

Waddensea Assistant

Green Nudging

About the Waddensea National Park

The Wadden Sea National Park is a vital component of a unique natural wonder of global importance. Through international cooperation and dedicated management, the park strives to protect this invaluable ecosystem for future generations. At NTT DATA we are proud to be part of it.

World's Largest Uninterrupted System of Intertidal Mudflats: The Wadden Sea is a dynamic coastal ecosystem shaped by the tides, creating a unique landscape of mudflats, sandbanks, tidal channels, and salt marshes.

Biodiversity Hotspot: The area is a crucial stopover for millions of migratory birds, a breeding ground for numerous fish species, and home to a rich diversity of plants and animals adapted to the harsh conditions of the tidal environment. 10-12 million migratory birds pass through the Wadden Sea each year.

UNESCO World Heritage Site: Recognized for its outstanding universal value as a natural phenomenon and its significant ecological and biological processes.

<https://eng.nationalparkvadehavet.dk/>

Key Challenge:

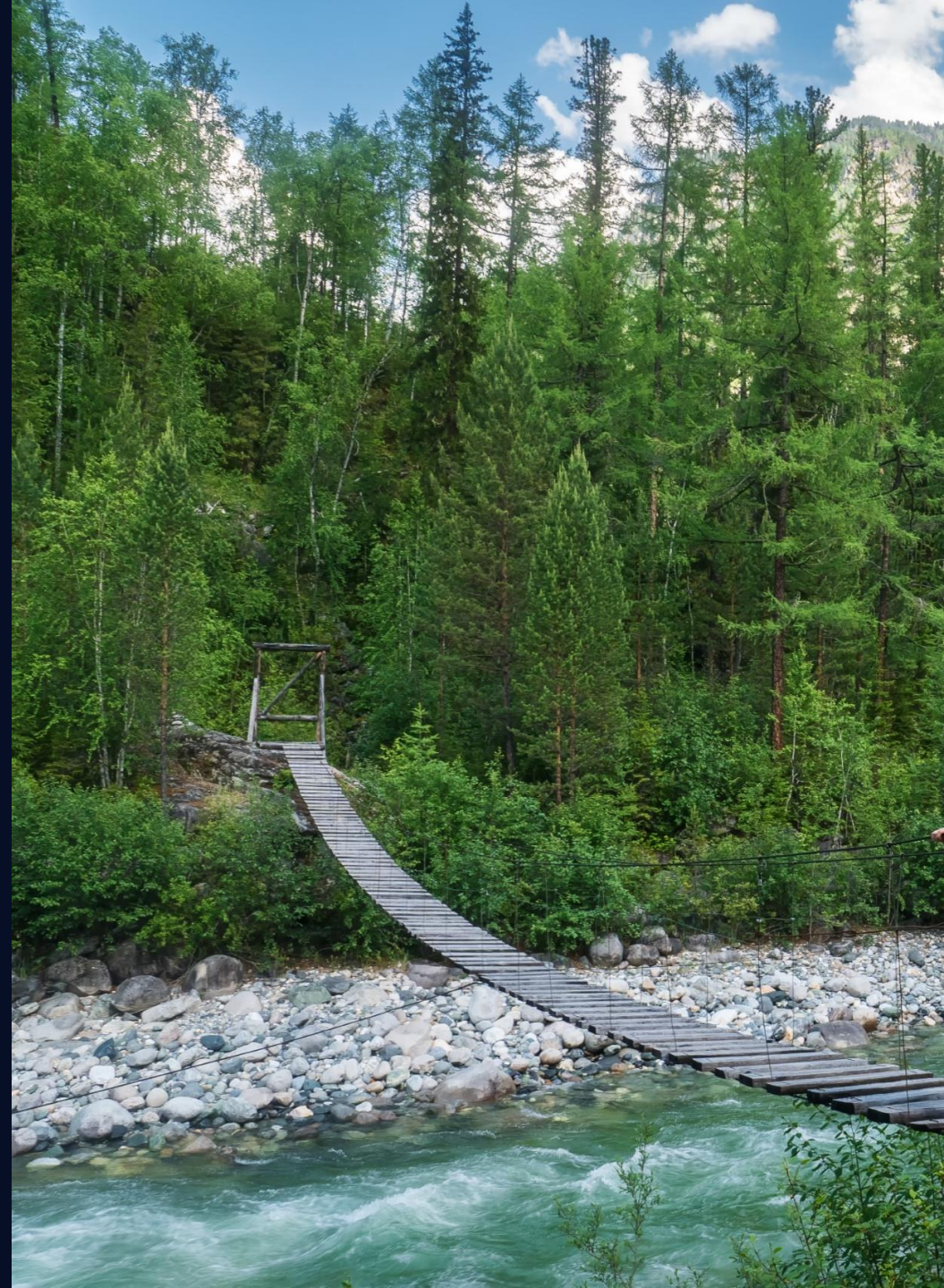
Park ranger downsizing

The park rangers were responsible for maintaining the natural environment, engaging with visitors, and preserving balance in the forest and nature regions.

However, due to cost-cutting measures and efficiency programs, park rangers are no longer present on-site, and local information has been replaced by pamphlets. These pamphlets have since been digitized and added to a pool of information that must be actively sought out.

Unfortunately, most park websites are written by geologists and only attract a small audience. As a result, visitors to the park are often uninformed about proper behavior, environmental care, and responsibility.

Our goal is to restore park rangers to their former role using digital technology and Generative AI





Green Nudging at the Waddensea National Park

“Waddi, a digital guide proves that the tourist office can be replaced with AI”.

Like the smiley invented at NTT DATA. Waddi is: according to Turism Gazette it's the worlds first Digital Tour Guide: <https://tourismgazette.com/introducing-waddi-the-worlds-first-ai-tour-guide-revolutionizing-travel-in-denmark/>

“According to Søren Christensen, the development consultant behind this groundbreaking technology, Waddi represents a new frontier in the world of tourism.”

Business need

Guardians of natural habitats and wildlife are in need of effective strategies to engage with guests and impart knowledge regarding their influence on the environment, as well as ways in which they can contribute to its conservation. Secondly due to cost cuts, tourist offices are being closed.

Solution

Together with NPV we have created Waddi, a digital tourist guide, equipped with GPT-4's natural language processing capabilities, it engages visitors in meaningful conversations about the local ecosystem. It offers insights into the flora and fauna, explains the impact of human activities on these natural settings, and suggests ways visitors can minimize their ecological footprint.

Outcome

- The following results are from the beta test performed in Easter 2024 and during the summer.
- Using QR Codes and Digital advertising Waddi achieved 3700 visits to the assistant in first 7 days.
- On average the users asked 4 questions pr visit
- In total 15000 conversations with more than 2 questions where successfully concluded
- Waddi, proved that it's possible to adopt new tech to engage in conversation with visitors about sustainable topics

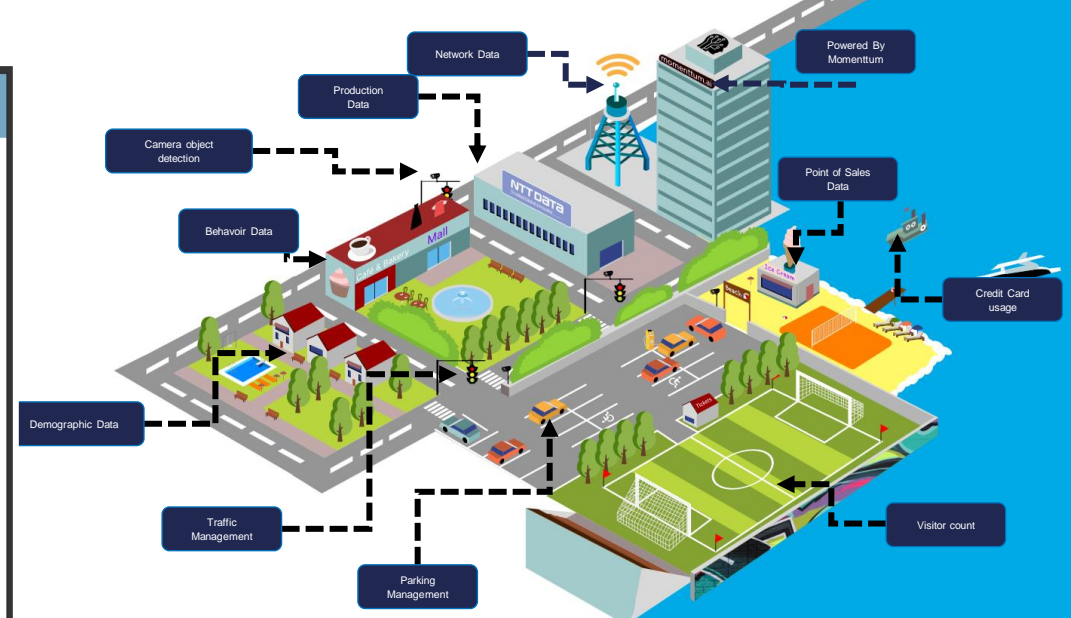
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Screenshot 1: Chat message: "Hello and welcome to Fanø. Watta, your AI tourist assistant, here. Here are some exciting activities you can enjoy on the island: 1. Visit Sønderho Village and its charming streets and historic buildings. 2. Take a guided tour of the island's rich maritime history and traditional culture. 3. Go horseback riding and enjoy beautiful beaches and dunes. 4. Enjoy a relaxing day on the North Sea. 5. Take a scenic bicycle ride and experience the stunning landscapes. I hope you find these activities interesting. If you have any question or need further information, feel free to ask!"

Screenshot 2: Chat message: "You can see seals on the opposite side of Galgedyb, on the side branch to Galgedyb and about 100 meters wide and as far as is known about 4 meters deep. The seals can be observed from the beach below Odense Municipality's Holiday Colony, especially during low tide. If you have any other questions or need further information, feel free to ask!"

Screenshot 3: Chat message: "In addition to the location near Galgerev, you can also see seals when visiting Nordby and Sønderho on Fanø island. Remember to behave responsibly and respect the local environment and wildlife. Enjoy your time there while keeping in mind the well-being of the seals and other wildlife. If you have any more questions or need further assistance, feel free to ask!"



Sources of data & points of nudging

Nudging Methods

Psychological factors

Psychological factors such as motivation and knowledge transfer play a relevant role in promoting sustainability. If people receive relevant information to reflect on their behavior, they can change their usage patterns and habits to a sustainable level.

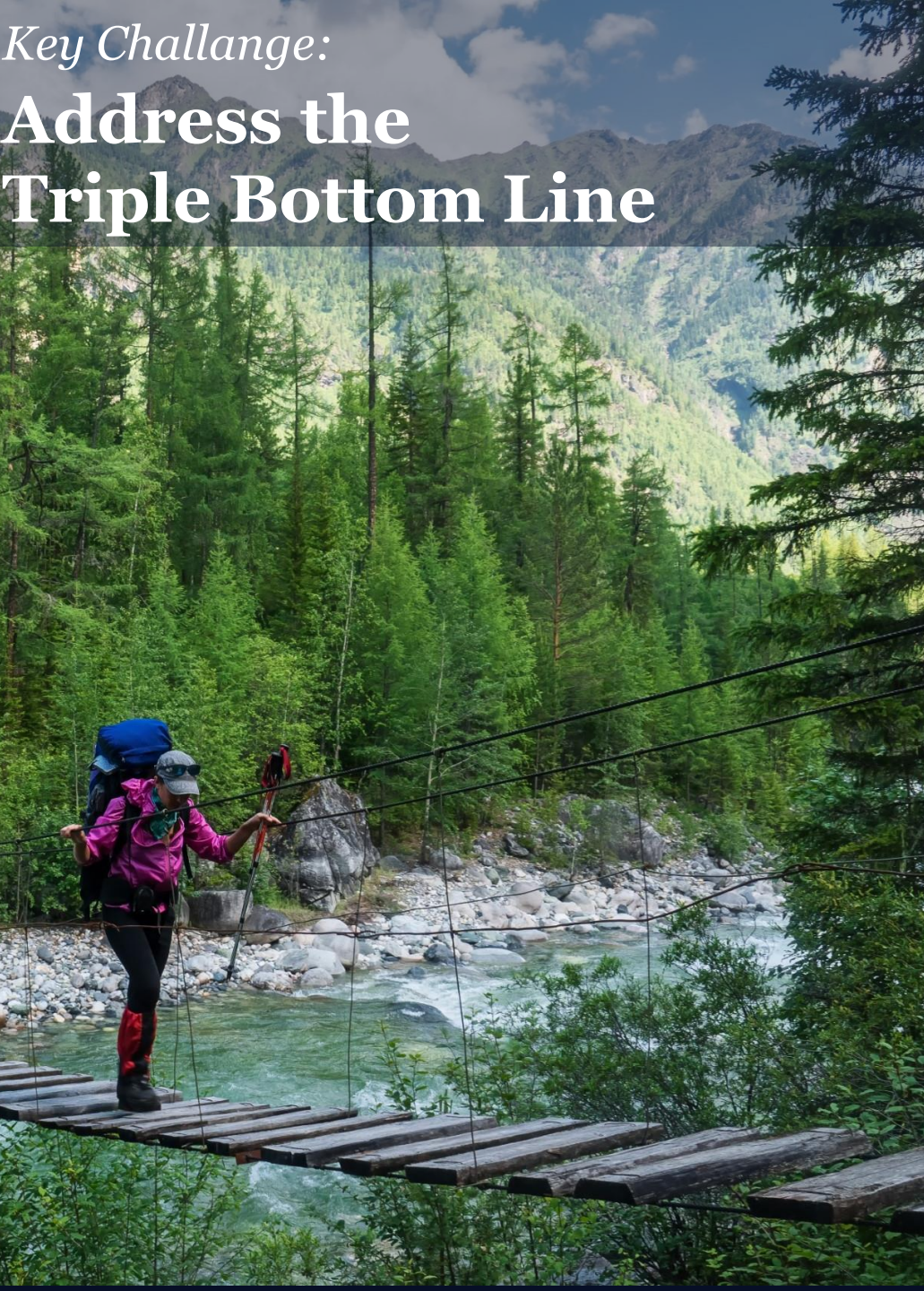
Social factors & general conditions

Social factors and general conditions such as a change in lifestyle due to an addition to the family or a change to a new employer can, once established, lead to a change in behavior in a particularly lasting way. However, the changes in general conditions and social factors are the most challenging changes with comprehensive rearrangements of different aspects of life.

A popular book *Nudge – Improving Decisions about Health, Wealth and Happiness* (2008), Richard Thaler and Cass Sunstein suggested that if a particular unfortunate behavioural or decision making pattern is the result of cognitive boundaries, biases, or habits, this pattern may be “nudged” toward a better option by providing insights about the very same kind of boundaries, biases, and habits into the *choice architecture* surrounding the behaviour – i.e. the physical, social, and psychological aspects of the contexts that surround and in which our choices take place – in ways that promote a more preferred behaviour rather than obstruct it.

Key Challenge:

Address the Triple Bottom Line



The AI Assistant is a digital solution designed to enhance the visitor experience by providing personalized, precise, and location-based information and advice. It aims to promote local businesses and sustainable behavior, educate visitors about nature, and help manage visitor flow and behavior. Thus it supports the:

