussions limits the potential for effective collaboration. By creating a collaboration arena, local residents, businesses, and public authorities would have a centralized hub for sharing ideas, co-developing projects, and fostering a stronger sense of community involvement.

Blue Minimal Surfing Camp

Utilize influencers and social media marketing to promote Schiermonnikoog as a surfing destination, emphasizing its natural beauty and sustainable tourism potential. By establishing a minimal-impact surf camp, visitors would be encouraged to engage in eco-friendly activities while supporting local businesses. This initiative would make the island more attractive to young, environmentally conscious travelers, fostering sustainable tourism growth while preserving the island's unique ecosystem.

Educating Children on Waste as a Resource

To instill a long-term shift in sustainability practices, the public and private sectors must work closely with local schools to change how children perceive waste. Schools should be encouraged to integrate sustainable resource management into their learning activities, emphasizing how waste can be transformed into new and useful materials. A greater focus on environmental education would help children develop an early understanding of responsible consumption and waste reduction.

To reinforce this learning, schools could participate in interactive workshops on Schiermonnikoog, where children engage in hands-on activities, creatively repurposing waste into new products. By actively working with materials, they would gain practical experience in sustainability, fostering a circular mindset from an early age.

These solutions not only address the challenges identified in Workshop 1 but also highlight the broader dynamics of development and conservation on Schiermonnikoog. Successfully implementing these ideas requires a careful balance between fostering innovation and preserving the island's unique environment and community values.

(Students and Natuurmonumenten at excursion on Schiermonnikoog.)

Discussion

The workshops highlighted the importance of collaboration in addressing Schiermonnikoog's development challenges. Initiatives like the Collaboration Arena and partnerships between the municipality and the waste management company emphasize the need for structured spaces and processes that facilitate interaction. These efforts are critical for fostering trust, reducing inefficiencies, and creating shared goals that unite diverse stakeholders.

In island communities like Schiermonnikoog, where resources are limited, collaboration is especially vital. Integrating individual initiatives into a cohesive framework can significantly enhance the effectiveness of solutions. By working together, stakeholders can achieve more impactful and sustainable outcomes, demonstrating the value of collective problem-solving in addressing local issues.

Additionally, the need to engage and retain young people emerged as a pressing concern. Initiatives like Key Stakeholders Collaboration aim to connect youth with the principles of the circular economy, helping them see waste as an opportunity rather than a problem. This approach not only fosters creativity and entrepreneurship but also encourages young people to contribute meaningfully to their local economy.

Finally, balancing development with conservation remains a central challenge. Schiermonnikoog's long-standing tension between nature conservation organizations and the local community highlights the importance of creating a shared vision. By aligning efforts across different sectors, the island can modernize infrastructure and introduce progressive solutions while maintaining its cultural identity and environmental integrity. This balance is essential for ensuring that development is both sustainable and supported by the community.

Conclusion

The FREIIA project's exploration of innovation gaps on Schiermonnikoog has illuminated several critical challenges that must be addressed to ensure sustainable development and resilience. Using the UNIC method and Design Thinking approach, the research identified key barriers, including:

- Limited collaboration across sectors and stakeholders.
- Challenges in engaging and retaining young people.
- A lack of accessible and dedicated spaces for collaboration and community engagement.
- Disparities in understanding and commitment to the circular economy.
- Long-standing tensions between development and nature conservation.

The interdisciplinary workshops provided a crucial platform for tackling these issues by bringing together stakeholders from different sectors—municipality, businesses, education, and the local community. This collaborative framework resulted in several actionable initiatives tailored to Schiermonnikoog's unique context, such as:

- **Key Stakeholders Collaboration** to educate and inspire a circular mindset, particularly among youth.
- **Leveraging Social Media and Influencers** to promote sustainable tourism practices.
- **Creating a Collaboration Arena** to establish a structured physical space for joint problem-solving and dialogue.

These solutions demonstrate the power of co-creation in addressing complex, localized challenges and fostering innovation. Furthermore, the workshops highlighted the importance of aligning innovation with Schiermonnikoog's community values, ensuring that development respects and preserves the island's cultural and environmental identity.

A key takeaway from this phase of the project is the critical need for structured arenas and consistent collaboration. Initiatives such as the **Collaboration Arena** exemplify how physical spaces can facilitate meaningful engagement and enable stakeholders to co-develop solutions that benefit the entire community.

In conclusion, Schiermonnikoog's path to sustainable development lies in its ability to balance innovation with local traditions and environmental stewardship. By fostering cross-sector collaboration, engaging its youth, and embracing a shared vision for the circular economy, the island can overcome its challenges and build resilience for the future.

Next Steps

The next stage of the FREIIA project on Schiermonnikoog will focus on refining and testing the proposed solutions to assess their impact on the local community. A continuous feedback loop between stakeholders will be vital to ensure these initiatives remain adaptive to the community's evolving needs and priorities.

The aim is for stakeholders who participated in the workshops to take ownership of the solutions they co-created, fostering a sense of shared responsibility for addressing the island's challenges. By maintaining this collaborative momentum, Schiermonnikoog can serve as a model for other small island communities in the North Sea Region, demonstrating how collective innovation can drive sustainable growth and resilience in resource-constrained environments.


(Students and stakeholders at the workshop)

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