

From Empty Shops to Vibrant Communities: Adaptive Reuse as a Sustainable Response to Retail Decline

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Abstract: Rapid and significant reductions in global carbon emissions are needed to remain within Earth's limits. The construction and operation of buildings account for the largest share of the global consumption of raw materials, and they yield around 40% of global carbon emissions. Leading climate researchers therefore recommend adapting housing needs to existing building stock instead of constructing new buildings. This requires shifting the focus from what we desire to how we can adapt our needs to existing spaces. This paper, a work in progress, examines the misalignment between sustainability ambitions and tourism strategy in a Danish municipality. This municipality has yet to fully integrate the potential of its existing building stock into its tourism plans. This oversight is striking, given the municipality's ambitious goal of achieving CO₂ neutrality and availability of surplus building stock, including vacant retail spaces in shopping streets. Building on this observation, we propose a conceptual framework for incorporating existing buildings into the municipality's tourism strategies. Rather than expanding their climate footprint by constructing new accommodations for tourists, we suggest a solution centered on using vacant spaces and renovating existing structures. Specifically, we envision repurposing vacant retail spaces into holiday apartments, boutique hotels, or other types of housing. This paper lays a foundation for further research to increase awareness of this issue and to test and refine our proposal. The overarching goals are to support sustainable urban development, promote climate-friendly behavior, and strengthen local community and economic vitality in small and medium-sized towns through longer-lasting buildings.

Introduction

The consumption of materials and energy to construct new buildings poses a significant challenge to the effort to maintain global warming below 2°C (Richardson et al., 2023). Urgent and significant reductions in global carbon emissions, along with resilient strategies for addressing climate-related events, are essential to remaining within our planet's boundaries (Assefa & Ambler, 2017; Kuittinen, 2023). Leading experts urge avoiding new construction and instead fulfilling spatial needs by repurposing existing spaces (Kuittinen, 2023). This requires shifting the focus from satisfying users' desires to adapting their needs to existing structures. As Kuittinen (2023, pp. 565–566) suggests, a paradigm shift is needed in which we begin

Europe, with its historic responsibility and capacity to reduce emissions, should lead by integrating this hierarchy into building regulations."

This paper summarizes a work-in-progress study of Danish municipalities' approaches to carbon reduction and new buildings. It focuses on Sønderborg Municipality, which can be seen as an extreme case, to use Flyvbjerg's term (2006). Since 2007, Sønderborg Municipality has worked to reduce its carbon output, aiming to become carbon-neutral by 2029 via the public–private partnership called Project Zero. This goal is highly ambitious. The municipality takes pride in being a frontrunner in climate protection and states the following:

"solving society's spatial needs without considering new buildings as the first solution. Instead, existing buildings should be used and renovated as far as possible.

"Our recipe for a green transition not only has the potential to solve the climate challenge in Sønderborg. It can be used all over the world. We want to show other

cities the way and inspire them to create their own transformation. Every year, we welcome decision makers and journalists from all over the world, who want to know more about our road to carbon neutrality.” (Project Zero, 2024)

Interestingly, while the municipality is intensely focused on carbon remission, they do not take this into consideration in their tourism and trade strategy. Tourism is one of the key avenues for growth in this rural municipality, as they hold the ambition to become the fifth most popular tourist destination in Denmark (Sønderborg Kommune, 2024). In their strategy, tourism is mentioned as one of the municipality’s “lighthouses” together with Project Zero. This makes us wonder why the municipality does not integrate their plans to become carbon neutral into their tourism strategy. Contrary to what one might expect from a municipality with ambitious plans to achieve CO₂ neutrality, Sønderborg Municipality adopts a conventional mindset regarding tourism, supposing that accommodation options for tourists should be provided by building large resorts and new summer houses in designated areas.

The aim of this paper is to suggest alternative ways of approaching tourism in this community—approaches that take a holistic view of the building stock and focus on the adaptive reuse of empty buildings. This approach represents a sustainable solution for climate action that can potentially meet tourism demand and revitalize the local neighborhood while aligning with the municipality’s ambitious plans for carbon reduction.

Background: Challenges on Multiple Levels

This case involves challenges on multiple levels. The climate crisis is a global challenge, while the desire to increase tourism operates on the national and municipal levels. Additionally, we have identified local challenges at what we might call the neighborhood level—where residents, business owners, and tourists are all affected stakeholders.

The climate crisis is an urgent global challenge, and the construction and operation of buildings account for approximately 40% of the world’s energy consumption. Furthermore, buildings are the largest global consumers of raw

materials and contribute roughly 40% of global CO₂ emissions (World Economic Forum, 2022). As such, it is not only the construction of new buildings that results in significant CO₂ emissions; as a general rule, the allocation of new areas for purposes such as summer houses or tourist attractions leads to a permanently higher CO₂ footprint (Hjalager, 2024).

Against this background, climate researchers strongly advocate avoiding new construction and, instead, aligning people’s needs with the existing building stock. This can be achieved by utilizing vacant and shared spaces, renovating existing structures, or extending these spaces and structures where necessary (Kuittinen, 2024).

By 2040, housing shortages are projected to emerge in the 30 Danish municipalities that host larger cities (Sweco & Cobe, 2023), while smaller and medium-sized towns are expected to experience population declines. Sønderborg Municipality is also facing a future of demographic reductions (Sønderborg Kommune, 2023). Consequently, an increasing number of buildings in these areas are likely to become vacant. In many small and medium-sized provincial towns, vacant buildings are already a conspicuous issue (Hjalager, 2024; Realdania, 2024). In addition to population decline, shifting consumer habits have significantly impacted these towns. The rise of malls and online shopping has left many town centers with empty retail spaces, diminishing their appeal and functionality (Alexander & Cano, 2020; Frascet et al., 2021).

Vacant storefronts on shopping streets weaken the vibrancy of urban life at the neighborhood level (Groth & Fertner, 2022; Realdania, 2024). Fewer shops attract fewer visitors, ultimately reducing revenue and forcing even more businesses to close. This vicious cycle undermines the town center’s traditional role as a community hub, making these areas increasingly unattractive to both locals and tourists.

Visits to local towns offer unique experiences that are integral to Denmark’s tourism appeal (Realdania, 2024). Tourists’ interactions with these towns shape their perceptions of Danish culture and society. Lively urban spaces are essential not only for preserving this cultural

appeal but also for supporting local businesses, as tourism generates significant economic value.

In addition to making town centers less appealing to both locals and tourists, vacant buildings harbor significant amounts of embedded CO₂. A climate-friendly approach to addressing this situation should involve efforts to extend the lifespan of existing buildings rather than demolishing them to make way for new construction (Hjalager, 2024; Kuittinen, 2023).

When we examined Sønderborg Municipality's approach to attracting more visitors through the construction of new hotels, resorts, and summerhouses, it became evident that this strategy is disconnected from their plan to reduce the area's climate footprint (Figure 1).

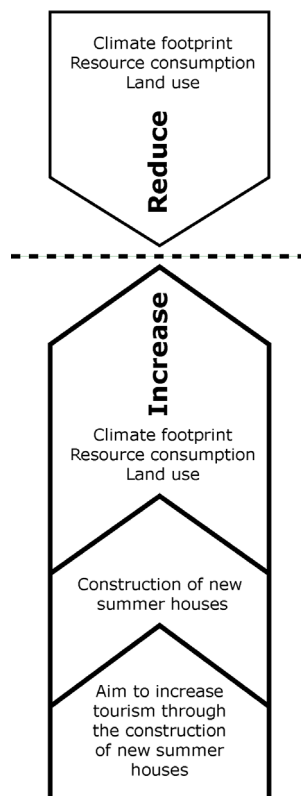


Figure 1. If the goal of accommodating more tourists is achieved by constructing new buildings, it will result in an expanded climate footprint. This contradicts efforts to reduce climate impacts.

A Conceptual Model for Solving Challenges at Various Levels

Revitalizing Empty City Centers and Neighborhoods for Environmental and Social Good

Using Sønderborg Municipality as a case, we can identify several problems that are not unique to Sønderborg but can be found in similar rural coastal communities. Over the past 50 years, the local economy has shifted from being driven by agriculture and industry to focusing on services, with tourism emerging as a particularly important contributor. This shift has been combined with a population decline (Sønderborg Kommune, 2023), leading to empty houses in villages and empty shops in the town centers (Figure 2).

By applying the concept of 'place-based potential' to the issue of existing building stock, we suggest a new conceptual model for addressing the dilemma of how tourism can be increased without a corresponding expansion in carbon footprint due to new constructions.



Figure 2. Empty store in the pedestrian street in Sønderborg in December 2024. Photos by the authors.

Place-based potential refers to the idea that the unique attributes of a geographic area—its

natural resources, cultural assets, economic structures, demographic characteristics, and social networks—can be harnessed to foster development and effectively address challenges. This approach contrasts with “one-size-fits-all” strategies by emphasizing that solutions and strategies should be tailored to the unique circumstances of each place.

The concept of place-based potential is not attributed to a single individual but has rather emerged from interdisciplinary fields, such as geography, urban planning, regional development, and the social sciences. This idea has been shaped by scholars and policymakers exploring the unique characteristics of specific locations and how they can be leveraged for social, economic, and environmental development. The concept gained significant traction in academic and policy discussions in the late 20th and early 21st centuries. Influential frameworks include the European Union’s place-based approach, wherein the Barca Report, named after Fabrizio Barca (2009), outlines a participatory and context-sensitive framework for regional development, arguing against uniform approaches.

In the Danish context, the concept of place-based potential has been applied to address regional inequalities by redirecting the focus to the unique resources and characteristics of localities, especially in rural and peripheral areas (e.g., Tietjen & Jørsensen, 2016). It is widely used by the charitable trust Realdania, which funds projects in peripheral rural areas, including Sønderbog Municipality. In this paper, we are inspired by some of these projects. Our approach encourages efforts to revitalize such regions through strategic planning that emphasizes local assets, community engagement, and sustainable development strategies tailored to specific regional challenges.

Instead of expanding the area’s climate footprint by constructing new buildings, we envision a solution in which the municipality implements the adaptive reuse of buildings, such as empty shops on shopping streets. This approach could enhance climate-friendly behavior, improve quality of life and the community for locals, and strengthen local businesses, while simultaneously enriching tourists’ experiences in Denmark (Figure 3).

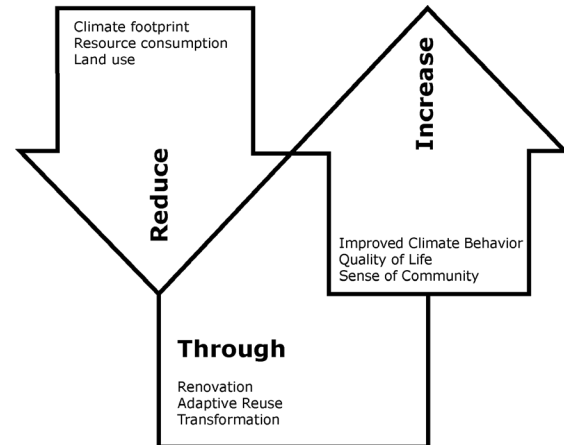


Figure 3. Our solution is one that, through the renovation of existing buildings, promotes climate-friendly behavior, enhances quality of life and the community for locals, and strengthens local businesses, while also improving the experience for tourists—all without constructing new buildings.

Challenges and Suggestions for Future Studies

Our proposal is entirely conceptual. This highlights the need for future studies to explore the potential of creating attractive settings for tourists through adaptive reuse, while simultaneously strengthening local life by developing design models and services that address the needs and aspirations of both tourists and locals.

A challenge of this approach may be managing stakeholders’ expectations. To repurpose buildings originally constructed for different purposes involves practical challenges and will lead to different user experiences compared to purpose build constructions. This may, however, not be negative: A recent study on adaptive reuse and café design found that new occupants gained unexpected benefits such as spaciousness and unique atmospheres (Münster 2024).

We envision that our future studies will focus on 1) analyzing exemplary cases from other places, 2) exploring the place-based potential of the existing local building stock, and 3) conducting thorough investigations into the local needs, challenges, and aspirations of various stakeholders, including tourists, residents, local businesses, and policymakers.

In terms of exemplary cases, this would involve examining successful projects within the chosen municipality, elsewhere in Denmark, and abroad, and analyzing how these cases cater to both tourists and locals. This could include cases such as the small Frederiksberg-based boutique accommodation, Central Hotel and café (Figure 4), where overnight guests dine alongside locals in the neighborhood café on the ground floor.

On a larger scale, Copenhagen's Kanalhuset (Figure 5) offers accommodation for tourists along with activities for locals such as communal dining, yoga classes, and knitting clubs, where tourists can participate and meet locals. In addition to tourist accommodations, the hotel offers large rooms for meetings and parties, as well as smaller dining rooms with kitchens for locals hosting dinner guests.

As a result of their thoughtful design and service model, both hotels are centrally located in urban areas and have successfully integrated accommodation spaces with areas for locals to gather.



Figure 4. Photo of Central Hotel and Café, which houses both hotel rooms and a neighborhood café Photo by Central Hotel and Café.



Figure 5. Photo from Kanalhuset, which offers hotel rooms as well as communal dining, and activities like yoga classes and knitting clubs for locals as well as guests. Foto by the authors.

Locally, future research could examine cases such as Als Kloster, which houses a bed and breakfast for tourists, particularly those hiking along the Gendarmstien, while also hosting events and communal dining for both locals and tourists within the setting of a former monastery. The monastery's history is integrated into the experience through storytelling, making it a part of the user experience (Figure 6).

Identifying the locations that offer suitable place-based potential involves identifying and analyzing the opportunities within the local building stock and evaluating how these spaces can benefit both locals and tourists. In terms of studying local needs and challenges, we recommend participatory methods that engage locals, tourists or tourism agencies, urban planners, local politicians, and representatives of local business associations.

To take the project a step further, it could be considered whether vacant properties in small and medium-sized provincial towns facing future housing surplus can be viewed not only

as holiday homes but also as part of the solution to the housing shortage in bigger cities (Bevar Mere, 2024). For example, could housing in coastal municipalities be made so attractive that residents, institutions, or businesses from more densely populated areas would be encouraged to relocate to properties in these sparsely populated towns?



Figure 6. Als Kloster, which houses a bed and breakfast for tourists, while also hosting events and communal dining for both locals and tourists within the setting of a former monastery. Foto by the authors.

Conclusions

Through an analysis of Sønderborg Municipality's development strategy, we have identified a paradoxical relation between the municipality's two primary goals: achieving CO₂ neutrality and attracting more tourists. The municipality's strategy for increasing tourism involves constructing new resorts and summer houses, which contradicts their ambition to reduce carbon emissions. In line with expert recommendations to halt new construction as a means of lowering CO₂ emissions, we propose a comprehensive model that reconciles climate challenges with tourism aims. This model aims to foster climate-conscious behavior, promote tourism, revitalize towns, and enhance the well-

being of locals and business owners through the adaptive reuse of existing buildings.

The adaptive reuse of vacant spaces—for example, reimagining vacant retail spaces as boutique hotels or other lively hospitality venues—offers a promising solution to pressing climatic and social challenges in Denmark.

This article lays the basis for further research and collaboration with stakeholders to test and refine these ideas. This will serve the ultimate goal of supporting sustainable urban development, encouraging climate-friendly behavior, and strengthening local culture and economic vitality in Sønderborg Municipality, in other Danish municipalities, and beyond.

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